

**T.C.
REPUBLIC OF TURKEY
HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF HALTH SCIENCES**

**ANALYSIS OF THE PREVALENCE, TRENDS,
DETERMINANTS AND DYNAMICS OF CONTRACEPTIVE USE
AND ESTIMATE OF UNMET NEED FOR FAMILY PLANNING
IN PAKISTAN**

(Further Analysis of the Pakistan Demographic and Health Surveys)

Dr. Fahad AHMED

**Program of Epidemiology
DOCTOR OF PHILOSOPHY THESIS**

ANKARA

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**ADVISOR OF THE THESIS
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and Estimate of Unmet Need for Family Planning in Pakistan (Further Analysis of the Pakistan
Demographic and Health Surveys)**

Fahad Ahmed

Supervisor: Prof. Dr. Bahar (Güçiz) Doğan

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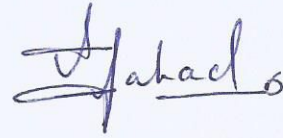
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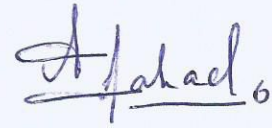


Dr. Fahad AHMED

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ETHICAL DECLARATION

In this thesis study, I declare that all the information and documents have been obtained in the base of the academic rules and all audio-visual and written information and results have been presented according to the rules of scientific ethics. I did not do any distortion in data set. In case of using other works, related studies have been fully cited in accordance with the scientific standards. I also declare that my thesis study is original except cited references. It was produced by myself in consultation with supervisor Prof. Dr. Bahar GÜÇİZ DOĞAN and written according to the rules of thesis writing of Hacettepe University Graduate School of Health Sciences.



Dr. Fahad AHMED

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ABSTRACT

AHMED, F. Analysis of the Prevalence, Trends, Determinants and Dynamics of Contraceptive Use and Estimate of Unmet Need for Family Planning in Pakistan. Hacettepe University, Graduate School of Health Sciences, Epidemiology Program Doctor of Philosophy Thesis, Ankara, 2018. Family Planning is widely recognized as a cost-effective intervention linked to the Sustainable Development Goals. The world 6th most populous yet, lower middle income country Pakistan is at the cusps of demographic dividend. However, the slow fertility decline urged Government of Pakistan to scale up family planning program combined with robust population and developmental policies. That will not only control over population but also provide advantage of demographic dividend. The objective of the study was to examine the trend in contraceptive prevalence and level of unmet need for family planning, and to identify association between individual, spousal, household and community level covariates with the contraceptive use and unmet need for family planning in Pakistan. Together with this, contraceptive discontinuation, switching behavior and user failure rates were also examined. Data was extracted from Pakistan Demographic Health Surveys (1990-91, 2006-07 and 2012-13). Frequency tables were constructed to examine the trends. Logistic regression was employed to explore the relative effects of covariates on use of contraception and unmet need for family planning among currently married aged 15-49 women. Life tables were used for analysis of contraceptive discontinuation, switch and user failure rates. Results shows that current use of contraception increased from 11% in 1990 to 35% in 2012 meanwhile unmet need for family planning declined from 32 % to 20%. Remarkable heterogeneity in contraceptive use as well as unmet need was evident among different regions and different ethnic groups. The mean ideal number of children desired remained at four and intention for future use of contraception was decreased. The husband fertility desire, number and sex of children, exposure to media message, visit by Lady Health worker, place of residence and wealth status were significantly associated with current use and level of unmet need for family planning in Pakistan. It was found that one-third of episodes of contraceptive use were discontinued within a year of initiation. The highest discontinuation rate was for hormonal methods, side effects were the main reason for discontinuation. The 12 month gross failure rate for pill, condom, and withdrawal was 10.3%, 9.3% and 10.4% respectively.

Key words: family planning; contraceptive use; unmet need; discontinuation rate; contraceptive failures.

ÖZET

AHMED, F. Pakistan'da Aile Planlaması Yöntem Kullanma Prevalansının Belirleyicileri, Dinamikleri ve Eğilimler ile Karşılanmamış İhtiyacın Değerlendirilmesi, Hacettepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Epidemiyoloji Programı Doktora Tezi, Ankara, 2018.

Aile Planlamasının, Sürdürülebilir Kalkınma Hedefleriyle bağlantısı olan maliyet etkili bir müdahale olduğu yaygın bir şekilde kabul görmektedir. Dünyanın altıncı en kalabalık ancak düşük orta gelirli ülkesi Pakistan, büyük bir genç çalışabilir nüfusa sahip olmanın getirdiği ekonomik büyüme potansiyeli (demografik fırsat penceresi) açısından bir dönüm noktasındadır. Ancak, doğurganlıktaki yavaş düşüş Pakistan Hükümetini güçlü nüfus ve kalkınma politikaları ile birleştirilen aile planlaması programını genişletmeye zorladı. Bu sayede sadece nüfusun kontrolü değil, aynı zamanda demografik fırsat penceresinin avantajı da sağlanacaktır. Çalışmanın amacı doğum kontrolü kullanım sıklığındaki trendi ve aile planlaması için karşılanmamış gereksinim düzeyini incelemek ve Pakistan'da doğum kontrolü yöntemi kullanımı ve aile planlaması için karşılanmayan ihtiyaç ile bireysel, eş, hane halkı ve toplum düzeyi değişkenleri arasındaki ilişkiyi tanımlamaktır. Bununla birlikte, doğum kontrolünde devamsızlıklar, yöntem değiştirme davranışı ve kullanıcı başarısızlık hızları da incelenmiştir. Veriler Pakistan Demografik Sağlık Araştırmaları'ndan alınmıştır (1990-91, 2006-07 ve 2012-13). Eğilimleri incelemek için frekans tabloları oluşturulmuştur. 15-49 yaş grubundaki kadınlar arasında doğum kontrol yöntemlerinin kullanımı ve aile planlaması konusundaki karşılanmamış ihtiyaçların göreceli etkilerini araştırmak için lojistik regresyon uygulanmıştır. Doğum kontrolünde devamsızlıklar, değiştirme davranışı ve kullanıcı başarısızlık hızları analizinde yaşam tabloları kullanılmıştır. Sonuçlar, mevcut doğum kontrol yöntemi kullanımının 1990'da % 11 iken, 2012 yılında % 35'e yükseldiğini göstermektedir. Bu arada, aile planlamasına yönelik karşılanmamış ihtiyaç % 32'den % 20'ye düşmüştür. Farklı bölgeler ve farklı etnik gruplar arasında karşılanmamış gereksinim varlığında olduğu gibi doğum kontrol yöntemi kullanımında da dikkate değer heterojenlik belirgindir. İstenen ortalama çocuk sayısı dört olarak kalmaya devam etmiştir ve gelecekte doğum kontrol yöntemi kullanımı isteği azalmıştır. Kocanın doğurganlık arzusu, çocukların sayısı ve cinsiyeti, medya mesajına maruz kalma, Kadın Sağlığı çalışanının ziyareti, ikamet yeri ve refah durumu, Pakistan'da mevcut doğum kontrol yöntemi kullanımı ve aile planlaması için karşılanmamış gereksinim düzeyi ile önemli ölçüde ilişkili bulunmuştur. Doğum kontrol yöntemi kullanım epizotlarının üçte birinin başladıktan sonra ilk bir yıl içinde kesildiği bulunmuştur. En yüksek yöntem bırakma hızı hormonal yöntemler içindir ve yan etkiler yöntem devamsızlığının ana sebebidir. Hap, kondom ve çekilme için 12 aylık brüt başarısızlık oranı sırasıyla % 10,3 , % 9,3 ve % 10,4 olarak hesaplanmıştır.

Anahtar Kelimeler: aile planlaması; kontraseptif kullanımı; karşılanmamış aile planlaması ihtiyacı; yöntem bırakma hızı; doğum kontrol başarısızlıkları.

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10.	CURRICULUM VITAE	

ABBREVIATIONS

A.D.	After Death
AIDS	Acquired Immune Deficiency Syndrome
B.C.	Before Christ
BHU	Basic Health Units
CBR	Crude Birth Rate
CDR	Crude Death Rate
CPR	Contraceptive Prevalence Rate
CRPRID	Center For Research On Poverty Reduction And Income Distribution
C.I.	Confidence Interval
CMS	Continues Motivation System
CMWs	Community Male Workers
DHS	Demographic and Health Survey
etc.	And so on
e.g.	For example
FATA	Federally Administrative Tribal Areas
FANA	Federally Administered Northern Areas
FP	Family Planning
FP2020	Family Planning 2020
GDP	Gross Domestic Product
GPS	Geographic Positioning System
Gov.	Government
HIV	Human Immunodeficiency Virus
ICPD	International Conference On Population and Development
IUD	Intrauterine Device
IMR	Infant Mortality Rate
LAM	Lactational Amenorrhea
LHWs	Lady Health Workers
MDGs.	Millennium Developmental Goals
MHSP	Minimum Health Service Package
MNCH	Maternal and Child Health Program
N.A.	Not Available.
NGO	Non-Governmental Organizations
NHS	National Health Survey
NHSR&C	National Health Services, Regulations And Coordination
NIPS	National Institute Of Population Studies
No./n	Numbers
NRIFP	National Research Institute For Family Planning
NWFP	North West Frontier Province
PBS	Pakistan Bureau of Statistics
PCPS	Pakistan Contraceptive Prevalence Survey
PDHS	Pakistan Demographic And Health Surveys
PRSP	Poverty Reduction Strategy Paper
PSUs	Primary Sampling Unit

RH	Reproductive Health
RHC	Rural Health Centers
Ref	Reference Group
SDM	Standard Days Method
SDGs	Sustainable Developmental Goal
SPSS	Statistical Packages For Social Sciences
STDs	Sexually transmitted Diseases
TFR	Total Fertility Rate
USAID	United States Agency For International Development
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific And Cultural Organization
US/ USA	United State of America
WFS	World Fertility Survey
WHO	World Health Organization
YADR	Young Age Dependency Ratio

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1. INTRODUCTION

1.1. Background of Research Problem

1.1.1. Global Population Expansion

History of human population suggests that for hundreds of years, growth of human population was very slow (1), this collapse was caused by famine, war and disease on a global scale. In 19th and 20th century due to the industrial revolution, agricultural technology improved which in turn helped to achieve better public health and sanitation. Due to this uplift, the world population has dramatically changed at the greatest exponential growth rate compared to the past history of mankind (2). The US Census bureau ascertains that in 2017, world population is more than 7 billion (3), yet two hundred years trending, prior to the nineteenth century the population was under 2 billion (4). The above measures speculate that 6.5% of those people are still alive as of present-day (5).

Figure 1.1 illustrates that at the beginning of 19th century the global annual growth rate remained less than 1% (4), however, by the year 1900, it progressively ascended and in the year 1962, it has reached to the highest historical level of 2.1% (4). After this peak, during the latter half of the twentieth century, it has been gradually running down with United Nations Population Division projection estimating 0.1% global growth rate for the year 2016 (6).

The twentieth century has been predominantly characterized by the sensible discussions on human population and well-being. In the meantime, the extensive growth of population has encouraged governments to take measures for the betterment of their citizens in terms of socio-economic and demographic factors, which has resulted in methodological research, modified concepts and strategic development in the field of demography, reproductive health and public health in general.

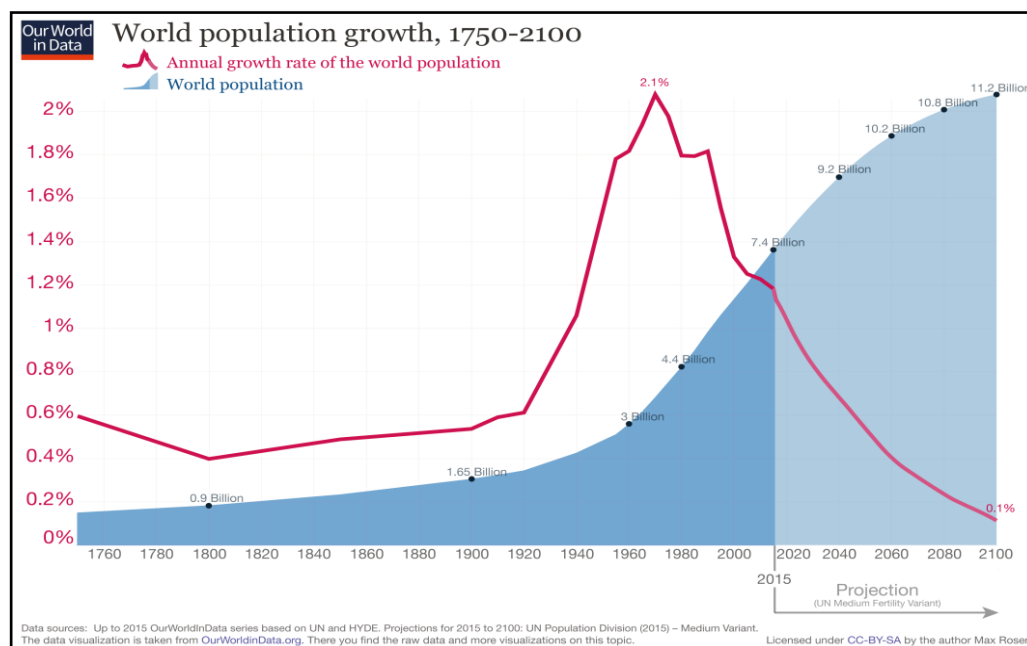


Figure 1.1. World population growth 1750 to 2100.

Figure adopted from Our World in Data (4).

Since the middle of 1960s, there has been a declining trend in the global population growth (4). However, this global population growth pattern under cover immense heterogeneity across countries and regions. While Russia, Ukraine and Belarus are the countries currently with negative natural increase, Europe and Japan have nearly zero annual growth rates. However, many countries in Sub-Saharan Africa have annual growth rates greater than 3% (7) – which is still higher than the peak growth rates recorded for the world at the beginning of the 1960s. This heterogeneity results in great disparity among developed and developing countries on demographic and health indicators.

Historically Asia ranks number one among regions of the world ordered by population. Based on the latest United Nations estimates, the current population of Asia is 4.5 billion as of January, 2017 (6). This is equivalent to 60% of the total world population of which 25% of the world's share living in Southern Asia. Pakistan stands second after India as the most populous country in South Asia (6). The current estimated population of Pakistan as of January 2017 is about 198 million making it the sixth most populous country in the world (6). The population of Pakistan share 2.6% of the world's population (6). In other words, 1 in every 36 people on earth is a Pakistani national.

Figure 1.2 presents the United Nations (UN) Population Division estimates for 1955-2015 and projections for 2016-2100 of annual population growth rate by country (8). This figure shows that since the 1960s, annual population growth rates in most of the Asian countries have dropped. Furthermore, in some cases there has been diverging trends in growth rates from same starting level. For instance, Indian and Pakistani population had comparable growth rate of about 1.7% in 1960 but took a different path altogether in the next several years. Currently, Indian population is annually growing by 1.26% and Pakistani population is growing by 2.67%. With this rate Pakistan is expected to be fifth largest country by 2050 with a population of around 300 million (6).

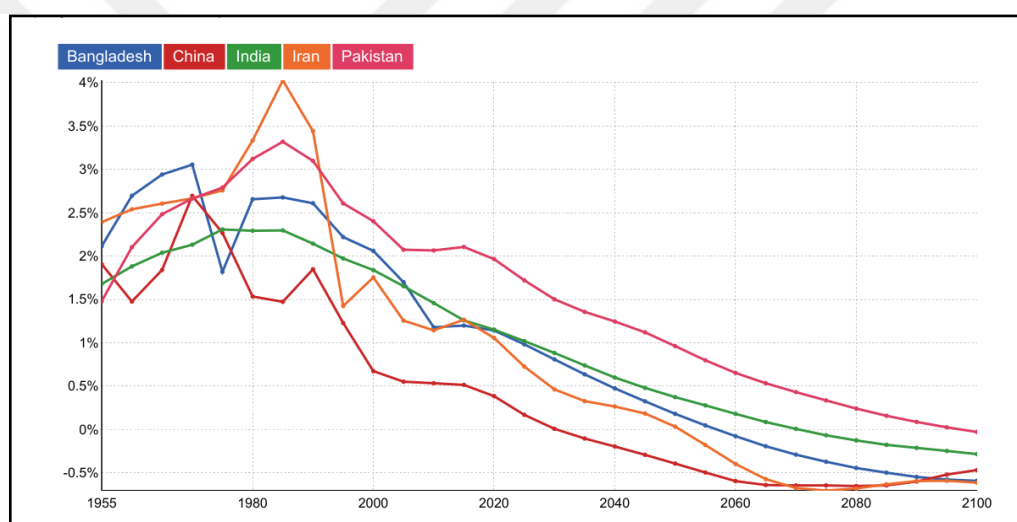


Figure 1.2. UN Population Division estimates and projections for average annual population growth rate for a period of one and half century by Bangladesh, China, India, Iran and Pakistan (8).

Figure adopted from Our World in Data (4).

1.1.2. Historical background of Pakistan's Population

The land that is now comprised of Pakistan had been at one time part of the highly developed and advanced civilization of the ancient times that had flourished around the river Indus. The history of Indus valley dates back to almost 2,500 years B.C and research has shown that Indus had a population of roughly five million (9). The people of Indus were well ahead in the art of constructing cities. Scholars believe that it was one of the most sophisticated ancient time's societies(9). Later in

the history this land was conquered by many foreign invaders starting from Aryans and Alexander to British imperial powers.

In 711 A.D., Arab soldiers arrived in Sindh region of Indian subcontinent where majority of population was Hindu by religion; they brought the religion of Islam with them and Muslims then started to settle as the ruling class on this land for the first time (10). Subsequent Muslim incursions from Central Asia expanded Muslim dynasty all over the subcontinent and led to establishment of Sultanate of Delhi (10). Later, the subcontinent gradually came under British rule by the foundation of British East Indies Company in 1599 by a group of merchants in search of just peaceful trade, and from 1858 to 1947, Indian subcontinent was under the British Crown (11).

Struggle for the independence of British India was started in 1906 by Muslim political party **All-India Muslim League** and the famous Muslim philosopher and poet **Muhammad Iqbal** who created the ideology of ‘Two Nation Theory’ in defining the nationality of Indian Muslims (12). This theory in its simplest way implies the cultural, political, and socioeconomic dissimilarities between the two noteworthy religious groups, Hindus and Muslims of the Sub Continent. These differences were greatly instrumental in giving rise two distinct political ideologies and the strong advocacy of this ideology was taken by **Muhammad Ali Jinnah**, who turned it for the awakening of Muslims for creation of independent Muslim majority state Pakistan which victoriously led to the partition of British India in 1947 by the British Empire into two independent states, Hindustan and Pakistan for two separate nations (12).

1.1.3. Physical Features of Pakistan and Country Profile

The Islamic Republic of Pakistan is created in the name of Islam with partition of British India in 1947. It is a federal parliamentary country in South Asia, bordered with Afghanistan, Iran, India and China. Pakistan has 1,046 kilometers long seaboard along the Arabian Sea. The total land area is about 796,096 square kilometers (13), and it is the 36th largest country in the world by area (14), but ranks sixth most populous country with about 200 million people (6). Administratively, Pakistan is made of four provinces along with the Federally Administrative Tribal

Areas (FATA), Azad Kashmir, and the Gilgit-Baltistan region. The capital of Pakistan is Islamabad (13). **Karachi** is the largest and most populous city in Pakistan; with the population of more than 15 million it ranks as the 5th largest metropolitan city in the world, having a population density of over 24,000 people per square kilometre (15).

Urdu is the official language of Pakistan, however there are many different regional languages spoken around the country; which makes Pakistan an ethnically and linguistically diverse country. The topography and climate of Pakistan are diverse in nature too. It has all the four seasons ranging from bright sunny skies to snow covered mountains of Himalayas.

With about 47% agricultural land and 64% rural population (13), agriculture is indispensable to the Pakistan's economical development. As a prominent sector, it shares 21% of Pakistan's gross domestic product (GDP) (16). A large portion of the Pakistan's manufactured exports rely on raw materials such as cotton yarn, house linens, rice and leather apparel that are part of the agriculture sector. According to the World Bank ranking (17), Pakistan is a lower middle income country with the Gross Domestic Product per capita recorded at 1142.70 US dollars in 2015 (18).

The health and the education sectors are somewhat neglected. According to the World Health Organization (WHO) (19) and United Nations Educational, Scientific and Cultural Organization (UNESCO) (20) data, health and education expenditure in terms of total percent of GDP in Pakistan was measured at 2.75% and 2.45% respectively in the year 2014. Furthermore, by means of 56% adult literacy rates, UNESCO (20) list Pakistan among lowest literate countries in the world and female adult literacy rate is only 42%. These figures highlights need for the government to play a more active role by investing time and money in making better policies that can give a boost to these underserved sectors.

1.1.4. Demographic Transition in Pakistan

John Bongaart (21) asserts that the human demographics have evolved as a result of the association between the birth rate and the death rates, in the course of last 300 years. The 20th century marks the advancement of science and technology and progress in the field of medical science that has greatly impacted the health and

wellbeing of people around the globe. Factors such as conquest of infectious diseases, control of epidemics, improved nutrition and hygiene have attributed to sustained mortality reduction (22). However, this sustained drop in the death rate before the birth rate showed quick impact on the population size of the society. Along with the modernization and cultural changes, there has been a shift in family values; underscoring the quality rather the quantity of children. In his paper, Bhakta (23) argued that the uneven fertility decline in India demonstrates valuing women's empowerment, which led women to have their own reproductive decisions and resulted in smaller family size.

Reasoning from the above facts, societies today have gone through a fairly well defined pattern of transformation from a pre-modern era of high fertility and mortality to a post-modern era of low fertility and mortality. The corroboration and consideration of this global event has formulated a stereotypical model, acknowledged as the 'Demographic Transition Model', which is used to demonstrate the changes in population demographics. Prior to the transition, population growth was nearly zero because high death rate negates high birth rate. Population growth became zero later the accomplishment of the transition as the birth and death rates both achieve bottom most level (21). This demographic transition is becoming a universal phenomenon in which almost every nation had a continuum of evolution at a distinctive rate and a peculiar time. While Europe had achieved the new demographic balance, most of the Asian and African countries are still in imbalance transitional stage because of slow fertility transition (22). As regarded from Figure 1.3, Pakistan is among one of those nations that entered the fertility transition not only very late but also its rate of progression is very slow as compared to other countries in the region (8).

It is evident that high fertility in the initial and intermediate stages of demographic transition eventually results in large number of youthful population; and if the fertility transition remains slows (as in Pakistan), this young population perpetuates high birth rate over the following decades, which results in further expansion of the population hence, the country becomes trapped in the transitional stage for a long time. Keyfitz (24) describes this young population effect as "Population Momentum". Therefore, the slow pace of transition along with

population momentum will expected to result in exponential growth of population in Pakistan over the next coming years, even if the total fertility rate (TFR) declines to replacement level.

TFR

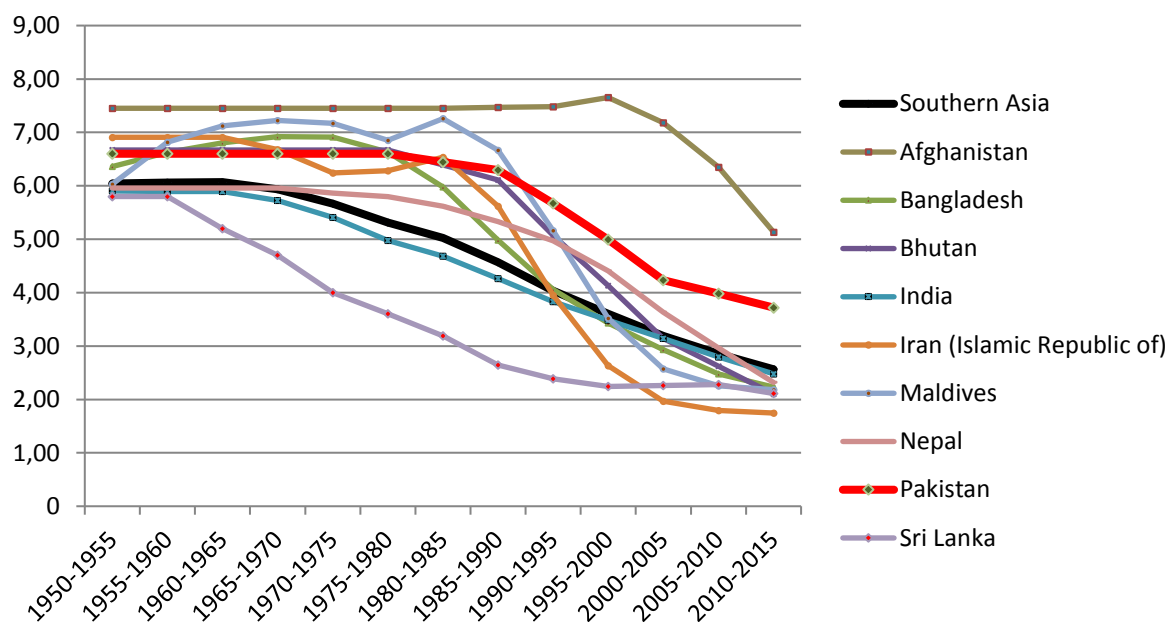


Figure 1.3. Fertility decline in south Asia 1950-2015 (8).

For portraying demographic transition of Pakistan, UN population projections dataset (8) was utilized in preparing the graph to represent what may be the demographic future population of Pakistan. There are three variants of UN projections, low, medium and high, based on fertility, mortality and net migration assumptions (25). In order to get a better adjusted projection of the future, 'medium variants' of UN population projections was applied here while avoiding best and worst projections using low and high variant. It is important to note that projections are speculations, based on assumptions and are provide with a framework, however, these estimates can be used as guidelines to devise the future strategies.

Figure 1.4 exhibits the demographic transition of Pakistan over a period of century (1950-2050). It is evident from the figure that the crude death rate (CDR) in year 1950 was about 24 per thousand, and then it fell systematically and sharply and was measured to be around 7 per thousand for year 2015. In the meantime, the crude

birth rate (CBR) also declined slowly and gradually from the year 1950 when it was measured as 45 per thousand to estimated value around 29 per thousand for the year 2015 (8). Likewise, during this dragging transition period population of Pakistan had grown more than five times from about 36 million in the year 1950 to about 188 million in the year 2015.

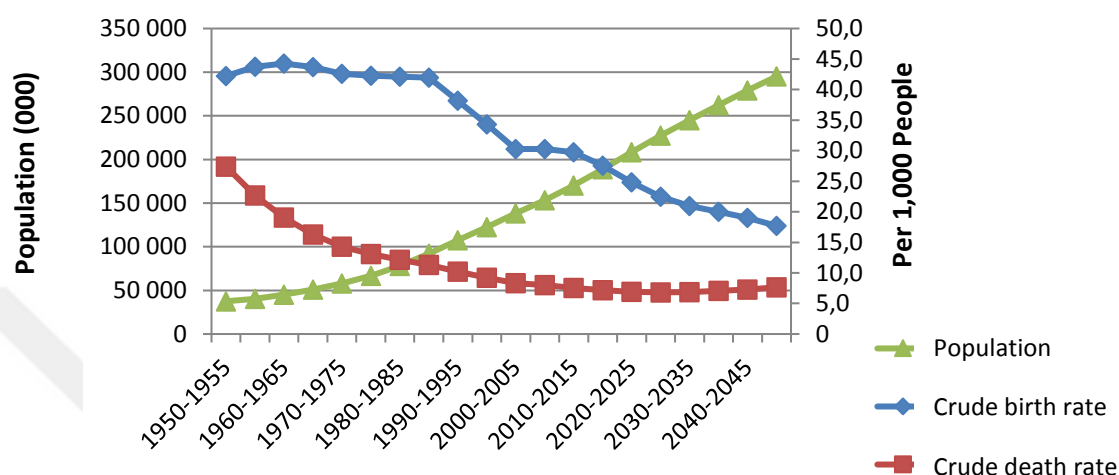


Figure 1.4. The demographic transition of Pakistan; 1950 to 2050 (8).

Historical trend of annual population growth in Pakistan was presented before in Figure 1.2. It can be seen that till mid 1960s the growth rate was slow and around 2 percent. However, the population growth rate peak to climax value up to 3.5 percent increase per year in 1980s and then it began to drop constantly in early 1990s. The estimated growth rate is about 2.1% for the year 2016. As evident from figure, this annual growth rate is still well above the other neighbouring Asian countries having similar socioeconomic conditions (8). The slow fertility transition in Pakistan is reflected by trend in total fertility rate given in Figure 1.5. It is evident from this figure that Pakistan had seen a noticeable decline in fertility during the 1990s with total fertility rate (TFR) sliding from more than 6 children per woman to about 4.5 children by the year 2000. Assuming that the medium variant UN population projection (8) is converted into real phenomena, Pakistan is expected to achieve replacement level fertility rate somewhere around year 2050.

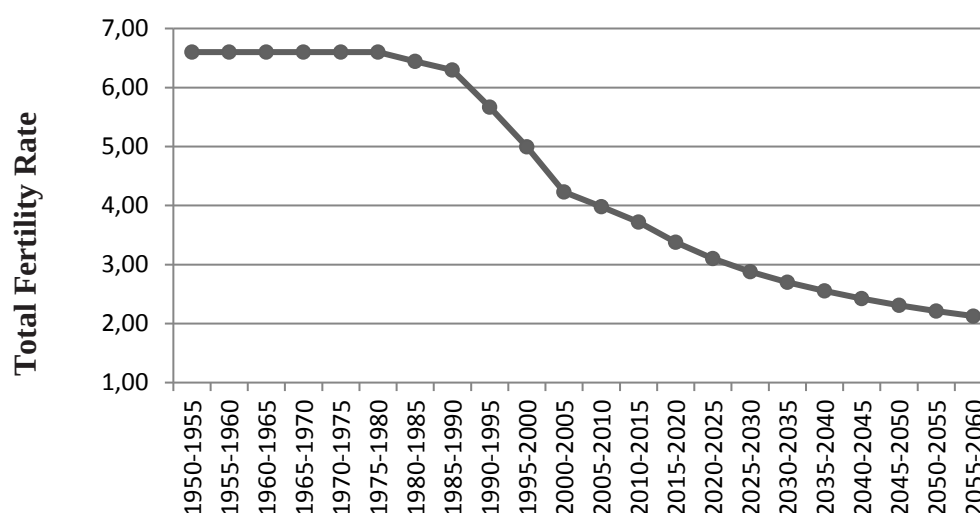


Figure 1.5. Trend in total fertility rate in Pakistan (8).

Infant mortality is one of the important indicators of health and development (26). Reduction in infant mortality increases the probability of survival during the successive stages of life and ultimately formulates an increased life expectancy. Figure 1.6 shows infant mortality rate in Pakistan dropped from approximately 250 in the year 1950 to 102 in late 1990s and 67 in 2015 (8). This rapid decline in infant mortality is instrumental for the high life expectancy while diverging fertility and mortality indicators resulted in escalation of population growth rate. The cumulative effects of these trends reveal an increasing median age and draw a youthful picture of current Pakistani population.

Figure 1.7 demonstrates that the population median age in Pakistan began to rise in early 1980s when the median age was recorded as 18 and now in year 2017 it is 23. It is further estimated to increase and will be 33 years by 2050 (8). In other words, Pakistan's population demographics has evolved over time, that means, its survival rate has improved, and there has been a shift seen in the trend from adolescence to youth.

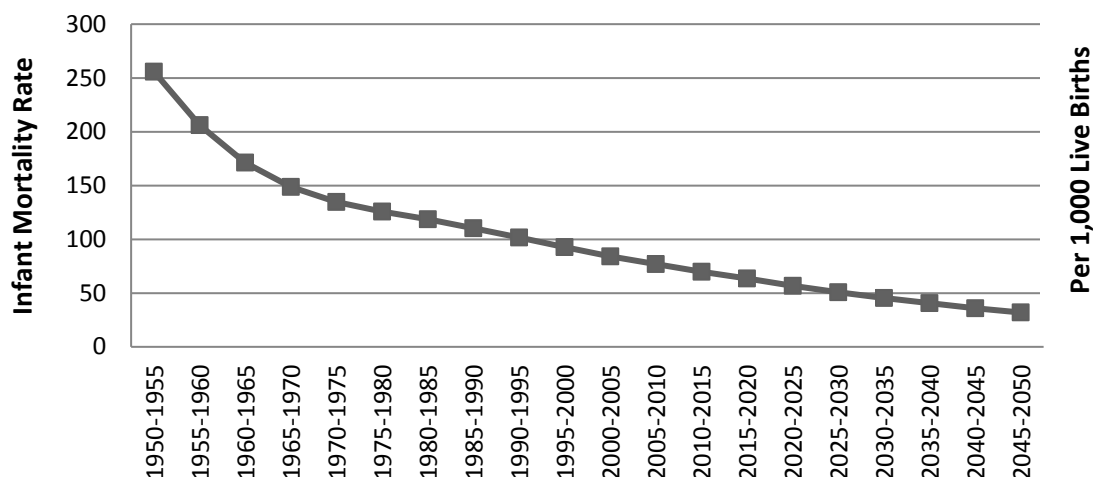


Figure 1.6. Trend in infant mortality rate in Pakistan (8).

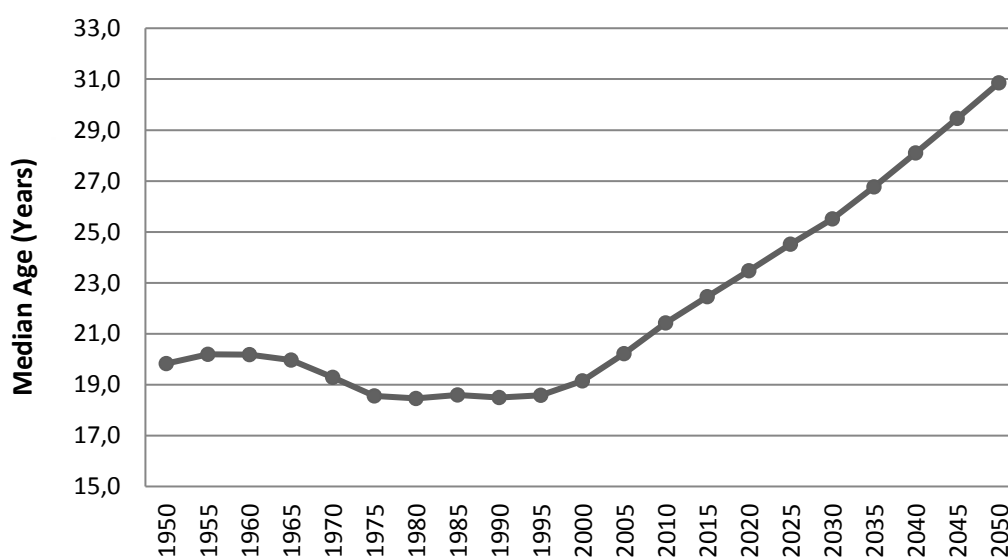


Figure 1.7. Trend in median age of the population in Pakistan (8).

A 'Population Pyramid' is a perfect approach to present changes in the age structure of the population. Figure 1.8 presents population pyramid of Pakistan over a century with 25 years apart. The population age structure during early half of the century looks like a classical demographic pyramid with slight shrinkage at the base. In the year 2025, the age structure of population shows a plausible shift with the figure changing its pyramidal appearance; and in the following 25 years the

population age structure undergoes remarkable modification from its previous shape and approach to an almost cylindrical shape (8).

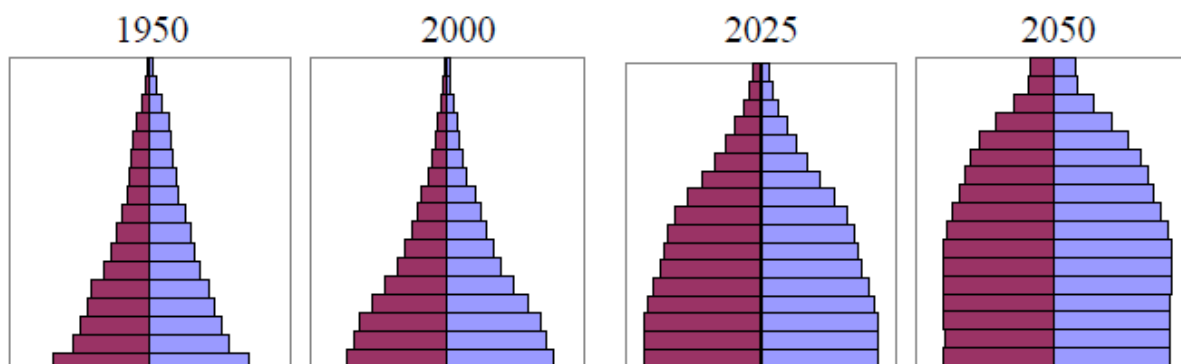


Figure 1.8. Population pyramids of Pakistan for years; 1950, 2000, 2025 and 2050 (8).

As mentioned earlier, demographic transition is almost always accompanied by alteration in the age composition of population and the age structure (as shown in Figure 1.9), which in turn, influences the fiscal performance of the country. Large number of young or old dependency ratio tends to draw relatively high proportion of resources for consumption, often limiting economic growth.

During the early stage of demographic transition, young age dependency ratio (YADR) first rises as a result of increased fertility and child survival; in later stages with declining fertility YADR falls and birth cohort of previous stage moves into working age group. This rising proportion of working age group creates an opportunity for economic growth of the population. As there are more earning hands, there is an increase in the labour force which results in high per capita income, which also indicates less spending on care.

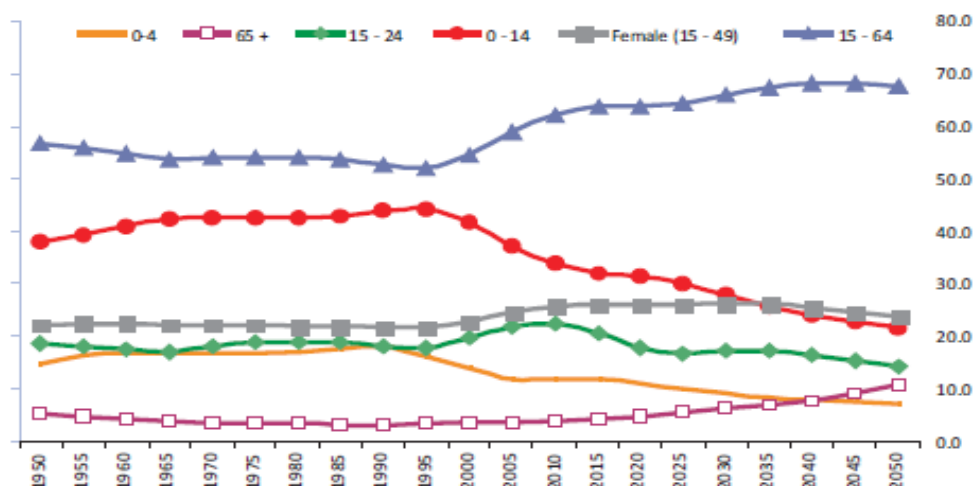


Figure 1.9. The age structure and composition of Pakistani population during demographic transition (8)

Utilizing the advantage of demographic transition for economical growth and development is known as the 'demographic dividend' by Bloom and Jeffrey (27). This is a onetime fixed interval reward for society passing through transition period. The gradual transition in young and old age dependency ratio in Pakistan over a period of 150 years is evident from Figure 1.10.

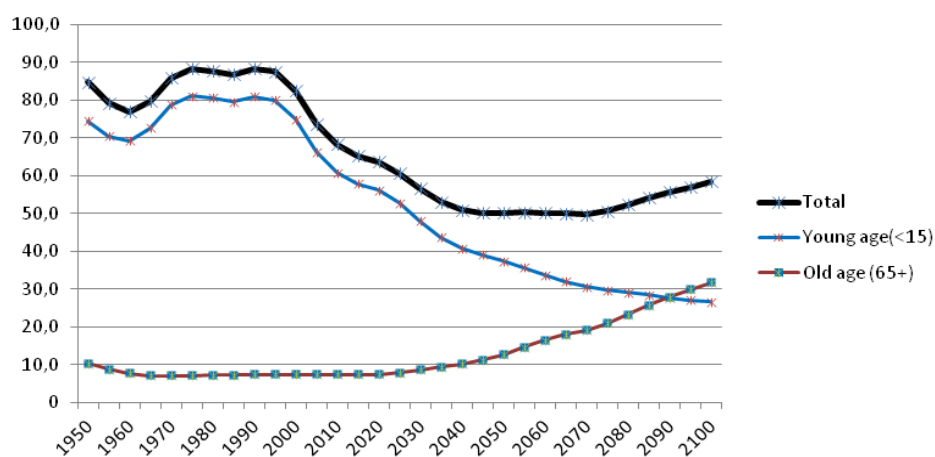


Figure 1.10. Age dependency ratio in Pakistan for the period of 1950-2100 (8).

It is vital for a country to establish effective policies in the field of education, job-creation, and governance as these are crucial to attain a sustained growth cycle.

Without adequate policies, a country may lag behind and miss out on the opportunities for economic growth. This disharmony can cause disequilibrium in the society which may run the risk of high unemployment, increased crime rates, and social instability.

The comparative analysis of some demographic indicators of south Asian countries and Pakistan are presented in Table 1.1.



Table 1.1. Comparative analysis of demographic indicators of Southern Asian countries, 2015.

Country	Population size* (thousand)	Population density* (persons per square km)	CBR* (births per 1000 population)	TFR* (children per women)	CDR* (deaths per 1000 population)	IMR* (infant deaths per 1000 live births)	Growth rate* (percent)	Median age* (years)	CPR** (any method) (Percent)	Unmet need for family planning** (percent)
Southern Asia	1 822 974	284.8	21.5	2.56	7.1	44	1.36	26.1	58.6	13.8
Afghanistan	32 527	49.8	35.6	5.13	8.6	71	3.02	17.5	29.3	27.1
Bangladesh	160 996	1236.8	20.4	2.23	5.5	33	1.20	25.6	64.2	12.2
Bhutan	775	20.3	18.2	2.10	6.3	30	1.46	26.7	67.8	10.6
India	1 311 051	441.0	20.4	2.48	7.4	41	1.26	26.6	59.8	13.1
Iran	79 109	48.6	18.1	1.75	4.7	15	1.27	29.5	76.6	6.5
Maldives	364	1212.2	21.7	2.18	3.8	9	1.79	26.4	42.0	25.0
Nepal	28 514	198.9	21.0	2.32	6.5	32	1.18	23.1	52.4	23.9
Pakistan	188 925	245.1	29.8	3.72	7.5	70	2.11	22.5	38.5	20.4
Sri Lanka	20 715	330.3	16.4	2.11	6.7	8	0.50	32.3	71.6	7.4

* United Nations. World Population Prospects, 2015 (8).

** Trends in Contraceptive Use Worldwide, 2015 (28).

CBR: Crude Birth Rate

TFR: Total Fertility Rate

CDR: Crude Death Rate

IMR: Infant Mortality Rate

CPR: Contraceptive Prevalence Rate

1.2. Objectives

1.2.1. Aim

The aim of this study is to evaluate the prevalence, trends, determinants and dynamics of contraceptive use and estimates of unmet need for family planning in Pakistan in order to deduce possible interventions to increase effective utilization of contraception in Pakistan.

1.2.2. Specific Objectives

The specific objectives were:

1. To examine the levels and trends of contraceptive prevalence among currently married women of reproductive age in Pakistan and to describe differentials in the use of contraception over the past twenty years from 1992 to 2012.
2. To investigate the levels and trends of unmet need for family planning among currently married women of reproductive age in Pakistan from 1992 to 2012.
3. To assess the trend in intention to use contraceptives among non-users currently married women of reproductive age in Pakistan from 1992 to 2012.
4. To determine the association between current-use of contraceptive methods and socio-demographic, reproductive, spousal, community and household factors among currently married reproductive aged women in Pakistan, 2012-13.
5. To determine the association between unmet need for family planning and socio-demographic, reproductive, spousal, community, and household factors among currently married reproductive aged women in Pakistan, 2012-13.
6. To identify factors associated with contraceptive discontinuation in Pakistan, 2012-13.
7. To examine the reasons for contraceptive discontinuation and contraceptive method switching behaviour of currently married reproductive age women in Pakistan, 2012-13.
8. To identify factors associated with contraceptive failure in Pakistan, 2012-13.

1.3. Significance of the Study

The slow pace of fertility decline along with the poor social and economic development in Pakistan necessitate substantial intervention. Family planning is the one of the advantageous cost-effective intervention which not only controls population expansion but also helps social and economic development. However, the low contraceptive use as well as a higher unmet need of family planning requires identification of factors that are barriers to family planning method for the couples specially women who want to delay or cease child bearing.

The findings of this study help to identify sociodemographic and sociocultural factors that are barriers to use of family planning methods by women who wants to delay or stop child bearing. Additionally, no other research about contraceptive use dynamics has ever been conducted in Pakistan. The findings might assist to evaluate the efficiency and effectiveness of national family planning programs and along with this it will serve as a beginning of venture for additional comprehensive researchers leading to appropriate interventions regarding continuation of contraceptive use by women of reproductive age, furthermore developing new approaches towards increasing and improving effective use of contraceptives.

The recommendations made by this study might play an important role towards developing specific responses to issues of unmet need for family planning as well as improving family planning services, and thereby contribute towards reaching the sustainable developmental goals by virtue of decreasing maternal and child mortality.

2. LITERATURE REVIEW

2.1. Global concerns on Population Expansion and Commitment of Government of Pakistan

Since United Nation (UN) came in to existence on October 1945, it highlighted concerns over emerging population issues, expert committees and stake holders' conferences on the overpopulation and human development. These conferences were held at global level to congregate logical information on population factors, determinants and aftermath to develop detailed picture on the demographic circumstance of the countries and to provide technical assistance to deal with overpopulation problem by creating population polices. By virtue of third largest contributor to the world population in the following the commitment of government of Pakistan at various international forms will be reviewed.

2.1.1. World Population Conferences

United Nations (UN) had organized ***The First and Second World Population Conferences*** in Rome, 1954 and in Belgrade, 1965 respectively (29, 30). They were premier global level scientific conference attended by various experts and academicians on the problems of population to generate complete picture on the demographic situation of world. The main focus of second conference was to determine control over fertility in shaping human development and population growth.

United Nation Secretary General has formally designated the year 1974 as "The World Population Year" and asked the member states to formulate and participate activities regarding trend in human population growth and economical and social development (31). The main event of the year was The Third World Population Conference also known as "***International Conference on Population***" was the main event of the year that was held, in August 1974 in Bucharest, Romania (32). It was the first intergovernmental conference arranged by United Nations and

attended by representatives of 135 countries including Pakistan. This conference had provide a platform to exchange the views to improve knowledge about population trends among governments, nongovernmental organizations and individual experts. The debate was mainly focused on the relationship between human development and population growth.

The Conference was concluded by “***World Population Plan of Action***” (32), that provides recommendations and guidelines aimed at ‘a better quality of life and rapid socio-economic development for all people’ (33). The world population plan of action recognized inherent link in population growth and economical development, accordingly it emphasize that the population growth should be harmonized with trends of socio-economic development. The Plan places a high priority towards formation and implementation of national population policy and recommends the government to support the right of couples to decide their own family size. Plan urges governments to unify family planning services with other health related services such as primary health care, and make it available for all individuals. Among other principles, the Plan states:

'All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so; the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities toward the community' (33).

It also states:

'Improvement of the status of women in the family and in society can contribute, where desired, to smaller family size, and the opportunity for women to plan births also improves their individual status (34).

The above declaration had expended international cooperation in population filed and increase technical assistance to countries needing and desiring it.

The world population conference at Bucharest and related activates at that moments sharpens the awareness of government of Pakistan about overgrowing

population problems and their implications. Although the conference was extremely polarized by views on population growth, the government of Pakistan was in opinion to realize that rapid population growth intensifies problem in socioeconomic development (32).

It was the first time for government of Pakistan to consider the relationship of basic demographic problems with economic and social development. Subsequently, Government had re-formulated national policies and actions programs to promote human welfare and development. This conference also represents a breakthrough on the technical aspect of population regulation by family planning programs in Pakistan by receiving international cooperation with expended contraceptive supply and technical assistance addressing population expansion (35). However because of frequent political changes and inadequacy of primary health care services, government policies and programs were not sustainable and failed to achieve their targets and goals.

Decade after the first International Conference on Population in Bucharest, the ***Second International Conference on Population*** was held in Mexico City, August 1984 (36). It was attended by delegate from 147 countries including Pakistan. The global demographic, socio-economic and political climates had changed noticeably since first World Conference and in the light of the latest data and researches provided by member states this conference adopted “Recommendations for Further Implementation of the World Population Plan of Action” (37). Taking slow development for women empowerment into account, it was emphasize that governments should take proper actions for thorough integration of women in all phase of developmental process including policy and decision making. The Plan of action recommends.

“Governments wishing to decrease fertility levels should adopt development policies that are known to reduce the level of fertility, such as improved health, education, integration of women and social equity.” (37)

In addition, it was recommended that Governments should upgrade the quality and expend the coverage of reproductive health services particularly in rural areas. Also,

Governments were advised to involve the nongovernmental organizations, especially women's organizations, in expanding availability of family planning services.

It was stated that

“All countries should ensure that fertility control methods conform to adequate standards of quality, efficacy and safety” (37).

However, the family planning program and women's right was a dark area in Pakistan history as the country was led by conservative government agenda backed by military regime. After assuming power in 1977, the military dictator government had frozen the family planning program (38) due to its antagonism to the former elected government who were strongly motivated to make the population program accessible and popular on priority basis.

The International concern on population growth in Pakistan and subsequent external pressure led the government of Pakistan to take some corrective actions. National Institute of Population Studies (NIPS) was established in 1985 with aim to conduct research in the field of national demography (39).

2.1.2. The International Conference on Population and Development (ICPD)

The first largest intergovernmental landmark conference on population and development known as “International Conference on Population and Development (ICPD)” was organized on September 1994 in Cairo (40). 179 countries participated along with hundreds of UN agencies, intergovernmental and non-governmental organizations and they acknowledged that population policies should be centered at empowering couples especially women to decide their own family size, and Governments should provide necessary information and resources for this decision. Along these lines, a state-of-the-art concept of population policy was formulated in ICPD which gives eminence priority to reproductive health (RH) and women's empowerment for future development. Governments also recognized the deep-rooted association between sustainable development, and gender equality (40).

Furthermore, for the first time, global forum states consensually accepted that reproductive rights are human right in repercussion, member states admit to make RH and family planning services available, accessible, and affordable and provided

through primary health care system (41). The outcomes of the conference, “ICPD's Programme of Action” states:

“All countries should strive to make accessible through the primary healthcare system, reproductive health to all individuals of appropriate ages as soon as possible and no later than the year 2015” (41)

The ICPD had undeniably given border mandates on social and economical developmental affairs than preceding population conferences. It was successful in developing awareness among governments that population, poverty, patterns of production and consumption and the environment are so closely interconnected that none of them can be considered in isolation. In addition, the ICPD's Program of Action also recommends:

“At the international, regional, national and local levels population issues should be integrated into the formulation, implementation, monitoring and evaluation of all policies and programs relating to sustainable development. Developmental strategies must realistically reflect the short, medium and long term implications of and consequences for population dynamics as well as pattern of production and consumption” (41).

ICPD's Programme of Action highlights the paramount aspect of women's empowerment and provides guideline for implementation of reproductive health and reproductive rights. By adopting ICPD's Program of Action, member countries are obliged to take policy, constitutional, fiscal, and other measures to accomplish the paramount principles and renowned rights maintained in the testimonial document.

The program of action urge:

“Eliminating all practices that discriminate against women; assisting women to establish and realize their rights, including those that relate to reproductive and sexual health” (41).

ICPD had changed the paradigm of Family Planning (FP) programs; Pre-ICPD, the aim of FP programs was only to reduce population growth for achieving demographic targets of population policies however Post-ICPD, FP program focuses on fulfilling the needs of individual and couples for accomplishing developmental goal of population policies and in the meantime deemphasizing demographic goals as the program drivers. The ICPD program emphasize to:

“Help couples and individuals in meeting their reproductive goals in a framework that promotes optimum health responsibility and family well-being, and respect the dignity of all persons and their right to choose the number, spacing and timing of the birth of their children” (41).

Consecutively, ICPD's Program of Action was reaffirmed in the Fourth World Conference on Women, held in year 1995 and in United Nations Millennium Summit.

Since ICPD, compelling progress women's empowerment and in availability and accessibility to FP and reproductive health services has occurred worldwide (42). In the context of Pakistan, the timing of ICPD was most significant for population policies and reproductive health program because there was major shift in attitude among the people in regard to family planning and government was led by liberal democratic government headed by first women prime minister late Benazir Bhutto who had great interest in empowerment of women, eradication of poverty and addressing the population issues. In her speech at Cairo she stated:

“I dream of a Pakistan, of an Asia, of a world where every pregnancy is planned, and every child conceived is nurtured, loved, educated and supported. I dream of a Pakistan, of an Asia, of a world not undermined by ethnic divisions brought upon by population growth, starvation, crime and anarchy. I dream of a Pakistan, of an Asia, of a world, where we can commit our social resources to the development of human life and not to its destruction” (43).

As reported by National Health Survey of Pakistan 1990–94 (44) and Pakistan Demographic and Health Survey 1991-92 (45) before ICPD, there were inadequate reproductive health services that resulted in high maternal mortality ratio about 300–399 maternal deaths per 100,000 live births and infant mortality rate was approximately 91 per thousand live births in Pakistan (44,45). At that point, the modern contraceptive prevalence was only 11% and 80% deliveries were conducted by “dais” the traditional birth attendants (45).

After ICPD, a particularly encouraging trend has been observed in Pakistan for intensifying political commitment to achieve population related targets and Government had bold initiatives for family planning programs. ***“The Prime Minister’s Program for Family Planning and Primary Health Care Pakistan”*** (46) was initiated during the same year soon after ICPD conjunction. With this, initially about 33,000 Lady Health Workers (LHWs) were employed under supervision of Lady Health Supervisors (46,47). The specific goal of this initiative was to expand family planning services and made them available in urban-slums and rural areas throughout the country (46).

In accordance with ICPD program of action, the First Women Bank (48) was set up by Prime Minister Benazir Bhutto to eliminating poverty and assuring gender equality. The aim of this Bank was to help and encourage women in achieving economic independence by running small industries and practicing profession.

Post-ICPD, the most notable achievement was extending family planning service delivery throughout the country by growing number of non-governmental organizations (NGOs). There were 121 NGOs in 1994 providing family planning and reproductive health services and their number became 171 in 1998, more over their scope of operation had also expended (49). Another initiative of Government after ICPD was the development of ***Social Action Program*** (50) with the financial and technical support of World Bank and other donor agencies to uplift social sectors in the area of community primary health care, education, water supply and sanitation.

Historically, Pakistan’s ***first national health policy*** was formulated in the year 1990, and was based on "Health-For-All" approach (51) particularly addressing the core health care problems. The main objective of that policy was strengthening of the poor primary healthcare system as an essential instrument to contest basic health

issues, but family planning and reproductive health was not separately given importance in that policy. However inclusion of reproductive health along with primary health care in **Second Pakistan National Health Policy**, 1997 (51) in post ICPD area did reflect the government of Pakistan holistic approach to address individuals right for family planning as described in ICPD agenda. Latter in the year 1999, **National Reproductive Health Service Package** was introduced by the Ministry of Health for providing comprehensive protocol of reproductive health services, including family planning, safe motherhood, infant health care, prevention of HIV and other STDs, management of infertility, screening of cervical and breast cancers (52). Through this package, it was aimed to transfer reproductive health and family planning skills to traditional birth attendance and paramedical staff at the Rural Health Centers (RHC) and Basic Health Units (BHU) throughout the country.

After ICPD, the UN Commission on Population and Development was given responsibility to monitor, review and assesses implementation of the ICPD agenda at every five year interval. The first five-year review, known as **ICPD +5**, was done in the year 1999 (53). Regardless of Pakistan's remarkable commitment towards increasing the family planning and reproductive health (RH) services, the five-year review regarding implementation of the ICPD recommendations had shown limited successful results. As can be evident from contraceptive prevalence by that time was only 27% (49); maternal mortality ratio and infant mortality rate were 306 per 100,000 live birth (54) and 88 per 1000 live births (55) respectively. At ICPD +5 the delegation of Pakistan stated:

"....Our reproductive health indicators, however, still require considerable improvement to match the international standards. Our efforts will continue. ...The full implementation of ICPD agenda requires such amount of resources that are beyond the capacity of developing countries including Pakistan. In 1994, all nations had agreed that greater financial allocation was needed from both the donor and recipient countries. However, on a worldwide basis, the international community has seriously lagged behind its funding commitments made at the ICPD.... Despite its resource constraints, Pakistan has increased its public investment in health and family planning sectors manifold. In

addition, substantial investments are being made by the private sector. The donor assistance has neither matched our requirements nor their commitments at the Cairo Conference in 1994....” (49).

It was acknowledged in meeting that full implementation of ICPD agenda require sufficient domestic and external resources (53), yet Pakistan has increased its public investment in health and family planning more than fivefold between 1988 and 1998, but the international donor assistance has not matched its requirements for meeting the desired goal (49). However on the ground there were many flaws in health policies and social welfare program in Pakistan as well that will be discussed separately. At ICPD+5, Pakistan had committed to drop population growth below 2 percent per annum till year 2002, and to coming down to 1.3 percent by year 2007 (49).

2.1.3. Fourth World Conference on Women and Beijing Declaration

UN’s Beijing Conference on Women in 1995 was culmination of a long process for equality for women that was first highlighted in the year 1975 during the first World Conference of International Women's Year which was held in Mexico City (56). The Beijing Conference attracted unprecedented amount of attention by international community and included 189 governments’ representatives and about 17,000 participants from various international institutions, civil societies and nongovernmental organizations had attended. The agenda of the Beijing Conference was to address eradication of poverty, illiteracy, poor health, unemployment, and violence against women and promotion of women’s empowerment. By the time the conference ended, it had produced “The Beijing Declaration and Platform for Action” (57) an utmost revolutionary master plan ever made for advocating women’s rights. Pakistan had participated in this conference and the first women Prime Minister of Pakistan, Benazir Bhutto addressed critical areas of concern of the women of Pakistan (56).

The Prime Minister Benazir Bhutto and her cabinet was fully sensitive to safeguards women’s right and took significant steps for social political, economical and legal empowerment of Pakistani women. In the conference she stated:

“As the first woman ever elected to head an Islamic nation, I feel a special responsibility towards women's issues and towards all women.” (58).

Bhutto's government had made efforts to fulfill its international and national commitments to protect the women's rights as pursued in ICPD and Beijing Declaration, and in order to implement the plan of action, Government of Pakistan had launched a ***National Plan of Action for Women*** in August 1998 (59). It was a guideline document which outlines strategic actions for social, economical, political and legal empowerment of Pakistani women. The national action plan emphasized that women's empowerment may be achieved through recognition of women's human right, their right to political participation and in decision making at all levels. There after significant amendment were done in the existing law to protect the women's rights, legal empowerment and for elimination of violence against women (59). Women have been given increased role in every sphere of life. Their representation in Senate, National and Provincial assemblies and in local government had significantly increased (59).

During the year 2002, Ministry of Women Development formulated ***National Policy for Development and Empowerment of Women*** which articulate Pakistan's another affirmation to incorporate women's issues in the education, employment, labor, health, child welfare policies for enhancement of empowerment of women (60).

2.1.4. United Nations Millennium Summit

At the beginning of new millennium on September 2000, leaders from 189 countries gathered at UN General Assembly building in New York to create global partnership for reducing extreme poverty and augmenting human development during twenty-first century. During the summit, world leaders committed their nations to eradicate poverty and hunger, provide primary education, advocate gender equity and, improve health conditions by combating disease and ensure environmental sustainability through a framework of new global partnership. By the closure of summit, the world leaders endorsed United Nations Millennium

Declaration (61) that contains eight time bounded goals known as Millennium Developmental Goals (MDGs) (62).

The first Millennium Developmental Goal focused directly on poverty for those living on less than one dollar a day (62), while the following six concentrated on the elementary reasons of poverty, such as illiteracy, poor health, gender inequality, and environmental deterioration. The eighth goal was to expand global partnership between developed and developing countries for achieving above seven at universal level (62). Based on the extensive deliberations during three days summit, 18 targets and 48 indicators were formulated in order to supervise the progress of eight basic goals within fifteen year period with endpoint year 2015.

Initially, family planning was not included in Millennium Developmental Goals (63). In 2006, the countdown to MDGs 2015 deadline the developing countries were not on track to achieve these time bounded goals (64). The policy makers were debating evidence-based effective and efficient means to accelerate progress toward MDGs. It was almost 15 years past the International Conference on Population and Development (ICPD), the world once again realized the missing link of family planning and human development and there after MDG target 5b “the achievement of universal access to reproductive health” (62, 63) was included with indicator 5.3 “contraceptive prevalence rate” and 5.6 “unmet need of family planning” (62) which directly advocate for family planning were used to monitor progress.

By that time, evidence based researches from many countries proved that family planning was not only directly related to achieving MDG goal 3 and 4 but moreover investing in family planning and reproductive health, states can cost-effectively accelerate their progress bring about the MDGs (65-69).

John et al. discussed ‘*promotion of family planning in developing countries has averted 32% of all maternal deaths and about 10% of childhood deaths*’ (66). Studies from Africa and Latin America evidenced that ‘*providing universal access to contraception in Kenya and El Salvador could generate a net savings of 200 and 46 million \$ respectively for the social sector in meeting the MDG*’ (67). Frost et al. found ‘*for every dollar invested in family planning, up to 4 \$ are saved in other development areas*’ (68). Wire linked family planning to environmental protection and described ‘*cost benefit analysis concluded that family planning is five times*

economical than other environment friendly technologies for reducing future CO₂ emissions (69).

Eventually in conjunction with other goals **MDG target 5b** that necessitates “**Universal Access to Reproductive Health Care Including Family Planning**” was included in the MDGs check list (62). Inclusion of this target reaffirmed that access to contraceptive services and supplies is essential for poverty reduction and advancement of social development.

Government of Pakistan was the signatory of MDGs and was geared to achieve the targets till 2015. In order to maintain commitment to accomplish the Millennium Developmental Goals (MDGs) the government of Pakistan had prepared agenda for human development and health sector reform. Success of developed countries shows that building population policy is a fundamental step to create the frame work of collaboration among various sectors to obtain common goals and objectives regarding population growth, social welfare and economical development. Unfortunately, since independence in 1947, Pakistan did not have any well-enunciated population policy approved and implemented by government.

The Pakistan’s **First Population Policy** (70) was launched in the year 2001, which expressly determined the expending population issues of the country and enthusiastically the vision of that policy focus the mission of ICPD. Around the same time, **Third National Health Policy of 2001** (71) was formulated. This policy was based on "Health-For-All" vision for expanding and upgrading the health sector. That policy had ten key areas. The key area 4 in some way emphasize the “*need and promotion of greater gender equity in the health sector*” with some focuses on provision of essential reproductive health services. It was also planned in that policy to establish “Women-Friendly-Hospitals” under Women Health Project.

It is important to know that a draft for separate **National Reproductive Health Policy** was also prepared in the same time but was remained on paper (72) and the momentum sustained at the theoretical level till **Pakistan National Policy for Development and Empowerment of Women** (60) was introduced in 2002 with concurrent objective about eradication of poverty and assuring gender equity. Women’s issues essentially reproductive health rights, contraceptive services and provision of primary health care, in particular reproductive health services were

highlighted in this policy. The role of lady health worker was also expended and it was planned to increase the number of lady health worker up to one hundred thousand.

Since the year 2003, The Planning Commission of Pakistan (73) had performed a remarkable role in making directions for national policies, monitoring the trend of progress, and coordinating the efforts of different stakeholders for achieving MDGs. With the support of United Nations Development Program (UNDP), the Center for Research on Poverty Reduction and Income Distribution was established in the Planning Commission, which has served as a source of information and recommendations on MDGs by qualitative, factual and policy oriented research on fundamental issues (74). Like other developing countries, Pakistan in the year 2003 introduced its **Poverty Reduction Strategy Paper (PRSP)** which explicitly suggested rising expenditure on reproductive health along with spending in prevention and control of disease (75).

The **Fourth National Health Policy** (76) was introduced in 2009. The policy identified major flaws and gaps in national health systems and various objectives have been defined to make essential health care accessible and affordable by every citizen. This new policy retains few focuses of 2001 policy, however, it appeared though not very accurate that the reproductive health and contraceptive services as a part of essential services package was somewhat neglected in that policy.

2.1.5. London Summit on Family Planning ‘Family Planning 2020 (FP2020)’

A global partnership **“Family Planning 2020” (FP2020)** was created in **London Summit on Family Planning**, which was held in year 2012. The aim of this partnership was to expand family planning information as well as services to millions of women in the developing countries by year 2020. The aim was also for supporting the rights of women to decide freely about timing and number of children they want to have (77). The principle of FP2020 is based that all women, no matter where they live should have access to lifesaving contraceptives.

Above 20 governments, along with Pakistan, had made commitments in London Summit to address the policy, financing, delivery, and socio-cultural barriers to women accessing contraceptive information, services, and supplies. Donors also

pledged an additional US\$2.6 billion in funding to meet international family planning goals (77).

Pakistan has cited specific target to revitalize Family Planning in the country at the London Summit “Family Planning 2020” in July 2012, and made renewed commitments toward achieving universal access to reproductive health and raising the contraceptive prevalence rate to 55% by 2020. Government also commits to increasing the amount spent on family planning, to nearly US \$200 million in the year 2012-13, and further in future years and including contraceptive services in the essential service package by the year 2013 (78). On 11 July 2017, a global summit on family planning was held in London in collaboration with Family Planning 2020 to demonstrate continued and increased leadership on family planning by member states and provide a platform for donors to complement critical investments (79). Reading the statements made by Pakistan’s delegation, it is hoped that some corrective actions are underway (79).

Despite above efforts, the progress directed to family planning, reproductive health and women empowerment was painfully slow in Pakistan. In fact evident from Table 2.1 that the ending point of time frame i.e. the year 2015 had been past and neither the targets that were stated in the World Population Plan of Action at ICPD nor in the MDG’s have been fully met. The overall socio-economic development of the country was hampered by various geopolitical and socioeconomic challenges, natural disasters and external and internal security threats.

The outcome of MDGs was inevitable painful and Pakistan lags behind on many targets at the deadline because there were huge gaps between declared goals in planning documents on the one hand and the resources and implementation instruments needed to achieve those goals on the other. Moreover, National Health Policies were formulated on biomedical model of health and human behavior and other determinants of health and disease such as socio-cultural and environmental factors were ignored.

Evidence based research emphasized that investment in rights-based family planning was one of key element for success especially for developing countries (63). Compelling research has demonstrated that family planning advocacy has direct impact on bring down maternal mortality (66) -the fifth Millennium Development

Goal (**MDG 5**)- because total parity of women is directly related to maternal mortality ratio. Maternal health is fundamental for achieving other goals. Maternal mortality can endanger child's wellbeing (80), as children who lose their mothers at young age are prone to die themselves (that is **MDG 4**).

Maternal and child mortality and morbidity cost huge burden on country's economic growth (81) which in turn, result in poverty and hunger (for instance **MDG 1**). The eradication of malnutrition would improve child health and can increase the school attending rate (namely **MDG 2**) (82). As educated women enter the labor force, the status of women in the community would be uplifted (viz. **MDG 3**) (83). Moreover, reduction in population growth along with increasing education level will contribute to environmental sustainability (that is to say **MDG 7**), (69).

However, the progress in contraceptive prevalence in Pakistan was extremely slow during last decade. As evident from demographic and health survey (DHS) in 2012-13, there were millions of women who desire safe and effective methods of contraception but most of them had either fear of adverse effect or lack of access (84). Moreover, the population momentum in the last three decade has created relatively larger reproductive-age cohort in current Pakistan but the Total Fertility Rate was stagnant at about four children (84). The above mentioned facts highlight the importance of including human behavior and socio-cultural models in formulating national health and population policies.

2.1.6. Sustainable Developmental Goals (SDGs)

The United Nations General Assembly on September 2015 ratifies a new development agenda "Transforming our world: the 2030 agenda for sustainable development" (85). This new agenda comprise of exceptional range of economical, social and environmental scopes and ambitions and is applicable to all countries. The sustainable development goals (SDGs) include 17 goals with 169 targets (85).

Reflecting many linkages between health and other goals, health is not only place indispensable contributor to sustainable development goal but scope of health goal is broadened, in this new agenda; **SDG-3** calls for "Ensure healthy lives and promote well-being for all at all ages" (85).

SDG-3.7 - “Universal access to sexual and reproductive health care services, including family planning” (85) is one of the 13 health targets set in SDGs. It advocates a complete framework for implementation of a far-flung, enthusiastic and integrated reproductive health agenda in all member states. This goal is a cross-cutting element and concatenation of events for achieving additional health and developmental targets.

It is important to mention that the year 2010 brought major shift in power distribution in Pakistan from federal to provincial government by 18th amendment to the national constitution. Under this amendment, increased autonomy on health with federal support was given to provinces in July 2011. It was aimed to deliver the more equitable health services through a resilient and responsive system based on local need and priorities in order to improve the progress of health related MDGs target. This shift in responsibility and authority has created challenges as well as freedom for provincial health departments and the re-established Ministry of National Health Services, Regulation and Coordination.

Significant gaps and lack of a consensus in post 18th amendment constitutional role and responsibility of national and provincial health departments were noted (86). It was needed to develop a national vision document on health that is aligned with federal vision, provincial strategies, and international commitments. A comprehensive policy document ***National Health Vision Pakistan 2016-2025*** (86) was formulated to harmonize provincial, federal, and inter-provincial efforts for achieving the desired health goals. It was acknowledged that progress in achieving MDGs has been constrained by fragmentation of service delivery, and inadequate resource commitment and strategic and coordinated approach to achieve the targets of newly adopted SDGs were defined. In this document family planning services was acknowledged as priority area for health facilities and Federal Health Ministry had showed its strong commitment for implementation of it.

World Bank research had proved that the reproductive health along with family planning is the one and the only cost-effective investment for accomplishing developmental goals (63). In consonance with above argument and from the challenges faced by Government of Pakistan during the MDG era, it can be concluded that attaining the ‘universal access to family planning’ at national and sub

national level is simple and within governmental grasp, however for this government of Pakistan oblige to prioritize family planning program by rising investment in contraceptive services, and make more evidence based policies that including human behavior and socio-cultural factors. According to *United Nations Development Program* (87), attaining universal access to reproductive health services is estimated to returns of \$120 for every dollar invested.



Table 2.1. Time series data for selected MDGs indicators related to maternal and child health as well as women's empowerment (Pakistan).

Goals	Indicator	Definition	1990	1995	2000	2005	2008	2011	2015	Target
MDG1	Prevalence of underweight children under 5 years of age (%)	Proportion of children under 5 years who are underweight for their age	39.0 ¹	34.0 ¹	31.5 ¹	38.0 ⁷	38.0 ⁷	32.0 ¹	N.A	<20.0 ²
MDG2	Literacy rate (%)	Proportion of people aged 10+ years who can read and write with understanding	35 ⁶	N.A	45 ⁶	53 ⁶	56 ⁷	58 ²	57 ⁹	88 ²
		Male	48 ⁶	N.A	55 ⁶	65 ⁶	69 ⁷	70 ⁸	69 ⁹	89 ⁶
		Female	21 ⁶	N.A	35 ⁶	40 ⁶	45 ⁷	47 ⁸	44 ⁹	87 ⁶
MDG3	Gender parity index (GPI) in primary education	Proportion of girl's enrolment in comparison to boys at primary level	0.73 ⁶	N.A	0.82 ⁶	0.85 ⁶	0.84 ⁷	0.9 ²	N.A	1.00 ²
	Share of women in wage employment in non-agricultural sector (%)	Proportion of women in non-agricultural wage employment	8.7 ⁶	N.A	8.9 ⁶	10.93 ⁶	9.89 ⁷	10.64 ²	N.A	14 ²

Continued.....

Table 2.1. (Continued) Time series data for selected MDGs indicators related to maternal and child health as well as women's empowerment (Pakistan).

Goals	Indicator	Definition	1990-91	1995	2000	2005	2008	2011	2015	Target
MDG4	Under-five mortality rate (no. per thousand live births)	Number of deaths of children under 5 year of age per thousand live births	145 ⁵	134 ⁵	115 ⁵	99 ⁵	96 ⁵	94 ²	84 ⁵	52 ²
	Infant Mortality Rate (no. per thousand live births)	Number of deaths of children under 1 year of age per thousand live births	108 ⁵	92 ⁵	86 ⁵	78 ⁵	75 ⁵	69 ²	65 ⁵	40 ²
	Proportion of Immunization (%)	Proportion of children under 1 year immunized against measles	50 ¹	55 ¹	60 ¹	65 ¹	78 ¹	81 ²	86 ⁴	>90 ²
	Lady Health Workers coverage of target population (%)	Household covered by Lady Health Workers for their health care services	Not applicable	Not applicable	33.6 ⁶	66 ⁷	83 ⁷	83 ²	N.A	100 ²
MDG5	Maternal Mortality Ratio (no. per thousand live births)	No. of mothers dying while pregnant or within 42 days of delivery per 100,000 live births)	431 ³	363 ³	306 ³	249 ³	211 ³	276 ²	178 ³	140 ²
	Proportion of births attended by skilled birth attendants (%)	Proportion of deliveries attended by skilled health personnel (doctors, midwives)	19 ¹	18 ¹	23 ¹	31 ¹	39 ¹	49 ²	N.A	>90 ²

Continued.....

Table 2.1. (Continued) Time series data for selected MDGs indicators related to maternal and child health as well as women's empowerment. (Pakistan)

Goals	Indicator	Definition	1990	1995	2000	2005	2008	2012	2015	Target
	Contraceptive prevalence rate (%)	Proportion of eligible couple for family planning programs using one of the contraceptive methods	12 ⁶	18.2 ¹¹	28 ⁶	36 ⁶		30.8 ²	38.5 ¹¹	55 ²
	Proportion of women 15-49 years who had given birth during last 3 years, and made at least one antenatal care consultation (%)	Proportion of women 15-49 who delivered during the last 3 years and received at least one antenatal care during their pregnancy period from either public or private care provider	15 ⁶	N.A	35 ⁶	50 ⁶	58 ⁷	68 ²	N.A	100 ²
	Unmet need for family planning (%)	DHS Revised Definition	31.8 ¹⁰	N.A			24.9 ¹⁰	20.1 ¹⁰	N.A	- N.A
	Total Fertility Rate	Average no. of children a woman delivered during reproductive age	5.4 ⁶	N.A	4.1 ⁶	3.5 ⁶	3.7 ⁷	3.75 ²	N.A	2.1 ²

1. Countdown to 2015 maternal, newborn and child survival (88)

2. Infographic on Pakistan's MDGs Status for 2012 (89)

3. Maternal mortality in 1990-2015 (54)

4. Pakistan: WHO and UNICEF estimates of immunization coverage (90)

5. The UN Inter-agency Group for Child Mortality Estimation (91)

6. Pakistan Millennium Development Goals Report 2005 (92)

7. Pakistan Millennium Development Goals Report 2010 (93)

8. Pakistan Millennium Development Goals Report 2013 (94)

9. UNESCO Institute of Statistics (95)

10. DHS Country Report (45, 84, 96)

11. Trends in Contraceptive Use Worldwide 2015 (97)

NA: Not Available.

2.2. Evolution of Family planning and Population Policy in Pakistan

Pakistan was the 13th largest country (8) at the time of indo-Pak separation in 1947. In next sixty years that is by 2007 with population of more than 164 million people, it became the 6th largest populated country (6) and the third largest contributor to the population growth at global level (98). At present Pakistan's population has been estimated to be about 190 million and UN (6) proposed that it will exceed 300 million by 2050.

Family Planning Program in Pakistan is one of the oldest in the south Asian region; it was started more than seven decades ago by the help of national and international donors. Acknowledging preference of large family size as a cultural norm among Indian Muslims, and migration and consolidation of Muslims population in a newly established country, civil society and NGO had identified the importance and need of family planning program in Pakistan at the time of independence. Later in the history, family planning remained the prime activity of Pakistan Population Welfare Program. Unfortunately, despite almost 70 years of vigorous effort and expenditures of million dollars, family planning program had achieved no tangible decrease in fertility rates; the current contraceptive prevalence rate (CPR) is about 35% (84), suggesting about 0.5% annual increase since the beginning of the family planning programs (99) and still the total fertility rate in Pakistan is higher than neighboring countries (6).

The salient features of family planning and population policy efforts in Pakistan are presented by mean of history of seven decades.

2.2.1. The First Decade of Family planning efforts in Pakistan (1950-1959)

The newly formed government of Pakistan was not much advanced in understanding the connection between national resources, population dynamics and wellbeing of people as compared to civil societies and non-governmental organizations. *“Family Planning Association of Pakistan”*, an NGO, had played pioneer role in establishing family planning services in Pakistan (100).

Family Planning Association of Pakistan was founded in 1953 and the first Family Planning Program was launched in 1953 which was based on educating the

families regarding the size of the family and advocating for birth spacing (100). It has a single room clinic in Karachi, Lahore and Dhaka which were affiliated with International Planned Parenthood Federation, London and they offered sponges and foam as contraceptive method to poor and marginalized population (101).

The positive government attitude towards family planning in Pakistan trace back as far as the first economic planning itself. The first plan (1955-1960) endorsed the philosophy of family limitation and distributes a small financial assistance to establish clinics to provide the family planning services (102). A major role played by Family Planning Association was in driving the agenda for reproductive rights and advocacy, so that government realized necessity of an active family planning program for controlling the population expansion.

2.2.2. The Second Decade of Family Planning Efforts in Pakistan (1960-1969)

The Pakistan's second financial plan (1960-1965) took a more forthright position on the impact of unchecked population growth and spends a huge amount for extending services, training of medical and paramedical personal, community education, and contraceptive research (102). Population council of United State of America (USA) and John Hopkins University had provided technical assistance for training and research (35). Family planning services were initially provided through the outlets of the Health Department (103). Sweden-Pakistan Family Welfare project was initiated in the year 1961 to train and supervise health personnel in clinics of health department (102). The Family Planning Association was funded nationally and internationally through *United States Agency for International Development* (USAID) to establish district branches with model clinics and information centers for couples, and for provision of contraceptive services such as condom at free of cost (101).

Dictator General Ayub Khan was the first leader who recognized that the Pakistan population was an issue (38) and the major effort at family planning in public sector dates from 1965 when a comprehensive and detailed scheme was adopted as part of third five year plan (1965-1970). The scheme set as its first five year target a reduction of birth rate from 50 per thousand to 40 per thousand and to reach the entire nation in a three year start-up period (104). It was recognized by

government that family planning is an administrative not a clinical program, and elaborated administrative apparatus was created to undertake the task of motivation of the people and efficient distribution of supplies. Family Planning Council at the central government and Family Planning Boards at the provincial and district level were established (35). All the union councils were associated with the national family planning program. At the bottom of hierarchy was village “*Dai*” (traditional birth attendants) who serve as motivator and contraceptive supply agent and at national level program was supervised by family planning division of Ministry of Health, Labor and Social Welfare.

In the urban area family planning clinics were established in existing health facilities where the trained medical doctors are appointed for *Intrauterine Device* (IUD) insertion vasectomy and tube ligation all services were free of charge in addition the clients were paid small amount as incentives for vasectomy and tube ligation (35). The doctors and referring *dai* were also paid some amount as commission reward along with basic salary (35).

In year 1962, ***National Research Institute for Family Planning*** (NRIFP) pursuing both clinical and socio-psychological research was established in Lahore (102). Family planning program staffs are trained at the leading population center abroad. USAID and other foreign donor’s involvement grew and budget was expended greatly (35). In 1965, The Family Planning Council was converted to the Population Planning Council, and became an autonomous agency (102). The family planning program was much more successful compared to other countries in the region and the speed with which the program was launched impressed everyone as did its size and scale of operation. Pakistan program received considerable attention abroad and a steady stream of visitors came to see that role model program.

A high level World Health Organization (WHO) advisory mission evaluated the program in 1969 and reached to report positive conclusion (105). In spite of it’s apparent record of success, this first phase came to a rather abrupt end in 1969. Top leaderships in the program were changed and new leadership quickly unveiled their own reorganized program.

2.2.3. The Third Decade of Family planning Efforts in Pakistan (1970-1979)

In July 1969, a new family planning program “*Continues Motivation System*” (CMS) was introduced under the supervision of new leadership. The target was to increase effective contraception practice among married women up to 34% by 1975 (38). The new program aimed at contracting on continuing bases all eligible couples in the country using literate full time local male and female team, who maintained a permanent record of their activities, who were paid on an incentive basis and who were subjected to constant inspection from above.

In fact, before the system was fully operational, a series of political crises, culminating in the civil war in East Pakistan and in the subsequent war with India disrupted all regular government operations.

By 1973, normalcy had returned and program resumed once again under new leadership. By that time, CMS covered less than one fourth of the district mainly because of shortage of staff. A new “*Expended Population Planning Scheme*” (1973-1977) was introduced (38) which had continued the CMS approach but some significant new features were added such as female welfare visitors in CMS area, mobile clinics in non- CMS area, redefining the CMS area, and finally ‘Contraceptive Inundation’ system (38), an effort to distribute conventional contraceptives such as condoms and oral pills throughout the country through a network of shopkeepers, local agents, hospital and clinics aimed at maintaining contraceptive devices available to entire population in every village. This expended CMS plus inundation system had functioned until 1976 when leadership of program again changed and new “*Integrated Approach*” was announced (35).

Finally in 1976, the publication of the results from the Pakistan fertility survey (106) that was undertaken in conjunction with world fertility survey, showed that fertility is high in crude birth rate of 41 and current contraceptive use is low as 5% of eligible couples and both figures were essentially unchanged since the impact study almost ten years earlier. Several other outside studies showed the same negative judgment (35).

It was reasonably clear what went wrong with family planning program in Pakistan. The original concept of continues motivation system was based on recruiting literate, dependable male female team and the motivator actually recruited

were educated, young women often unmarried and from some nearby urban area who took the job only temporary basis before getting some other jobs. It was noticed that many male motivators were hired and used in political ways. The staff turnover was high because these motivator did not live in the same area, they faced transportation problem, the transport allowance were inadequate and because of long two way journey the amount of time spent for this task was reduced. Moreover, as an outsider without any ties with local community, majority of eligible couples were never contacted. The logistics and supply system proved inadequate to the task of handling inundation and the availability of large number of outlets was overestimated.

In 1978, Family Planning Program was integrated into the health program; the Population Planning Division lost its autonomy and again it was managed by Ministry of Health. The field staff group was converted into multipurpose health workers and inundation was abandoned (38). The dictatorial government of General Zia-ul-Haq main emphasis was expending primary health care and clinical services into the country.

2.2.4. The Fourth Decade of Family Planning Efforts in Pakistan (1980-1989)

The fourth decade saw a little progress due to lack of leading political support. The martial law government of President Zia-ul-Haq used religion to legitimize his illegal seizure of power and to find his allies among the fundamental Islamists lobby, knowing easy to digest in male dominant society he used the 'women's card' as the first and most obvious symbol for his fabricated Islamization process (107). This process of Zia's fake Islamization had a direct impact on the lives of women and it adversely affected legislation for women, education and employment (107). These actions touched women's health specially the women's reproductive health.

To give religious gesture, publicity of family planning program was banded. Families planning filed operations were suspended and family planning female doctors were abruptly eliminated leaving only male providers in family planning clinics and there was total fragmentation of national family planning program. The results of Pakistan Contraceptive Prevalence Survey (PCPS) indicated that the total fertility rate was at 6.0 children per woman and the level of current contraceptive use

was only 9% in 1984-85 (45). The remarkable event of that era was foundation of the **National Institute of Population Studies** (NIPS), an autonomous organization through a resolution in 1985 with aim to conduct quality research and surveys in the field of population, health and development (39). Currently, NIPS is functioning under the Ministry of National Health Services, Regulations and Coordination (NHSR&C) and is responsible for technical assistance to the Government of Pakistan for producing population based data and information for policy making and strategic planning in the field of demography, health and population development (39). It is also responsible for conducting five yearly demographic and health survey as well as evaluation of various components of Population Welfare Program.

2.2.5. The Fifth Decade of Family Planning Efforts in Pakistan (1990-1999)

Along with the end of the dictatorial government of General Zia in 1989, the family planning and population welfare program saw strong political support from the top leadership. The government's robust and well-defined support to family planning program in Eighth Five-Year Plan (1993-1998) brought peak in contraceptive use during 1990's (103). On 27th of June 1990, the **Ministry of Population Welfare** (MOPW) was created to look after the affairs of Population Welfare (103). The Federal Government took responsibility for the overall execution and entire funding of the Population Welfare Program through this Ministry (103). Moreover, the government had made strong commitment and took strong steps for effective implementation of Population Welfare Program. At that time Pakistan's family planning program was administered by the Ministry of Health and the Ministry of Population Welfare (38), later in 1994 the family planning program became sole responsibility of Ministry of Population Welfare (108).

As an elected first woman Prime Minister, Mrs. Benazir Bhutto had taken strong actions to defend women's rights in male dominant society (109,110) and instituted throughout the country, women's police stations, women's bank were established, women judges and lady doctors were appointed and thousands of women's health centers were instituted all across the rural areas. Women's health education, nutrition and family planning had given momentous significance under her leadership (111). In late 1994 Benazir Bhutto had attended International

Conference on Population and Development (ICPD) and she firmly showed commitment of Government of Pakistan for implementing ICPD program of action.

For expanding contraceptive coverage after endorsing the ICPD plan of action in year 1994, the most promising initiative was deployment of **Lady Health Worker Program (LHW)** (46). They specially trained village based family planning workers responsible to provide contraceptive information and basic reproductive health services at the doorsteps of the peoples living in their own and surrounding villages. Social marketing of contraceptives was broadened, and efforts were made to engage private medical practitioners more closely in service provision (112). In the year 1999, for the first time, National Reproductive Health Package was introduced by the joint effort of health and population welfare ministries (113); it provided a border guideline for comprehensive family planning and safe motherhood along with prevention of sexually transmitted diseases and management of infertility.

This decade was tremendous period for progress in status and reproductive health of women. In the early 1990s, the contraceptive prevalence was only 12 percent (45) that became 28% in 2000 (96), and for the first time in forty years, rapid rise in contraceptive prevalence from 6 to 22 percent was observed in rural areas (114). Third party evaluation by Oxford Policy Management shows that community based Lady Health Worker (LHW) initiatives is effective at raising contraceptive use in Pakistan (47).

2.2.6. Sixth Decade of Family Planning Efforts in Pakistan (2000-2009)

During the sixth decade, the family planning and reproductive health services has received consistent and substantial support from successive governments and during this period notable development are accomplished because in the act of accepting the MDGs, governments were obliged to invest in population welfare and family planning programs more efficiently.

For the first time in history, a detailed **National Population Policy** was launched in July 2002 with the aim of providing universal access to FP services by 2010 and achieving replacement level fertility by the year 2020 (70). For the first time National Reproductive Health Policy (52) was also formulated although reproductive health services were delivered under the National Health Policy 2001

(71). During 2004, the MOPW responsible for LHWs and family planning program was the first ever public sector organization to have (ISO) 9001:2000 Certification for its service delivery outlets, through the United Registrars of Systems (URS), United Kingdom (103).

The number of LHWs became nearly 100,000 by the year 2006 and they were reportedly serving in most of the districts and villages of the country (115). Noteworthy increment was done in the salary of LHWs and they were also provided fulltime employments. Third party evaluation of LHW program by Oxford Policy Management in year 2009 (47) resulted in positive outcome.

Public private partnership played significant role in new millennium, the scope of social marketing was broadened as well as the number of NGO working in reproductive health was increased, moreover, their role was expended. Apart from service delivery, NGOs had played a considerable role in family planning advocacy. In 2005, all public, private and corporate sectors such as Postal Service Groups, Pakistan International Airways, Pakistan Railways, Pakistan *Water and Power Development Authority*, Pakistan Steel, Karachi Port Trust; and the Pakistan Army are involved with the provision of family planning services through their health outlets (114).

Unfortunately, the government of Pakistan had faced a lot of crises in that period especially because of changing political and demographical situation in the region specially at Afghan border and was unable to materialize the financing for immense demand for contraception mean while USAID and other international donors had reduced their support for several years leaving the government on its own resources to fulfill international commitment on reproductive health and family planning (116).

2.2.7. The Seventh Decade of Family Planning Efforts in Pakistan (2010-Present)

Before the start of the year 2010 thoughtful work was done in Ministry of Population Welfare for development of up-to-date 2010 Population Policy, however in the same year by the 18th amendment in the constitution, the Ministry of Population Welfare was terminated and its functions were devolved to the provincial government under Population Welfare Departments (117). Similarly, the

responsibility of LHW Program and Maternal and Child Health Program (MNCH) were transferred to provincial department of health (117).

The major issue is the funding for the programs. In the past, the funds for family planning program were allocated directly from the federal budget. Whereas, after the 18th amendment, the budget was awarded to the provincial government through National Finance Commission (NFC) (118). The provincial government reallocates money to health and social welfare departments for family planning as well as other program. Considering financial constraints faced by the provincial ministry, the appropriate allocation of fund for family planning program is difficult and doubtful, as it is expressed in an interview by former secretary of Population Welfare Department that,

‘...Our parliamentarians do not fully understand the requirements of a good population policy. ...FP has always been last on the priority list of both federal and provincial governments...’ (114)

In July 2012, during the London summit “Family Planning 2020”, Pakistan had reaffirmed its commitment toward achieving universal access to reproductive health and contraceptive services by 2020 and also commits to increase allocation of fund for getting these targets (78). Additionally, Pakistan has adopted historic resolution of United Nation General Assembly on 25 September 2015 “Transforming our world: the 2030 Agenda for Sustainable Development” (85). To pursue the above international commitments firm political support to family planning programs and policies is critical. Post-18th Amendment scenario had created a vacuum because of absence of effective central coordinating mechanism; therefore huge advocacy is needed by this time focusing provincial governments and provincial legislators and convincing them about the significance of family planning program to ensure the reallocation of funding and continuation of the program. Full implementation of reproductive health agenda needs huge resources beyond the capacity of government of Pakistan, but once these commitments are translated into action, donor assistance to support the needed area of family planning and population welfare program will be certain.

Some reformatory moves are underway as evident by the recent ***National Health Vision Pakistan 2016-2025*** (86). This policy document bridges the gap and complements federal, provincial, and inter-provincial efforts for achieving the reproductive health goals. However post-devolution preparation for enhancing family planning appears to be receiving concentrated attention in the health department of three provinces namely Khyber Pakhtunkhwa (KP), Punjab and Sindh. In these Provinces, Health Sector Reform Strategy papers were prepared with the expert assistance placing Family Planning at various levels of importance as described below:

Health Sector Strategy Evolved by Punjab - Health Sector Strategic for 2020 (119)

- Develop Essential Health Services (EHS) Package encompassing infrastructure, workforce, information systems, essential medicines, supplies and equipment (contraceptives were included in essential item list).
- Provide family planning services through uninterrupted supply of family planning commodities to all the primary and secondary level health facilities and outreach workers, the target are:
 - Percentage of BHUs/RHCs provided with more than 75% of essential drugs - 100 % by 2015;
 - Percentage of LHWs with stock-out of family planning commodities 80% (2012-13) to 5 % (2019-20);

Health Sector Strategy Evolved by KP - Health Sector Strategy 2010-2017 (120)

- At least 70% of the population will have access to the Minimum Health Service Package (MHSP) for primary and secondary healthcare services by 2017 (including FP services);
- Increase the contraceptive prevalence rate (CPR) to 55% by 2017;
- Revitalizing the delivery of family planning services in public sector health facilities with a mechanism for forecasting contraceptive requirements and ensuring the uninterrupted supply of contraceptives to all health facilities, LHWs and Community Male Workers (CMWs).

Health Sector Strategy Evolved by Sindh - Health Strategic Plan 2020 (121)

- Formulation of a Minimum Health Service Package (MSDP) with required resource especially MNCH, Family Planning and Nutrition.
- Special areas of emphasis on polio, nutrition, MNCH, family planning, non-communicable diseases, communicable diseases, and disaster.
- Integrated contraceptive services with maternal care by 2016, and provision of free contraceptives as well as family planning training by Directorate of Population Welfare to all health facilities for birth spacing.
- Integration of family planning services with pregnancy care and ensuring provision of long acting and permanent contraceptive methods;

It is important at this moment that the National Family Planning Program of the provincial governments takes ownership of their commitment in Health Strategic Plans. After possession at the provincial level, two main arrangements will be needed for this provision of family planning be more effectively: first, timely allocation of financial resources, which at present are under extreme pressure due to huge amount of budget spent by government on national security and second enhance collaboration among population welfare department, health department, the private sector, and the NGOs. Lack of collaboration and consensus will adversely affect the programs and policies.

2.3. Review on Family Planning and Contraception

This section presents historical review of the literature on family planning and contraception.

2.3.1. Family Planning Past, and Present.

Birth control around the world has a lengthy history. Early contraceptive options offered many effective yet sometimes lethal array of alternatives that included contemporary choice in barrier material, spermicidal substances, and oral herbs (122). For instance, while the ancient Egyptians, women use pessary mixed with acacia gum, honey, sodium carbonate and crocodile dung as spermicide. Early versions of condom made from animal intestines and silk were popular choice of

birth control among ancient Chinese men (123). Apart from these devices and substances, coitus interruptus is one of the oldest methods known and still in practice today with the earliest documented use of this being found in the Bible (124). However, it is significant to note that in antiquities along with abortion, infanticides and abandonment these methods were aimed mainly towards preventing birth of illegitimate child not for the limiting family size (125).

With an understanding of the biology of conception and pregnancy, the 20th century would eventually see the most advancement in the development of birth control and number of contraceptive methods expanded (126). According to MEASURE DHS (127), currently available safe and acceptable methods for contraceptive can be grouped in two main categories namely, modern methods and traditional methods. **Modern contraceptive methods** includes long-acting reversible contraception such as *depot implants* and *intra uterine devices*, hormonal contraception such as contraceptive *pills* known as “*the pill*” and *emergency contraception*, barrier methods such as *male* and *female condoms* and permanent contraception like *male* and *female sterilization*. *Lactation amenorrhea method*, although effectiveness is questionable than the above mentioned methods, is also considered as modern method. (127). **Traditional method** includes *periodic abstinence* and *withdrawal*.

Birth control practice remained a polarized issue in major religion of world throughout the human history (124) yet even in the post-industrial era advertisements, information, and distribution of birth control was prohibited by law in the more advanced countries like United States till 1938 (126). It was only in 1965 The US Supreme Court gave married couples the right to utilize birth control methods, deciding that it was protected in the constitution as a right to privacy (128). As discussed in another section, the latter half of 20th century is marked with greater debate among world leaders about inertia of social structures and the insufficiency of economic progress, along with sacred natural resources. Various international conferences on population were held under the umbrella of United Nations and the plan of actions accepted at international forums ultimately brought revolutionary changes in the attitude of national policy builders and law makers towards

formulation population policy to promote family planning for more balanced and rational socio- economic development.

In nut shell for an ultimate objective to control the overpopulation and build a sustainable future to thrive, family planning, with use of modern contraceptive methods is considered as the greatest public health accomplishment of the previous century. In the meantime United Nations International Conference on Human Rights, in Tehran in 1968 considered fertility as a basic human right (129). According to Resolution on Family Planning Aspects of Human Rights it is declared:

'Couples have a basic human right to decide freely and responsibly on the number and spacing of their children and a right to adequate education and information in this respect' (129)

Pursuing above declaration, national family planning and population's policies were formulated in such a way that it avoids the conflict between personal and collective social interests of the countries in relation to family size or in other way it focuses on individual motivation to limit fertility in order to improve the health and wellbeing of women, men, children, families, and their communities and social and economic conditions in country in general.

As defined by United Nations Population Fund,

'Family planning is the information, means and methods that allow individuals to decide (voluntary) if and when to have children. This includes a wide range of contraceptives. Family planning also includes information about how to become pregnant when it is desirable, as well as treatment of infertility' (87).

In agreement with the above definition, family planning is not just about preventing pregnancy, but also about power of couples to plan their own family size so that every baby is wanted and planned with the bases of human freedom.

ICPD in 1994 was a momentous global event; it has changed the direction of family planning program from just concerning for demographic goal, to the obtaining developmental goal along with reproductive rights and justice. The ICPD program of action recognized

‘The right of men and women to be informed and to have access to safe, effective, affordable and acceptable method of family planning of their choice’ (41).

Since ICPD, family planning and contraception was the main focus of researchers in the field of health sciences, social sciences, management sciences, demography and economics. The numbers of contraceptive were expended their effectiveness was improved, mean time measurable progress has occurred in accessibility and availability and affordability of family planning services worldwide.

Recent global partnerships that include Family Planning 2020 (77), Every Woman Every Child initiatives (130) and agenda for Sustainable Development by 2030 (85) encompass intention to broaden contraceptive information, counseling and services with special focus on under developed countries of world with a broader strategy to accelerate and improve the health and empowerment of all women. Evidence based researches about benefits of family planning for individual, family, community, and country demonstrate that investing in family planning is a key in achieving the Sustainable Development Goals (131).

2.3.2. Indicators of Family Planning Success

Over the past twenty years, there are two widely used population base statistical metrics to observe success of a family planning program and compare the level and trend of contraceptive utilization in a particular community or country, one of them is ‘contraceptive prevalence rate’ and the other is ‘unmet need for family planning’.

Contraceptive Prevalence Rate (CPR)

Contraceptive prevalence rate is conceptually easy to understand and theoretically simple to calculate statistics. It is defined as *‘the percentage of currently married women who currently use any method of contraception’* (132).

Contraceptive prevalence rate is calculated as follows:

$$\frac{\text{Number of women of reproductive age who are married or in a union and who are currently using a method of contraception}}{\text{Number of women of reproductive age who are married or in a union}} \times 100$$

Detailed about coverage categories of numerator, denominator and to deal with missing value are provided in Guide to Demographic and Health Survey (DHS) Statistics (132). As it is well known that effectiveness of contraception depends upon the type method used; consequently for policy makers and program managers it is important to know comprehensive estimates on **method specific prevalence rate** (132) for determining future demand for effective contraceptive methods and setting priorities in population policies to assure national targets.

The second but conceptually more complex measure is ‘**unmet need for family planning**’, which is basically a statistical approach to estimate the percentage of women who are potential users of contraception; in the broadest sense it is calculated as percentage of women who desire to stop childbearing or delayed labor by no less than two years, however are not utilizing any strategy for contraception (133).

In order to understand the concept unmet need of contraception for a community or a country, the total unmet need estimate is disintegrated and includes two mutually exclusive component, that are “unmet need for limiting childbearing” and “unmet need for spacing childbearing” (133). The former is the proportion of currently married women who want no more children or stop child bearing but are not using any contraceptive method (134) and the latter is the proportion of currently married women who want to delay next pregnancy for at least two years or who weren’t sure when they wanted to become pregnant but are not using an effective method for family planning (134).

The concept of unmet need is a useful measure to evaluate national population policies and progress of family planning programs since it indicates how well nation is accomplishing an indispensable objective specifically meeting the women’s need for contraceptive use. The estimates of unmet need help family planning services to identify and target women who are at higher risk of becoming

pregnant unintentionally and are more likely to accept contraceptive usage. The unmet need statistic, particularly the level and trend of unmet need has served paramount purposes. The former could be used as a measure of potential demand for family planning programs whereas the latter could be used for assessing the effectiveness of contraceptive and reproductive services (135). Additionally, the measure of unmet need provides rationale for increasing the investment in family planning programs.

Evolution of Definition of Unmet Need for Family Planning

The idea regarding “discrepant (contraceptive) behavior” that ultimately developed, transformed and revolutionize into unmet need for family planning/contraception (136,137) in demographic literature dates back to 1960s. It was first explored on analysis of contraceptive knowledge, attitudes, and practices (known as KAP) surveys dataset of that era (138,139). Researchers’ identified a subset of women’s with inconsistent responses (“gap”) in their reproductive intentions (“need”) and contraceptive use behavior (139), and it was initially known as “KAP-gap” – an apparent discrepant behavior of women who need to avoid child birth, on the contrary not using any contraceptive method (139,140). However, the KAP surveys neither did interrogate about spacing preferences nor did they attempted to figure out whether woman was actually fecund or not (141,142).

One of the earliest appearances of the terminology “unmet need” in literature was in late 1970s (143,144), when the global population growth rate was at historical peak level (8) and International Statistical Institute supported by UNFPA, and USAID established the World Fertility Survey program that was conducted between 1974 to 1987 in 42 developing countries representing nearly 40% of the world's population (145). Demographers and reproductive health advisors of that time recommended to keep track of the demand and need of family planning services and to evaluate performance of family planning program utility. Their main objective was to examine the impact of satisfying demand of contraception on total fertility decline (136,145). Since then, this new terminology began to supersede the term “KAP-gap” when determining the inconsistency in between fertility preferences and contraceptive use of women.

Early attempts to quantify unmet need employed a relatively simple calculation. In its simplest form, unmet need was computed as the percentage of currently married women who want no more children but are not using contraception (the numerator), out of all currently married women (the denominator). (146)

With the commencement of the World Fertility Surveys (WFS 1974-87), and the Demographic and Health Survey program (DHS) that accomplish the World Fertility Surveys since 1984, substantial improvements were made by virtue of the fact that public health professional and demographers have great debated about by virtue of what it should be defined and according to what source it affirm about women's motivations and intentions regarding contraceptive use and fertility behavior and by what means it ratify that the women is at risk of child birth. In order to obtaining realistic measurement regarding unmet need for family planning, the definition and the calculation remained subject of discussion methodological criticism (136,142,146-151). Daring the last four decade, researchers had concentrated on reclassifying, adjusting and extending the idea of unmet need for family planning (133,136-151) and eventually fundamental segments of unmet need formula that is the numerator and denominator both experiences extraordinary diversification over the years.

In order to measure more objective and unbiased estimates of unmet need continued refinements and consolidation such as classifying and excluding women who were infecund addressing duration of postpartum amenorrhea, pregnant and breastfeeding women unevenly in different definitions; complexity due to contraceptive calendar (contraceptive calendar is a month by month history of pregnancies, labors, abortions, and pattern of contraceptive utilization by the woman preceding 5 years to her DHS interview) (152); changes due to inconsistency in survey questions and too many other methodological alterations (133,136-151) ultimately resulted extremely complicated definition and highly complex calculation of this measure (133).

The definition of unmet need has not only been altered over time but it has been applied inconsistently across national and international surveys (133). Resultantly it can exclusively be used in producing estimates for one country at one time point to justify investment in family planning program moreover across country

comparison and tracking trends over time for the same country is troublesome and potentially ambiguous.

The ICPD held in 1994 was crucial juncture in the timeline of national population policies; 179 countries agreed to adopt a program of action aimed at women empowerment and giving reproductive autonomy especially to make decision about child birth (41). By that time, national and international organizations in family planning started giving more importance to achieving reproductive need of women by family planning and estimation of unmet need for contraception became more indispensable element in demographic and reproductive health research.

Proceeds from ICPD came the millennium development goals (MDGs) in the year 2000; during that time more evidence based research endorse that investments in family planning can have on achieving the MDGs (63) and by the year 2006 unmet need was treated as one of key MDGs indicator (indicator number 5.6) that advocate for maternal and child health across the globe (62). After becoming MDGs indicator, unmet need gain remarkable level of attention and received an unprecedented level of scrutiny because policymakers and program planners wants to ensure that it is measured more consistently than ever.

Revised Definition of Unmet Need and Its' Algorithm

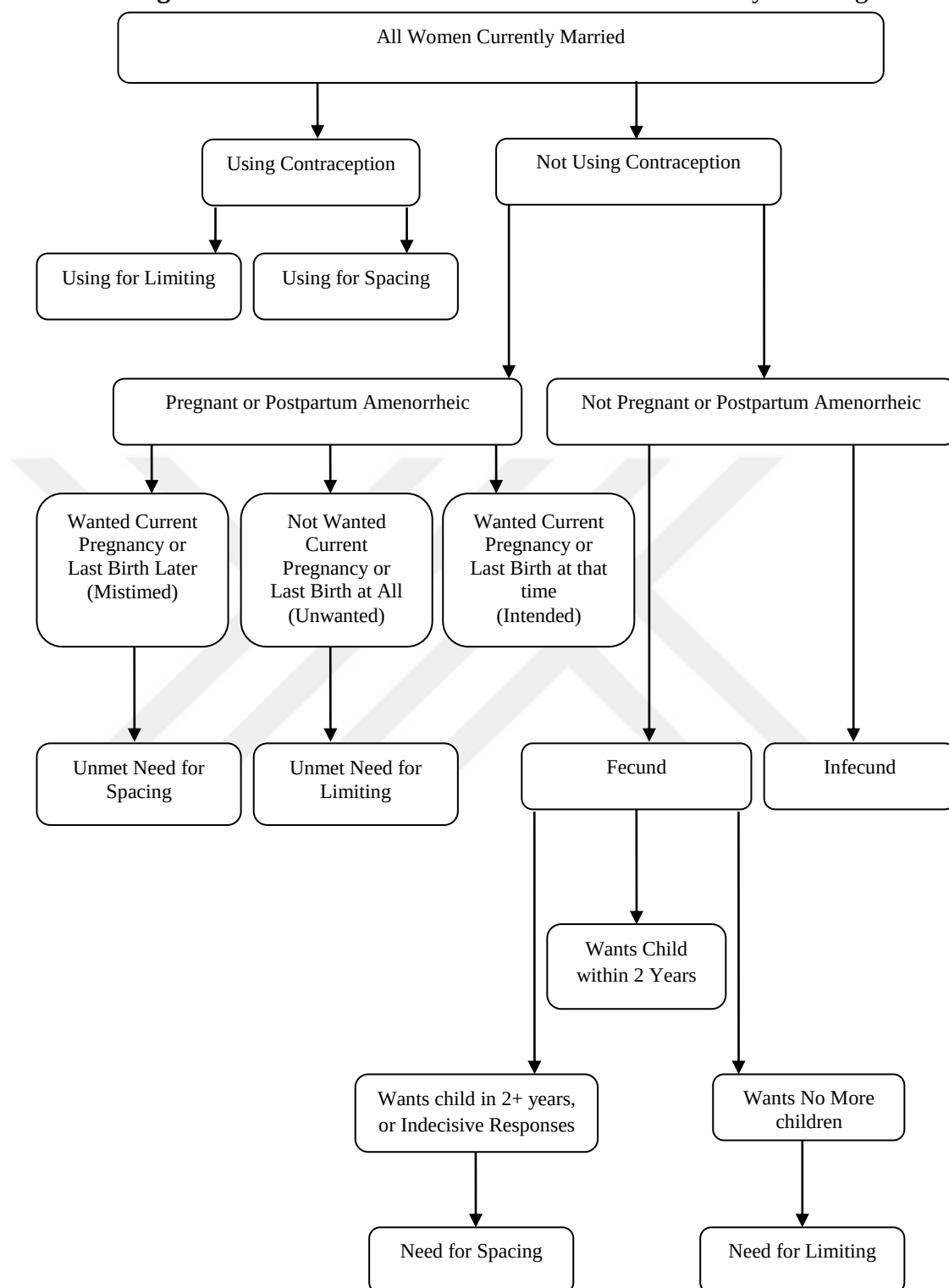
During last three decade, MEASURE DHS program (153) is played significant role in collection of internationally comparable demographic and health data of populations in developing countries. Acknowledging utmost significance of unmet need estimates in monitoring MDG progress of developing countries particularly, it was thought that it is crucial to measure unmet need more consistently and therefore, MEASURE DHS convened a Technical Expert Working Group (TEWG) in July 2010 for meticulously revising definition of unmet need with the aim to reduce the complexity (133). Number of options for revising the definition of unmet need was considered and debate by experts, the details of a revision and comparisons between old and freshly revised definition are provided in 'DHS Analytical Studies No. 25' (133).

Based on thoughtful discussions and examination of the impact of changes in 160 DHS surveys, the TEWG has agreed upon developing an unmet need

determining algorithm that draws from 15 DHS survey questions (133). According to that algorithm, women are first categorized according to the status of contraceptive use. Among nonusers, either postpartum amenorrheic or pregnant women are classified as having unmet needs, in case their pregnancy or last birth was unintended. On the other hand, women that are neither postpartum amenorrheic nor pregnant are further classified according to their fecundity. Fecund women who desire to stop or delayed childbearing by no less than two years are codified as having an unmet need for family planning. Lastly, as fashioned in literature since 1982 by Norman (151), women with unmet need are grouped according to whether they have unmet need for birth limiting (stop childbearing) or unmet need for birth spacing (want to avoid a pregnancy for at least two years).

Consequently, in accordance to the algorithm, married women have ‘no need’ for family planning if they are; infecund or pregnant at the time of survey with an intended pregnancy or postpartum amenorrheic following an intended pregnancy or would desiring to get pregnant within two years. While, the need is considered to be ‘met’ if fecund women are using contraception either for spacing or limiting the birth at the time of survey.

The algorithm developed on the basis of a set of assumptions proposed by TEWG is outlined in Figure 2.1

Figure 2.1. Revised Definition of Unmet Need for Family Planning

The Impact of Revising the Definition of Unmet Need

The characteristic change between *original definition* (used during 2003-2008) and *revised definition* (used since 2008) is the categorization of women who are pregnant, experiencing postpartum amenorrhea and infecund to distinguish unmet need from met need and no need. In the *revised definition*, use of contraceptive calendar was omitted and the unmet need category was broadened by including pregnant women and women experiencing postpartum amenorrhea if their current or last pregnancy was mistimed or unwanted (133).

The re-calculation based on revised definition results in a little increase in the levels of unmet need, however the impact of revision is considerably minimal and acceptable for majority of previous surveys and less problematic for most of the developing countries (including Pakistan) (133,144). In countries with high levels of contraceptive prevalence rate, and had collected contraceptive calendar data in surveys, the impact is more (133).

It was expected that the simplified and standardized definition will have advantage of getting more reliable estimates and comparable trends over time than the expenses of efforts for these changes (133).

Criticism on Revised Definition of Unmet Need

The revised definition of unmet need is yet not free from critiques among researchers. There are two main objections about new definition; the first is exclusion of traditional method users from definition and the second inclusion of only currently married or in union women in its calculation (154,155).

Use of traditional method of contraception for family planning is debatable issue among researchers (156,157) because they are generally considered as ineffective and virtually ensure substantial number of unintended child birth and abortion which pose risks for women, as well as their families' and societies'. Family planning program always recommends using safe and effective modern contraceptive methods. As unmet need is the estimate of the magnitude and characteristics of the additional market for family planning, researches emphasize that the level of unmet need should include the obvious demand for modern method use (154) that leads to

isolation of traditional methods users. However, there are studies, which suggest that failure rate of traditional method are low in those who use these methods diligently and carefully (158,159), therefore those using traditional methods efficiently should not be overlooked and, treated as having an unmet need for a modern contraception (154).

One suggestion is classifying traditional method users who prefer to change it with more effective modern, into the category of unmet need for a modern contraception (154). In this way, total unmet need will be the sum of group of nonusers who have unmet need for any contraception and traditional method users who have unmet need for a modern contraception (154).

Critics have also pointed out shortcomings of excluding unmarried women (154) representing large and growing segment of the population of many countries and whose level of sexual activity made them at risk of pregnancy, but their needs have only been measured only in few countries (155). Research had found that the level of unmet need for modern contraception is generally higher among unmarried sexually active young women compared to the married young women (155).

Understanding the Concept of Unmet Need

Unmet need is a complex and highly context-specific measure; its value ascent and descent in accordance with demand for family planning and contraceptive prevalence (134). As evident from Table 2.2, lower level of unmet need does not indicate that reproductive health and family planning programs in that community are very effective. It may be by virtue of cultural norms, for example women desire to have large family size. During demographic transition, when societies move from high birth rate to low birth rate, unmet need value is smaller at first (just as in case of Niger), then it increases during the middle part of transition because the knowledge about family planning is raised and traditional norms for large family is changed by that time (as seen in Uganda). At the end of demographic transition, value of unmet need again reach to lower level because women desire to have smaller family and are also using family planning for doing so (as seen in Colombia). Therefore, it is noteworthy to understand and interpret

estimates of unmet need in context with contraceptive utilization and other fertility related parameters in the community (134).

As noticed in the Table 2.2, Niger has low unmet need because of the traditional norm of the ideal family size which is approximately nine children and by virtue of this, utilization of contraception is lower. On the other hand, in Uganda, the utilization of contraceptives is lower but women want few children that result in high level of unmet need for contraception. Finally in Colombia, small family size is modern culture norm and concurrently higher utilization of family planning programs with greater contraceptive prevalence lowers the level of unmet need. To prevent the misunderstood and misuse of low level of unmet need, country specific background profile is needed to be considered; as in this example, low levels of unmet need in Niger reflect little interest in contraception by reason of desiring large family; on the other hand, low levels of unmet need in Colombia reflect the maturity of family planning program and culmination of contraceptive services utilization.

Additionally, it is also important to remember that woman's need for family planning remains unstable throughout her reproductive life span (17) and depends upon variety of circumstance. She may face unmet needs at one point of time and may have unmet need or even no need at other point of time because of the change in relationship, fertility plans, residence, socioeconomic status and even child mortality and morbidity.

Table 2.2. The value of unmet need, modern contraceptive prevalence, total fertility rate and ideal family size in three countries at different demographic time line*.

Country	Unmet Need (Level / %)	Modern Contraceptive Prevalence (Level / %)	Total Fertility Rate	Ideal Family Size
Niger (2006)	Low / 16	Low / 5	7.0	9.1
Uganda (2006)	High / 38	Low / 18	6.7	5.3
Colombia (2010)	Low / 8	High / 73	2.1	2

*Adopted from Population Reference Bureau (134).

2.3.3. Status Family Planning in World and in Pakistan.

Global Trend in Contraceptive Use

Since the first World Conference on Population held in Rome in 1954 and its successors specifically the landmark ICPD, family planning programs had a noteworthy impact in raising the global utilization of contraceptives from 30% in 1960 to more than double value of 64% in 2015 (97), and substantial decrease in total fertility rate from six to about three births per woman during the same period albeit the rate of progress was highly varied among regions and countries over the time (8). Researches also highlights that worldwide remarkable growth in contraceptive prevalence occurred between 1990 and 2000 (around ICPD) thereafter in between 2000-2010 the pace of increase in contraceptive prevalence was slowed worldwide significantly in developing countries (160).

Currently modern contraceptive methods constitute 90% of contraceptive used worldwide (97) with female sterilization and the IUD are the two most preferred method of contraception. However, the method specific contraceptive use across region is largely uneven, for example pill, injectable and male condom are more widely use in Africa and Europe whereas female sterilization, implants and IUD are more common in Asia and America (97). Despite the compelling global increase in contraceptive prevalence, great disparity exists in developed and developing world. The contraceptive prevalence is as much as 80% in Europe, Northern America and China. However, less than half of this figure, about 30% in most of the developing countries and more significantly only around 15% in least developed Sub Saharan African countries (97).

Before Demographic and Health Surveys and World Fertility Surveys, limited data about family planning indicators are available for developing countries. Segal (161) by available source showed that contraceptive usage was less than 10% before 1960's in most of the developing part of the world, yet still in 2015 contraceptive prevalence in most of the developing countries of Africa is below 20% (97). The exceptionally slow and heterogeneous progress in family planning indicators in developing countries shows that contraceptive users in low and middle income countries are not only influenced by wide verity of socio-economic and

socio-cultural factors but also accessibility, availability and affordability of contraceptive methods (162). The Demographic and Health Surveys give knowledge regarding reasons for non-utilization of family planning. In spite of the fact that reasons vary in between and within countries, the main reasons include limited choice of methods; lack of accessing contraception; fear of side-effects; constraint cultural or religious believes (97). As like the prevalence of contraception, the reasons for its non-use were also vary widely across the region. Comparative studies of the reasons for non-use of contraception indicated that in Sub-Saharan African countries, health concern and opposition to contraception were the two most commonly cited reasons. In South-East Asia, side effects and health concerns were cited mostly. In South Central Asia, opposition to contraception followed by infrequent sex was the main reasons (97).

It is not-worthy to mention that reproductive behavior and family planning are not isolated event; there is a complex two-way interaction exists between contraceptive use and maternal and child health. The biological and social relationship between these closely related factors could most effectively be analyzed in countries where contraceptive use has steadily increased. Countries with high contraceptive prevalence rate brought positive changes in reproductive patterns including the decrease in unwanted pregnancy, the reduce in the number of abortions, the increase in age at first birth and successive birth interval, and the dismiss in total parity (163,164). World Bank data (165) also proved that the countries with low fertility rate are also lower on maternal and child mortality indicators. Research has demonstrated that family-planning advocacy in developing countries with high birth rates has potential to improve women's and children health (166). Apart from health related outcomes of family planning, access to birth control has transformed social and economic roles of women in the last century and provided large macroeconomic demographic benefit (166).

If the reproductive health agenda and targets set in newly adopted Agenda for Sustainable Development will be translated in to the actions, then it is projected that by 2030, there will be substantial growth in contraceptive prevalence worldwide notably in regions of Sub-Saharan Africa (97).

Contraceptive Use Trend in Pakistan

Only scattered data are available about contraceptive prevalence prior to 1990 in Pakistan. The data from National Impact Survey (NIS 1968-69), Pakistan Fertility Survey (PFS 1975) and Pakistan Contraceptive Prevalence Survey (PCPS 1984-85) show that the level of contraceptive use remained far below 10% of married couple throughout these period (45). The first demographic and health survey conducted between year 1990-91 demonstrates that the contraceptive prevalence of about 11.8% with modern contraceptive use about 9% (45). Female sterilization followed by condom was the most preferred method of choice (45). In the early 90's, contraceptive use rose at a rate of nearly 2% per year, and by the end of the decade it reached up to 28% as indicated by Pakistan Reproductive Health and Family Planning Survey (PRH&FPS 2000-01) (96). Thereafter, rate of progression was very slow and in the next six years, there is only 2% increase and by the time of second demographic health survey in 2006-07, CPR became 30% (96). The latest demographic and health survey in 2012-13 indicates 1% per annum increase in the last five years prior to survey and the contraceptive prevalence at the time of survey was about 35.4% (84).

According to United Nations Department of Economic and Social Affairs (97) in year 2015, the contraceptive prevalence in Asia was 68% and in South-East Asia the level was 64% however CPR in Pakistan is far below the regional average and Pakistan had lowest value in the region after Afghanistan (97) although according to latest demographic and health survey, the knowledge of contraception is universal in Pakistan and on average seven method of contraception is known by currently married women (84).

During the last two decades, ratio between urban and rural CPR has decreased from 1:5 in 1991 (45) to 1:2 in 2007 (96) and finally it became 1: 1.4 in 2013 (84). In parallel to this differential among provinces was also reduce in the last twenty years (45, 84, 96). Compelling increase in contraceptive use was noted in most populous Punjab Province; approximately 27, 17, 20, and 18 percentage points increase in CPR between 1990 to 2012 was noted in Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan (45,84,96).

Contrary to the current use of contraception, a steadily increased in ever use of contraception is noted over last two decades, backed in year 1990 only 20.7% (45) of the surveyed women had used contraceptive at any point of time, and this figure increases to 40% in the year 2000 (PRHFPS) (96), 49% in the year 2006 (96) and finally to 54.8% in the year 2012 (84). Discontinuation of contraceptive use is important issue for contraceptives program managers. Year 2012 data shows that a total of 37% of contraceptive use episodes were discontinued within one year because of any reason, side effects or health concerns was the major reason for discontinuations, woman's desire to get pregnant comes next common reason. Overall 6% discontinuations were due to method failure (84).

Looking to the contraceptive method mix, Pakistani females' choice of family planning method had only little change in the last twenty years and female sterilization followed by condom remained the most common contraceptive method (45,84,96). The current share of female sterilization and condom among other modern contraceptives is 33% and 32% respectively (84) with little change since 1990. In particular, *intrauterine device* (IUD) has lost importance over the last twenty years; its share among modern method fell from 14% to 8% (45,84). The rest of the modern methods show slight change over this period. Among traditional methods, withdrawal was the more preferred way of birth control in Pakistan, and 24% of current contraceptive user preferred this method in 2012 survey (84).

Demographic data also indicates that Government facilities remained main source for almost half of all family planning users (45,84,96). Data also shows that fertility-related causes, opposition to use and religious beliefs were the leading reasons for not utilizing family planning services in Pakistan (45,84,96).

Worldwide Trends in Unmet Need for Family Planning

As discussed above, the unmet need around the globe was subjected to local contraceptive use, ideal family size and total fertility rate which were remained in flux during last century as countries transit through different demographic stages in different point of time. According to report of United Nation Department of Economic and Social Affairs (97) in the year 2015, worldwide 12% of married women are estimated to have unmet need for family planning. In general, unmet need

was above 20% in the most part of Africa and Pacific Islander while below 10% in Northern America, most of the Europe and Eastern Asia (97). Nevertheless, wide disparities in trend and pattern of unmet need for contraception was evident within country between more developed and less developed region, urban and rural residence, more educated and less educated women, non poor and poor family status, working and non working women (167).

Looking to unmet need trend in the past two decades, it can be concluded that since ICPD worldwide, unmet need fell 3 percentage points from initial value of 15% in 1990, to 12% in 2015 (43). The fall of unmet need accompanied by gain in contraceptive use is evident in all regions however benchmark commitment set by governments of developing countries in MDG were beyond the bounds in most of these countries and substantial gap in the use of modern contraceptives is still evident among those who want to avoid childbirth (97). The Guttmacher Institute (168) estimated that as of 2017, in developing countries, about 214 million women want to avoid childbirth but are not using modern contraception; this includes 59 million women who depend on traditional birth control methods. Furthermore, in countries with high levels of unmet need, health concerns and opposition to family planning were the most common reasons for non-use, despite women stated to avoid pregnancy (169).

Researchers found that woman who desire to stop or delay child birth but are not using any effective contraceptive method are prone to the risk of unintended pregnancies that either result in abortion or delayed or not at all prenatal care (134); this eventually is a major risk in mothers and infants health. Abortion is one of the major outcome of unintended pregnancies, and in countries where safe abortion is not protected by law, termination of unintended pregnancies are performed under unsafe conditions and in unskilled hands which result in maternal death or serious reproductive injuries. Guttmacher Institute (168) estimated that in 2017, women with an unmet need for modern contraception account for 43% of overall and 84% of all unintended pregnancies in developing countries.

It is also estimated that if all women with an unmet need for contraceptives were capable to utilize modern contraceptive methods, the number of unintended

pregnancies in developing world would fall from 89 million to 22 million each year. This transcribe to 23 million less unplanned births and 35 million fewer induced abortions per year (168). In addition, fully meeting the unmet need for modern contraception will prevent 76,000 maternal (168) and 1.6 million infant deaths annually (170).

Unmet Need for Family Planning In Pakistan

According to United Nations Department of Economic and Social Affairs, Population Division report (97), in the year 2015 nearly 47 million, (the highest number per region) of the married women of the whole world who want to avoid pregnancy but not using any method of contraception were living in Southern Asia. In a separate report (171), it was stated that Pakistan has highest unmet need for family planning in that region. According to recent Pakistan Demographic and Health Survey 2012-13 (84), one out of five married women in Pakistan (20%) have an unmet need for family planning, with 9% have an unmet need for birth spacing, and 11% have an unmet need for birth limiting (84). It was estimated that if all women who want to space or limit their pregnancy use a contraceptive method, the CPR would increase up to 56% (84). This highlights importance of addressing unmet need for contraception for boosting family planning program in Pakistan.

As expected, socioeconomically poorest young women in mid 20 years of age, with no formal education living in rural area has greatest level of unmet need in Pakistan (84). Wide regional disparity/variation also exists and unmet need for family planning is highest around 32% in Baluchistan province and nearly half of it about 17% in Punjab province (84).

Since ICPD in year 1994, contraceptive use in Pakistan have been increasing by around 1% per year, however as evident from the Table 2.3, total fertility decline is very slow; only 1.6 births per woman and more significantly the ideal family size remained almost stagnant at 4.1 during this period (45,84,96). In addition to these in 1991, 36% of women surveyed wanted no more children (45) and this number increased to only 42% in the year 2012 (84). Despite the fact that government policies and mass media family planning campaign advocated for two child policy, latest DHS data (84) shows that only 27% of the women at parity two, want to stop

child bearing. All these figures clearly indicate preference for large family norm continue to prevail in Pakistani society.

Future intention for contraception among current non-user is a meaningful sign of demand for family planning during year 1991. Only 6% nonusers reported that they do intend to use contraception in the future (45). However, this value increases nearly seven times and reached up to 39% in the year 2012 (84). In line with these findings, there has been a substantial decrease in proportion of births considered mistimed or unwanted since the year 1991, from 22% (45) to 15% in the year 2012 (84).

Table 2.3. The value of, total fertility rate, ideal family size, contraceptive prevalence and unmet need in three Pakistan Demographic Health Surveys (PDHS 1990-91, 2006-07, 2012-13)

	PDHS 1990-91	PDHS 2006-07	PDHS 2012-13
Total fertility rate	5.4 children per woman	4.1 children per woman	3.8 children per woman
Ideal number of children*	4.1	4.1	4.1
Current use of contraception	12.0%	29.6%	35.4%
Unmet need for spacing	10.5%	10.9%	8.8%
Unmet need for limiting	17.6%	14.0%	11.3%
Total unmet need	28.0%	24.9%	20.1%

*Among women who gave a numerical answer for their ideal family size and excluding respondents who gave non-numeric responses.

3. DATA AND METHODS OF ANALYSIS

3.1. Data Sources

All variables used to analyze prevalence, trends, determinants and dynamics of contraceptive use as well as the unmet need for family planning in Pakistan were mainly originated from the data sets of Pakistan Demographic and Health Surveys (PDHS) which were conducted in 1991 to 1992, 2006 to 2007 and 2012 to 2013 together with the support of the Ministry of National Health Services and accomplished by the National Institute of Population Studies (NIPS). Technical and financial assistance for the surveys were provided by ICF International and USAID (45,84,96).

These nationally representative surveys are part of the international Demographic and Health Surveys project. They have been designed to provide up-to-date and reliable information for national policymakers, program managers and stakeholders on maternal and child health (153). Information on the previously mentioned topics was primarily collected from ever-married women; however, in the surveys some information was also collected from ever married men.

3.2. Sample Size Estimation, Study Population and Sampling Method

Utilizing the most recent national census data, Pakistan Bureau of Statistics estimated the optimal sample sizes in different sampling stages with the aim to minimize the sampling error under a given sampling budget and to provide logical precision for the survey indicators. Details about sample size calculation are provided in PDHS country reports (45,84,96).

As mentioned above, the prime purpose of the PDHS' are to give authentic estimates of family planning, reproductive health, and child health indicators at the national, regional, urban and rural levels. To meet this objective, survey data was collected from nationally representative samples of households and moreover, from ever-married women and men aged 15-49 in the sampled households.

The sampling approach adopted in these surveys was characterized as weighted, two-stage, stratified cluster sampling design. Such that 'enumeration blocks' in the urban domain and '*mouzas/dehs/villages*' in the rural domain were

taken as Primary Sampling Unit (PSUs) and were selected using a probability proportional to size sampling scheme with independent selection in each sampling stratum. 'Households' were considered as Secondary Sampling Units and in the second stage a fixed number of households were selected from each sample point, adopting a systematic sampling technique with a random start. Details of sample design, including sample framework and implementation, are provided in the report of Pakistan Demographic and Health Surveys (45,96,84).

3.3. Study Design

This analysis used cross-sectional data from three consecutive Pakistan Demographic and Health Surveys that were conducted in 1990 to 1991, 2006 to 2007, and 2012 to 2013. Although the PDHS data are generally collected from ever-married women, however for the purposes of this thesis, the unit of analysis was restricted to sub-sample of currently married women aged 15-49 years. In view of this, data of 6,364 women for the years 1990 to 1991; 9,556 women for the years 2006 to 2007 and 12,937 women for the years 2012 to 2013 was included in the analysis. In each case, the sample is representative at the national, regional, and residence (urban/rural) levels (45,84,96). The sample design and the questionnaires used in these surveys resembles significantly to each other providing comparability among surveys.

A brief overview of the three Pakistan Demographic and Health Surveys used in the analysis will be presented before discussion of variable construction and selection as well as statistical analysis.

3.4. Outline of Pakistan Demographic and Health Surveys

3.4.1. Pakistan Demographic and Health Survey 1990-91 (PDHS 1990-91).

The sample size of PDHS 1990-91 was 8,019 households (secondary sampling units) for coverage from 408 sample areas namely Primary Sampling Units (PSUs). The target was to interview 8,019 ever-married women ages 15-49. From the selected sample of households, a systematic sub-sample of one in three households was chosen for inclusion in the husbands' sample. One PSU in Baluchistan could not

be reached because of insecure situation. A total of 7,193 households in 407 PSUs were regarded as available for the household interview (97% household response rate). Among the interviewed households, 6,904 women were identified as eligible for individual interview; out of these, 6,611 women were satisfactorily interviewed (96% response rate). Moreover, in the interviewed households, 1,757 husbands were identified as eligible for individual interview and out of these 1,354 husbands (77% response rate) were successfully interviewed. The field study was completed between December 1990 and May 1991. Fifteen teams worked in data collection process.

In PDHS-1990-91, three types of questionnaires were used as data collection tool. These are Household Questionnaire, Woman's Questionnaire and Husband's Questionnaire. The content of the questionnaires were based on the DHS Model B Questionnaire, which was designed to be use in low contraceptive prevalence countries; however some modifications to the model questionnaire were made after consultations with related ministries and PDHS Technical Advisory Committee. The questionnaires were translated from English to Urdu and other regional languages.

The Household Questionnaire was used to enumerate all usual members of the family and visitors who slept night before the interview at the selected households and collect information relating characteristics of each person listed, including their age, sex, marital status, education and relationship to the head of the household. The main objective of Household Questionnaire was to identify women and men who were eligible for the Women's Questionnaire and the Husband's Questionnaire. Furthermore, the Household Questionnaire gathered information about the household itself, such as the source of water, type of toilet facilities, materials used in the construction of the house, and ownership of various durable consumer goods.

The Woman's Questionnaire was used to obtain information from eligible ever-married women ages 15-49 about background characteristics, marriage, reproductive history, knowledge and use of contraception, family size preferences, pregnancy and breastfeeding, vaccinations and the health status of children. In addition, interviewing teams measured the height, weight and arm circumference of all respondents' children under age of five. The Husband's Questionnaire was

composed of a sub-set of the questions on the Woman's Questionnaire with special attention on family planning, marriage and family size preferences.

3.4.2. Pakistan Demographic and Health Survey 2006-07 (PDHS 2006-07)

In order to provide reliable national level estimates of maternal mortality ratio (MMR) and under age five mortality rates, the PDHS 2006-07 was the largest-ever household-based survey conducted in Pakistan. The sample size was 102,060 households (secondary sampling units).

In accordance to DHS guidelines, the two stage, stratified, random sample design was adopted. At the first stage, 1,000 sample points (PSUs) were selected. The second stage of sampling implicates the selection of secondary sampling units (households). In every PSU, 105 households were selected by systematic random sampling technique. Out of 105 sampled households, 10 households in each sample point were selected using a systematic random sampling approach for conducting interviews with the Long Household and the Women's Questionnaires. Because of security and political reasons, 28 PSUs were not covered (mainly in Federally Administered Tribal Area-FATA) and survey was done in a total of 972 sample points.

A total of 102,037 households were selected for data collection, of which 97,687 were occupied at the time of fieldwork. Of the occupied households, 95,441 (98% response rate) were satisfactorily interviewed. A sub-sample of 9,255 households were selected for Long Household Questionnaire data collection, and 10,601 ever-married women aged 15-49 were identified of whom 10,023 were completely interviewed, giving response rate of 94.5%. The data collection process was completed between September 2006 and February 2007.

A total of six types of questionnaires were used for data collection in PDHS 2006-07. These are Community Questionnaire, Short Household Questionnaire, Long Household Questionnaire, the Woman's Questionnaire, Maternal Verbal Autopsy Questionnaire and Child Verbal Autopsy Questionnaire. The contents of the questionnaires were based on DHS Model B Questionnaire, which was designed for use in low contraceptive prevalence countries.

The Community Questionnaire was a concise form that was filled out for each sample point in rural area. It included questions about the availability of various kinds of health and family planning services and availability of transportation, education, and communication facilities. The geographic coordination was taken for each sample point by using geographic positioning system (GPS).

The Short Household Questionnaire was administered to 92,340 households and the Long Household Questionnaire along with the Women's Questionnaire was used in the 9,720 households. These household questionnaires were used to provide basic demographic data of household, and to identify any death of a child under age 5 since January 2005 and any death of a woman age 12-49 since January 2003. The Long Household Questionnaire was used to collect extra details such as current school attendance, survivorship status of parents of children under age 18 and registration status of each person.

The Woman's Questionnaire collected same information as in PDHS 1991 but in addition to it, information regarding prenatal and postnatal care, awareness about HIV/AIDS and other sexually transmitted infections, knowledge of tuberculosis and hepatitis, experience with fistula, use of clean syringes for injections were also collected.

Verbal autopsy questionnaire was used if the household had experience any maternal or child death in preceding five years. The Maternal Verbal Autopsy Questionnaire covered details about the woman's characteristics, symptoms, circumstances and any treatment prior to her death. The Child Verbal Autopsy Questionnaire was used to collect details about the illness and cause of death of a child under 5 years.

3.4.3. Pakistan Demographic and Health Survey 2012-13 (PDHS 2012-13).

The PDHS-2013 is the most recent survey. A sample size of 14,000 households (secondary sampling units) from 500 sampling areas (PSUs) was estimated to provide reasonable precision for the survey indicators. Two PSUs of the Baluchistan province were dropped because of their adverse law and order situations. A total of 13,944 households were selected for the sample of which 13,464 were

found to be occupied at the time of the fieldwork, and of the occupied households, 12,943 were completely interviewed yielding a household response rate of 96 %.

A total of 14,569 ever-married women aged 15-49 were identified in the 12,943 households interviewed. Of these women, 13,558 were satisfactorily interviewed, yielding a response rate of 93%. A sample of 3,991 men was also identified as eligible to be interviewed. Of the eligible men, 3,134 were successfully interviewed, yielding a response rate of 79%. A total of 20 teams were established to collect data and fieldwork which was carried out from October 2012 to March 2013.

The 2012-13 PDHS used four types of questionnaires: Household Questionnaire, Woman's Questionnaire, Man's Questionnaire, and Community Questionnaire. The contents of the questionnaires were based on DHS Model B Questionnaire.

The Household Questionnaires were used to enumerate the usual members and visitors in the selected Households as well as to collect demographic and socioeconomic information. The content of Woman's Questionnaire was similar to the previous PDHS but in addition to that, information about domestic violence and woman's decision-making role were also collected. A unique characteristic of PDHS 2012-13 Woman's Questionnaire is utilization of "Calendar" section of the questionnaire, which was used to record all events in reproductive history, contraceptive use and its discontinuation from 3-62 months prior to the survey.

The Man's Questionnaire consists of a subset of the questions used in the Woman's Questionnaire. The Community Questionnaire, was actually a concise form completed for each rural sample point, it included questions about the availability of various types of health services and presence of transportation, education, and communication facilities.

Table 3.1 portrays the basic features of the all three nationwide Pakistan Demographic and Health Surveys that were conducted in years 1991-92, 2006-07 and 2012-13 (45,96,84).

Table 3.1. Basic Characteristics of the Three Nationwide Demographic and Health Surveys in Pakistan. (PDHS 1990-91, 2006-07 and 2012-13)

Surveys	Households Selected	Households Occupied	Households Interviewed	Household Response Rate	Number of Eligible Women	Number of Eligible Women Interviewed	Eligible Women Response Rate	Level of Analysis	Questionnaire Type
PDHS 1990-91	8019	7,404	7,193	97.2	6,910	6,611	96.0	National ¹ 4-Regions Urban-Rural	DHS Model B Questionnaire
PDHS 2006-07	40,827	39,060	37,909	97.1	4,104	3,830	93.3	National ² 4-Regions Urban-Rural	DHS Model B Questionnaire
PDHS 2012-13	13,944	13,464	12,943	96.1	14,569	13,558	93.1	National ³ 4-Regions Urban-Rural	DHS Model B Questionnaire

1. Excluding the FATA, military restricted areas, the districts of Kohistan, Chitral and Malakand, and protected areas of North West Frontier Province (NWFP) *. One PSU in Balochistan could not be reached because of the insecure situation.

2. Excluding the Federally Administered Northern Areas (FANA), FATA and restricted military and protected areas*. Four sample points of Baluchistan were dropped because of unrest in those areas, and four sample points of Khyber Pakhtunkhwa were dropped because of resistance and refusal of the community.

3. Excluding Azad Jammu and Kashmir, FATA, and restricted military and protected areas*. Two areas of Baluchistan province (Punjur and Dera Bugti) were dropped because of their deteriorating law and order situations.

*The population of excluded areas constitutes less than 5 percent of the total population.

3.5. Theoretical Model for Analysis and Research Hypotheses

3.5.1. Conceptual and Operational Framework for the Determinants of Contraceptive Use Behavior of Women

Prior studies have shown that women's choice to use or not use any contraceptive method and her unmet need for contraception is shaped by variety of factors (172-197,202-204,207-222). Therefore, it is important to assess and identify the dimensions along which determinants of contraceptive use and the unmet need for family planning vary. In public health research specifically in epidemiological studies, theoretical frameworks are constructed to describe the relationships and predict the association among different predictors related with health behaviors. These frameworks not only provide powerful tool for testing theories by way of causal explanation, but also provide foundations for social and behavioral interventions toward improving health outcomes. Subsequently, a review of relevant literature is made and conceptual framework for selecting variables conducting the analysis in this thesis was adopted from Bulatao's framework of contraceptive use (172). Bulatao's framework is a broad and well tested contextual model that was used in previous studies to explain and predict variation in contraceptive use behavior of women in India and Bangladesh (173,174). As shown in Figure 3.1, this framework outlines the following four dimensions of contraceptive use which are 'contraceptive goals', 'contraceptive competence', 'contraceptive evaluation', and 'contraceptive access'.

This theoretical framework provides the comprehensive package for a variety of considerations that include individual motivations, actual and perceived attributes for using contraceptives method, the women's capability to use a method effectively, community level factors and furthermore supply-side factors; such as availability, accessibility, and monetary cost of method. Since pre-collected DHS data was used in this thesis, for this reason all factors that encompasses Bulatao's model were outside the scope of this analysis.

In consideration of above, PDHS data was explored for identifying the dimensions of contraceptive use as proposed by Bulatao framework. The variables such as individual or couple's desired family size, and fertility preferences were

selected to denote the theme of ‘contraceptive goals’. The idea of ‘contraceptive competence’ represents the ability of an individual or couple to use family planning method encompassing their level of education, occupation and age of the women and her husband as well as women’s status in decision-making process. The ‘contraceptive evaluation’ is an assessment of social norms, moral and cultural influences affecting the use of family planning methods, for example religion, ethnicity, consanguinity in marriage, number and sex of living children, number of deceased children, husband’s desire for children which are all selection factors under this heading. Finally, ‘contraceptive access’ which can be stated as the availability and accessibility of wide array of contraceptive methods including variables such as region, place of residence, knowledge about contraceptive methods form media, exposure to Lady Health Worker, and economical status of the household were all identified form PDHS dataset. Figure 3.1 reveals pictorial presentation of the conceptual framework along with independent variables contained in different dimensions.

The previously mentioned contextual variables function either independently through their impact on one another, or through other intermediate factors and influence the utilization of family planning by women or by couples. Thus, using examples from DHS family planning literature (174-185), an operational framework based on Bulatao’s model was adopted for identifying factors associated with contraceptive use and the unmet need for family planning in Pakistan. Considering the direct impact of socio-demographic characteristics of couples on family planning, the selected variables are grouped into ‘individual level’ and ‘spousal level’. Since individuals live in communities and moreover it is documented that the context in which women or couple lives also influences their contraceptive use decisions (177,178,180,181,183,185). Consequently, beyond the couple level, ‘community’ and ‘household’ level variables are also composed for the analysis in this thesis. Figure 3.2 presents the operational framework that was developed to investigate the pathways through which individual level, community and household level variables influence contraceptive use behavior (use, nonuse, intention to use, unmet need for family planning, continuation, discontinuation, compliance and adherence) in Pakistan. The central variable of the model is ‘use of contraceptive method’ and

‘unmet need for family planning’ in Pakistan and the arrows on the framework show the assumed relation between variables.



Figure 3.1. Conceptual Framework Along with Independent Variables Contained in Different Dimensions.

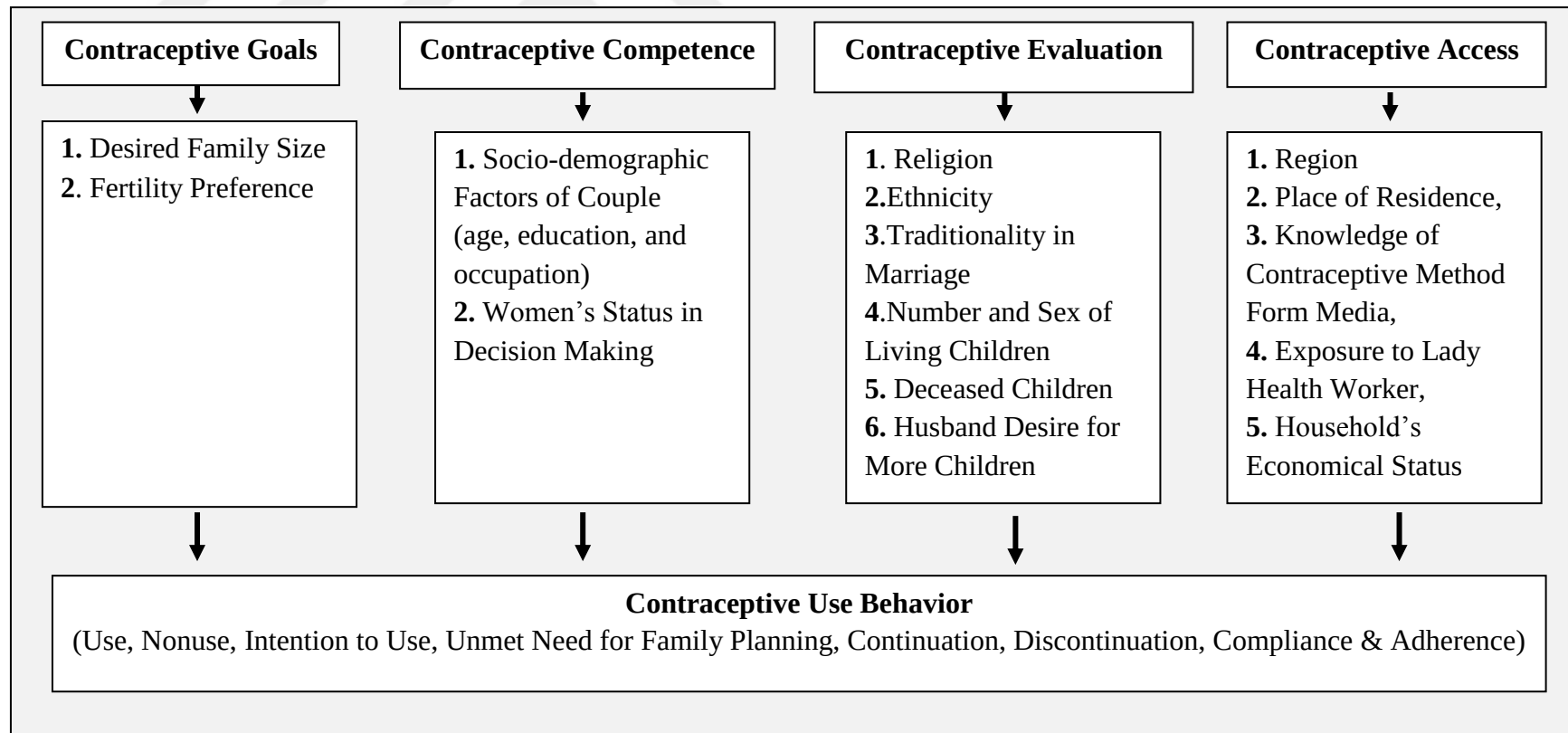
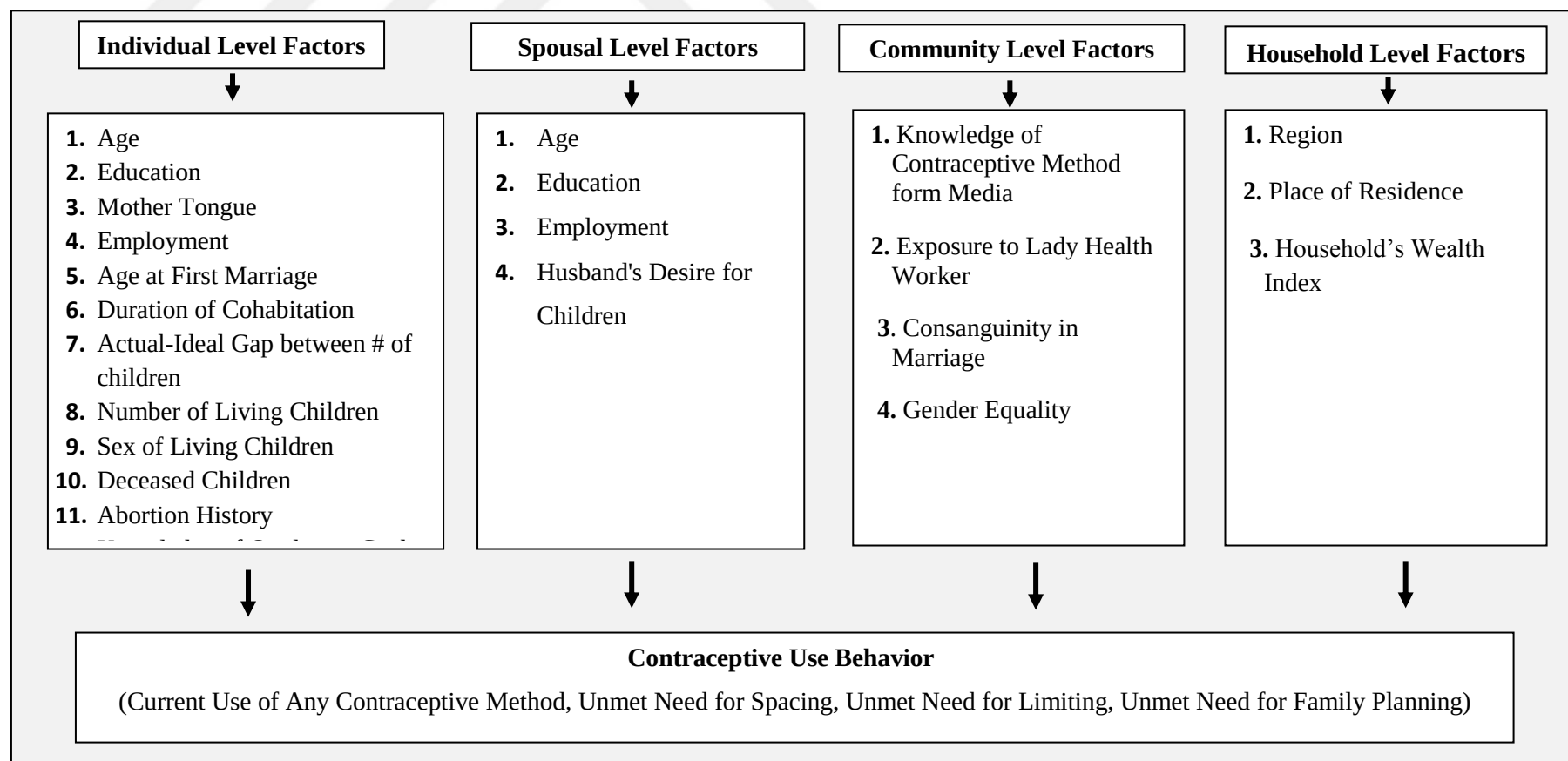


Figure 3.2. Operational Framework Along with Independent Variables Used in Multivariate Analysis.



3.5.2. Research Hypotheses

In accordance with the framework presented in Figure 3.2, it was hypothesized that the following five sets of variable; respondent socio-demographic characteristics, reproductive characteristics, spousal characteristics, community characteristics, and house hold characteristics, are the major influencers of the current use of contraception and the unmet need for family planning in Pakistan.

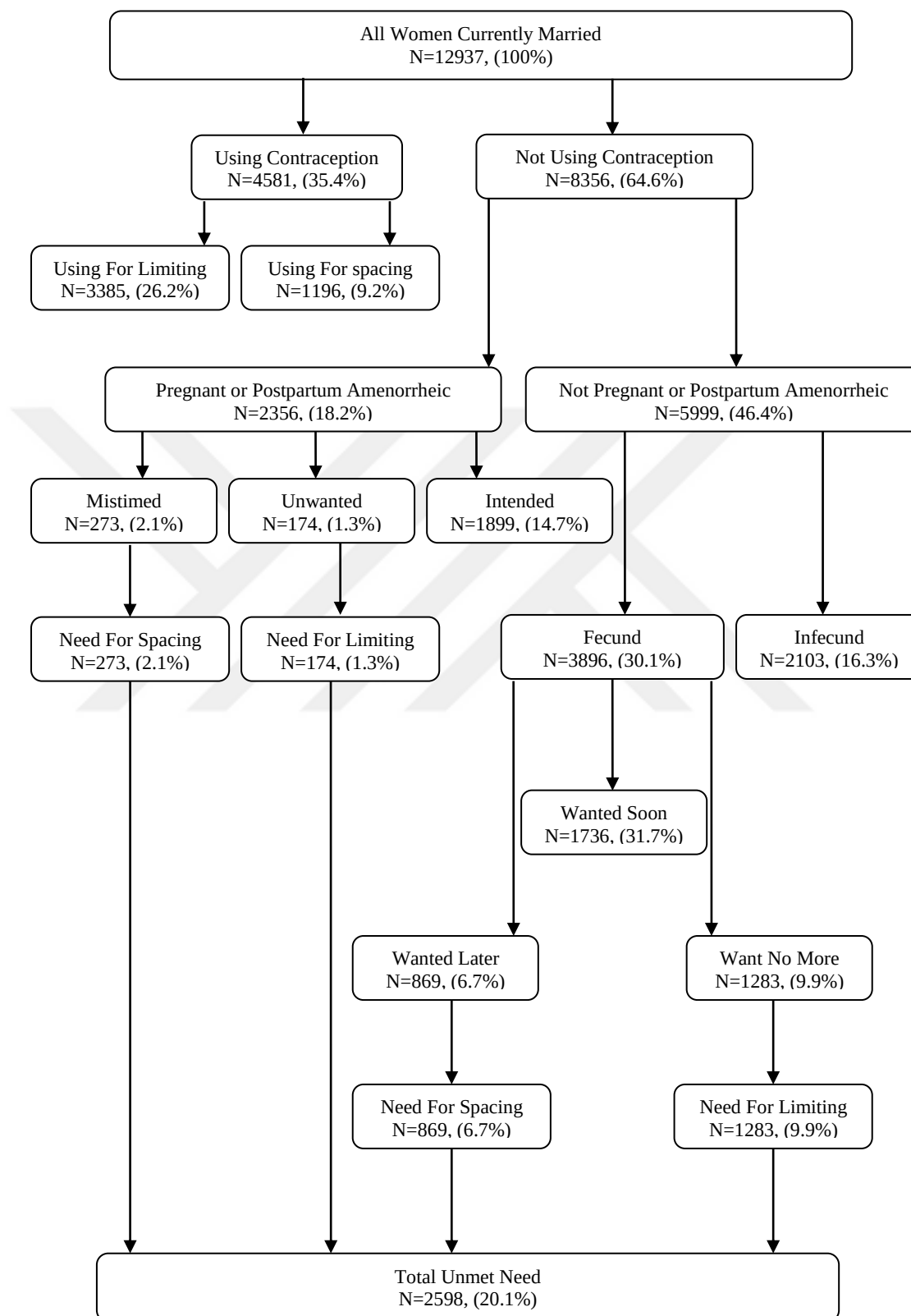
3.6. Dependent Variables

The dependent variables used in the bivariate and multivariate analysis were:

- **Unmet Need for Family Planning** - As discussed previously in Chapter 2, the ‘revised definition’ of unmet need was used everywhere in the analysis. Moreover, to provide a broader image, the concept of unmet need for family planning was categorized as ‘unmet need for spacing’, ‘unmet need for limiting’ and ‘total unmet need’. The algorithm used for measuring the unmet need on the basis of revised definition is presented in Figure 3.3.
- **Current use of contraceptive method:** -This variable is self-explanatory and is defined as,
 “Married women, who are using, or whose husbands are currently using at least one method of contraception, regardless of the method type, in the month of interview” (Women who were pregnant at the time of interview were consider as current non-user) (132).

All dependent variables were categorized dichotomously as “Yes/No”. Respondents who have an unmet need for family planning, and respondents who were currently using a contraceptive method were categorized as “Yes”, otherwise classified as “No”. Detailed explanation about strategy use for coding the dependent variable is presented in section 3.8.1 which is about multivariate analysis.

Figure 3.3. Revised Definition of Unmet Need for Family Planning
(Pakistan, PDHS 2012-13)



3.7. Rationalization, Construction and Operational Definition of Contextual Independent Variables.

The independent variables used in this analysis are organized as ‘respondent’s socio-demographic characteristics’, ‘respondent’s reproductive characteristics’, ‘contraceptive-method related characteristics’, ‘spousal’s socio-demographic characteristics’, ‘community level characteristics’, and ‘household level characteristics’. A comprehensive explanation of each set of variables is discussed below.

3.7.1. Respondent’s Socio-Demographic characteristics

Women’s attitudes toward family planning largely depend on their socio-demographic characteristics such as age, education, employment status, religion, and ethnicity (175-195). Studies had displayed that women’s family planning behavior and their need for contraception both change with their age, at a younger age their needs are more towards spacing purpose while at the older age they are more in need for limiting child birth (175-178,183,185-187). Accordingly, the prevalence of contraception and unmet need for family planning differ among younger and older women. The current age of women was included in all analysis and is categorized into conventional five years intervals.

Educational attainment has multiple positive effects on female reproductive behavior. Woman with higher education have better reproductive health seeking behavior (188,189), higher prevalence of contraceptive use (175-178,186,190,191), lesser parity (188,189), more informed choice and thus lesser-unmet need for family planning (185-187,193-195). Moreover, higher levels of education are directly related with delayed marriage and child bearing (196). In PDHS, the educational level is categorized as ‘no education’ for women who had never attended any formal education, ‘primary’ for women who had attended up to class 5 or less, ‘secondary’ for those whose highest grade at school was class 6 to 10 and ‘higher’ for women who had attended class 11 or higher.

In Pakistan, different ethnic groups are centralized in different regions of the country and likewise one province can have more than one ethnic group existing in

it. PDHS country reports highlights that fertility level and use of contraception were highly variable among different regions of the country (45,84,96). In order to identify disadvantageous ethnic groups, the “mother tongue” of the respondent was analyzed in descriptive, bivariate and multivariate analysis. Respondents with less than two percent ethnicities were grouped together as ‘others’. Considering this, ‘other’ includes; Brushaski, Balti, Chitrali, English, Farsi, Hindko, Kashmiri, Khwar, Pahari, Potowari, Marwari, Shina, and Wakhi.

Employment is one of the major factors of women empowerments, particularly if it allows them authority over their own wages and correspondingly working women have greater autonomy on desired fertility goals which reduces their unmet need for family planning (185-187,193-195) and improves their contraceptive use (175-180,190-192). However, it is difficult to measure status of women’s employment because some women working for family farms, in family businesses or in informal sectors do not perceived as employed, and hence it is under reported. To avoid this underreporting in the PDHS interview, women were asked several questions to probe for their employment status in formal as well as informal sectors and the employed respondents were further inquired about their occupations (45,84,96). About 99 occupations are listed in DHS questionnaire and are sorted in 11 categories, however for this analysis, respondent occupation was further classified in three groups, which are as follows:

	Respondent’s Occupation (use in Thesis)		
	Unemployed	Agricultural/ Domestic/ Unskilled	Professional/ Technical/ Services/Sale
Respondent’s Occupation (DHS Grouped)	Not working	Agricultural - Self Employed	Professional
		Agricultural - Employee	Technical/ Managerial
		Household	Clerical
		Domestic	Sales
		Unskilled Manual	Services
			Skilled Manual

The above grouping of occupations was previously used by Joshua and Eugene (197) for analyzing Ghana's Demographic and Health Survey.

3.7.2. Respondent's Reproductive Characteristics

Women's family planning attitude not only depends on her socio-demographic characteristics but also her reproductive characteristics. After reviewing literature about determinants of contraceptive use and unmet need, following reproductive characteristics were selected from PDHS data: 'age at first marriage', 'duration of marriage', 'ideal number of children', 'number of living children', 'actual-ideal gap', 'sex of living children', 'number of deceased children', 'abortion history', 'knowledge of ovulatory cycle', and 'desire for children'. The rationales behind these variables are discussed below.

Age at marriage has a straightforward impact on fertility (185). Marrying at a young age expands the reproductive duration, which ultimately increases the probability of higher fertility. Young age at marriage is also associated with early age at first birth (196), which increases risks to mother and child health (198). Age at first marriage is a continuous variable; it was converted into five groups with somewhat homogeneous frequencies. These groups are '15 and less', '16-17', '18-19', '20-21', '22 and more'. Study by Kumar (199) also highlighted the significant association of marital duration with contraceptive use as well as unmet need for family planning in India. Accordingly, this variable was used in analysis and duration of marriage were grouped in to five year intervals which are 'less than 5', '5-9', '10-14', '15-19', and '20 and more'.

Studies in contraceptive prevalence and unmet need had shown that the 'total number of living children' is the most significant determinant of contraceptive use and unmet need for family planning (175,177,180,181,183,185,194,199). Besides the number of living children, 'ideal number of family size' is also found as an influential determinant of contraceptive use and unmet need for family planning (176,195). The question about ideal number of children is difficult to answer and alternatively, some respondents answer this question as "don't know" or "up to God". These responses can be understood as fatalistic attitudes toward childbearing or can be interpreted as meaningful evidence of uncertainty about the future. Non-

numeric fertility preferences are also theoretically important for understanding the fertility transition from high to low (200); these answers to ideal number of children were grouped as ‘non-numeric response’.

Childbearing preferences are complex to estimate because they depend on different factors including personal circumstances, cultural norms, and evolve with age and number of surviving children (201). To get a better understanding in conjunction with above mentioned variable, the difference between the actual and ideal number of children provide a clearer understanding of women’s unmet need for spacing and limiting. It was computed by subtracting the actual number of living children from the ideal (numeric responses only) number of children. This derived variable was named as “actual-ideal gap” by Feyisetan and Casterline (202). This gap denotes the extent to which wanted level of fertility is attained and gives an insight about level of unwanted fertility. In this analysis, the gap is grouped into four categories as ‘ideal=actual’, ‘ideal>actual’, ‘ideal<actual’ and ‘non-numeric response’ for those who gave un-codable answer regarding the ideal number of children.

Studies have documented that sex ratio of living children influences utilization of contraceptive services and determine the unmet need for family planning (178,199,183,203). In Asian countries, it was found that odd of contraceptive use increases in parallel with the increase in number of sons (204). Tiziana Leone et al (205) claim that the association between contraceptive use and sex ratio of living children can serve as an evidence of sex preference for children. In the background of these finding variable, ‘sex ratio of living children’ was constructed from “number” and “sex” of living children and women are grouped as having ‘equal number of both sex’ (number of son(s) = number of daughter(s)), ‘more son’ (number of son(s) > number of daughter(s)), ‘more daughter’ (number of son(s) < number of daughter(s)), and ‘no living children’.

The rationale behind the use of the variable ‘number of deceased children’ is by reason of studies which indicate that a woman who lost a child often stopped practicing contraception in order to have another child to replace the deceased child (206); putting it in another way, having a deceased child reduces woman’s unmet need for family planning (183,185,195,207).

Abortion is an important variable that affects level of fertility and unmet need for family planning (197,208,209). Induced abortion is illegal in Pakistan except when used to save women's life (210); consequently it is hard to ask about induced abortion in reproductive history and the questions about abortion were omitted in PDHS 1990-91 questionnaire (45). However, in PDHS 2006-07 women were asked "Have you ever had a pregnancy that miscarried, was aborted, or ended in a stillbirth?" (96) but total number such pregnancies were not inquired albeit in PDHS 2012-13, in addition to the above question, women were asked about the total number of such pregnancy losses (84). Accordingly in this analysis, "abortion" variable of PDHS 2012-13 is used and categorized as 'no', 'one', and 'two and more' abortion histories to find the effect of women's experience of having abortion on the level of unmet need in Pakistan.

Regarding reason for pregnancy loss, PDHS 2012-13 country reports indicates relatively higher proportion of miscarriages than abortions or stillbirths. This is expected because of culture sensitivity, which caused some induced abortions that were reported as miscarriages by the respondent (84). Despite considerable importance of variable "pregnancy outcome", it is not included in bivariate and multivariate analysis due to biasness in the responses. Moreover, for multivariate analysis 'number of deceased children' and 'abortion history' were re-grouped as 'Yes' and 'No' according to the outcome of these two variables.

Ignorance about family planning methods was explicitly regarded as a contributory factor in unmet need for family planning by Bongaarts and Bruce (211) but PDHS 2012-13 revealed that knowledge of at least one method of contraception is almost universal and hence this variable was not included in bivariate and multivariate analysis.

Previous studies have revealed that women with unmet need tend to depend on natural family planning methods particularly coitus interruptus or the rhythm method (156,212). However, basic knowledge of the ovulatory cycle is essential for successful practice of these methods, especially rhythm method of contraception. In PDHS 1990-91 and PDHS 2012-13, respondents were asked "From one menstrual period to the next, are there certain days when a woman is more likely to get pregnant if she has sexual relations?" If the answer was yes, they were further

inquired whether that time was ‘just before’ her menstrual period begins, ‘during’ her period, ‘right after’ her period has ended, or ‘halfway between two periods’ (45,84). In this thesis, the respondents are grouped according to their “knowledge of ovulatory cycle” into three groups as, ‘correct answer’, ‘wrong answer’ and ‘don’t know’.

3.7.3. Contraceptive-Method Related Characteristics (used only for descriptive analysis)

Level of knowledge of different contraceptive methods and status of contraceptive use, offers the most conspicuous and greatly accepted criterion of family planning program success (213). In PDHS interviews, information about “knowledge of contraceptive method” was obtained by questioning ever-married women to name the methods by which a couple could delay or avoid pregnancy. Once a respondent completed her spontaneous answering, the interviewer read out the names and a short description of the remaining methods on the list and asked if she knew each one of them (45,84,96). The number of contraceptive methods included in the list varies from survey to survey and are mentioned in the descriptive result (Table 4.2.1a).

In the PDHSs, every respondent who knew at least one method of contraception was further questioned about whether or not they had ever used the known method. The question about use of contraception was further probed by asking whether they "ever used anything or tried in any way to delay or avoid getting pregnant." In this way, variable “ever use of any method” is collected during surveys. Furthermore, currently married women were also asked about the status of currently using any method to delay or prevent pregnancy in order to collect information regarding “current use” of any method (45,84,96).

Several demographic studies have suggested that communication between spouses about fertility and family planning is important because it encourages contraceptive use and results in reductions of unmet need for family planning (185,190,192,214,215). Questions about husband and wife's communication, and decision on current contraceptive use were asked only in PDHS 2012-13 interviews. Due to its significance, it was included in the descriptive analysis of this thesis. The

respondents' responses about decision for current contraceptive use were grouped as 'mainly respondent', 'mainly husband', 'joint decision' (if husband and wife jointly decided to use contraception) and 'others' (if someone else decided for their use). Since this question was irrational for nonuser, therefore not asked to those who were not using the method, and thus not useful in bivariate and multivariate analysis.

3.7.4. Spousal's Socio-Demographic Characteristics

Most studies have highlighted association between husband's socio-economic variables such as age, education and employment with woman's family planning practice, intention and unmet need (177,180,185,193,194,216-219). The husband's age, education attainment and occupation were taken into consideration appropriately. The husband's age is categorized in to seven groups as 'lowest through 24', '25-29', '30-34', '35-39', '40-44', '45-49', '50 and more'. Husband's educational level was categorized similar to women's education into four categories as 'no', 'primary', 'secondary', and 'higher' education. Husband's working status and occupations are categorized in three categories similar to women.

Decisions about childbearing are usually made jointly by couples and not by the woman herself. Researches demonstrate that spousal agreement on number of children plays a key role in reducing unmet need for family planning and improving contraceptive prevalence rate (178,180,181,185,190,194,218,220). In spite of the fact that spousal communication and agreement play a key role in reducing unmet need and evolving contraceptive prevalence, it may sometimes become a barrier for woman's independent decision for contraceptive use, especially when husband desires more children than the wife. In PDHS, currently married women were asked if they thought that their husbands wanted the same number of children that they wanted or if they wanted more or fewer children. The responses are categorized in four groups: 'both wants same', 'husband wants more', 'husband wants fewer', and 'don't know husband's desire' and in accordance with other studies (178,180,181,185,190,194,218,220), this variable was incorporated in descriptive, bivariate and multivariate analyses.

3.7.5. Community Level Characteristics

Four variables, ‘knowledge about family planning from mass media’ (radio/television/newspapers/magazines), ‘consanguinity level in marriage’, ‘visit by LHW’ and ‘gender equality’ were taken into consideration at the community level. Considerable evidence suggests that messages about family planning in media influence individual reproductive preference and contraceptive use behavior (176-181,183,184,192,193,219,221). There has been continuing effort in Pakistan to use radio, television and newspapers to promote family planning. Population Welfare Department of Government of Pakistan and Family Planning Association of Pakistan are both playing important role in mass media campaigns as well as related activities to disseminate information about family planning.

To evaluate the effectiveness and impact of radio, television and newspapers in disseminating family planning information, respondents in all three surveys were questioned whether they had heard or seen a family planning message on the radio or television or in newspapers or magazines in the past few months preceding the survey. Considering the importance of accesses to any of the three media in informing and promoting the contraceptive use, this analysis categorized “knowledge about family planning from media” into ‘yes’ if respondent admit exposure to media message by any of the three media (radio, television, newspaper) and ‘no’ if respondent had not come in contact to any media message.

Community Health Workers are expected to discuss contraceptive options with women in need of family planning and hence play vital role in disseminating the family planning message. Studies had found that Community Health Workers’ programs improve the knowledge and attitudes regarding birth control, promote access to family planning services, and increase the use of modern contraception (179,183,184,193,194,219,222). The purpose of Pakistan ‘Lady Health Worker Program’ and role of the ‘Lady Health Workers’ (LHW) was discussed in Chapter 02 of this thesis. In order to get insight about the level of their contact with the women of reproductive age in their community, some questions regarding presence, visit, and information received as well as services provided by LHW were asked in PDHS 2012-13 and in PDHS 2008-09. However, the structure of these questions was not consistent in both surveys. In this evaluation, multivariate analysis was planned to be

performed on 2012-13 dataset only. In this regard, variable about LHW was abstracted from PDHS 2012-13 and the responses are categorized as ‘LHW is not present or women don’t know’(for women who were sure that there is no LHW in the area or she had no idea about presence of LHW in the area), and for those women who were sure about presence of LHW in their area responses are grouped according to LHW’s visit, such as ‘LHW is present but not visited’ and ‘LHW is present and visited’.

It is claimed that Pakistan has highest reported rates of consanguineous marriages in Asia (96). Furthermore, prior study has reported that, consanguineous marriages influences the reproductive behavior and fertility decisions (223), in the background of these findings, “Consanguinity in marriage” (marriage between relatives) was used as a variable to find its association with contraceptive use and unmet need for family planning in this analysis. First cousin marriages, either from father’s or mother’s side are labeled as ‘first cousin’ marriages, marriage between second cousins or between other relatives are labeled as ‘2nd degree and other’, and marriages between non-relatives are labeled as ‘no relation’.

Women’s empowerment is increasingly considered as a renowned element affecting family planning and reproductive health outcomes (186). ICPD describes women’s empowerment as cornerstone for ensuring her reproductive right and subsequently, the 3rd millennium development goal (MDG-3) aims to promote gender equality and empower women. Thereafter, Government of Pakistan has taken some strong steps for gender equality. In order to determine status of women in the society, PDHS 2012-13 questionnaires had several questions to identify: relative earnings of spouse, gender differences in control over cash earnings, woman’s possession of assets, women’s attitudes toward wife beating, and woman’s participation in household decision-making (84). To analyze women’s empowerment status by contraceptive use and unmet need for family planning in this analysis, “participation of women in household decision-making index” (224) was created and is described below.

The PDHS questionnaire inquired women's autonomy in following three crucial areas of decision making processes:

- Determining own health care.

- Making large household purchases.
- Visiting family or relatives.

Possible responses about above three decisions included: (1) respondent alone, (2) respondent and husband jointly, (3) husband alone (4) family elders, (5) someone else. To create a binary variable for the analysis, the first two responses 1&2 in which responder has some power were grouped together and a score of “one” was given, while the responses 3-5 in which responder has no say in the decision were grouped together and given “zero” as the score. The summary index to scale women's participation in the decision making processes is computed by taking the aggregate of individual scores and thus the index value range from 0 (no role in any of the three decisions) to 3 (participates in all three decisions). This summary index is denoted as ‘Gender equality index’ in this analysis.

There is wide acceptance of the concept of women’s participation in household decision making as an objective measure of women’s empowerment (225) and this variable is increasingly used in demographic and health studies. (177,180,181,185,195,226,227). Reasoning from this in the analysis, summary index is considered as variable of “gender equality” and the value 0 to 3 are labeled as ‘no role’, ‘some role’, ‘moderate role’, ‘high role’ respectively on the basis of number of decisions in which women participated.

3.7.6. Household Level Characteristics

Household and socio-economic variables included in this analysis are region, residence and wealth index. Researchers (175-181,184-186,190,192-195,218) mostly used the region to find out the inequalities, need and demand for family planning at sub-national level. Administratively, Pakistan is composed of four provinces along with the Federally Administrative Tribal Areas (FATA) and the Gilgit-Baltistan Region. These regions are very diverse not only according to geographical, climatic, cultural and socio-economic characteristics but also by health-related facilities, services and indicators. Considering this diversity, the PDHS data was collected from all four provinces in every survey and these four provinces are called ‘region’ in this thesis.

The regional demarcations are almost not changed since the time of independence in the year 1947 and regional definition remain identical in all three surveys except some minor administrative changes in few federally administrative Northern areas of country (Gilgit-Baltistan Region) having population less than 1% according to latest census (228). The North-West Frontier Province (NWFP) was renamed as Khyber Pakhtunkhwa in 2010 and to avoid confusion throughout this analysis, the new name is used. In 2012-13 survey data from Pakistan's capital Islamabad is given separately however in this thesis data from Islamabad (population less than 0.1%) is merged with Punjab because of its geographical location in Punjab and to make the uniformity with previous surveys.

Assuming the inequalities in family planning services availability, accessibility and affordability, researchers usually included urban and rural demarcation to study differentials in contraceptive use and unmet need of family planning (175-181,184-186,190,192-195,218). The urban and rural demarcation use in DHSs comes from Pakistan Bureau of Statistics (PBS) and is based upon National Population Census which usually done every ten year intervals. Between 1990 and 2012, status of few rural areas had changed but it is beyond the scope of this analysis to discuss these changes and throughout this analysis, the 'urban' and 'rural' definitions are adherent to that given in the survey reports which generally includes 'villages', 'mouzas' and 'dehs' in "rural" domain while 'cities' and 'towns' in "urban" domain.

The asset-based "wealth index" as a proxy for household income level (229), used in this analysis, has been used previously in further analysis of other DHS data, with the aim of measuring household inequalities in reproductive health outcome indicators and utilization of family planning services (175-181,184,186,193,195,219,230).

It is difficult to calculate 'house hold income' level and such information is neither reliable nor accurate. For this reason, in the DHS dataset 'wealth index' is constructed from the possession of durable belongings, assets and housing characteristics suchlike sanitation facilities, source of drinking water, and the type of flooring material. The principal component analysis and factor analysis methods are used for calculation of DHS wealth index (231). In summary, it is a four step

processes. At first, households' wealth scores are created by subset of indicators common to both urban and rural areas. In the second step, area specific factor scores are generated for households in urban and rural domains using area specific indicators. In the third step, area specific factor scores are combined and adjusted through a regression on the common factor scores to produce nationally applicable combined wealth index having mean of zero and a standard deviation of one. In the final step five, national level wealth quintiles from the poorest to the richest (poorest, poor, middle, rich and richest) are obtained by ranking household wealth scores, and then dividing it into five equal categories each comprising 20% of the population (231).

Figure 3.4 illustrates previously mentioned set of independent variables that were used in bivariate and multivariate analysis in this analysis. It is important to note that this schema only outline the order of the set of variables introduced in the logistic regression models and it doesn't indicate a hierarchical structure. Most of these independent variables are supported by previous literatures in the national and regional setting (especially India and Bangladesh) as major determinants of contraceptive use and unmet need for family planning.

Figure 3.4. Schema of Variables Used in the Analysis.

Individual Level Variables	Spousal Level Variables	Community Level Variables	Household Level Variables
Respondent's Socio-demographic Variables Age Education Mother Tongue Employment Age at First Marriage Duration of Marriage	Husband's Socio-demographic Variables Age Education Employment Husband's Desire for Children	Socio-cultural Norms Family Planning Information & Gender Variables Knowledge of Contraceptive Method form Media Exposure to Lady Health Worker Consanguinity in Marriage Gender Equality	Household Socio-Economic Variables Region Place of Residence Wealth Index
Respondent's Reproductive Variables Actual-Ideal Gap Number of Living Children Sex of Living Children Number of Deceased Children Abortion History Knowledge of Ovulatory Cycle			

3.8. Method of Analysis

The analysis began with descriptive summary statistics for selected variables. Following it, bivariate analysis was used to examine the strength and direction of associations/relationships among independent and dependent variables. Following this multivariate analysis, binary logistic regression is used to identify factors associated with contraceptive use and unmet need for family planning. Finally, single and multiple decrement life table methods were used for analysis of dynamics of contraceptive use.

It is noteworthy to mention that DHSs apply the individual and household sampling weights to account for differences in the probability of sample selection and interview between observations in the study. Therefore, sampling weights were applied for calculating statistics such as proportions, means, and medians. Sample weights were calculated according to DHS guidelines (132) to six decimals however in PDHS dataset, sample weights are presented without the decimal point. In accordance with recommendations (132), they were first divided by 1,000,000 to approximate by the number of cases.

All analysis was performed using Statistical Packages for Social Sciences (SPSS 20.0) (232), where appropriate SPSS Complex sampling Command was used in order to account for the DHS complex survey design by incorporating women's sampling weights and adjusting the standard errors for the stratification and cluster sampling of primary sampling units. In this regard, all estimates account for the differential probability of selection into the survey and thus the results are population based.

3.8.1. Analytic Strategy

Univariate Analysis

Descriptive statistics were obtained for selected demographic and socioeconomic characteristics of currently married women in the all three PDHS data (PDHS 1990-91, PDHS 2006-07 and PDHS 2012-13) with the aim to identify the comparability of samples. Later, the differentials in the levels and trends of contraceptive use, intention for future use and unmet need for family planning by

selected characteristics for currently married women were examined. Throughout the analysis, base population was currently married women within the reproductive ages i.e. 15-49 years.

Bivariate and multivariate statistical methods were employed to investigate PDHS 2012-13 dataset with the objective to assess the strength of potential determinants of current contraceptive use, and unmet need for family planning that were formulated in 'Operational Framework' and are as shown in Figure 3.4.

Bivariate Analysis

Bivariate relationships among each predictor and outcome variables were examined by using Chi-Square test. Predictor variables with p-value less than 0.20 ($p < .20$) in the bivariate analysis were included in the multivariate analysis to control for possible confounding factors (233). The Chi-Square test for current use of contraception, unmet need for spacing, unmet need for limiting and total unmet need was done individually. Frequency tables (given in chapter 4) were also constructed to examine the distribution of variables of interest. Most of the variables selected on the basis of conceptual framework was found statistically significant and were selected for use in multivariate analysis. Since the DHS have complex sampling designs, the determinants of contraceptive use and unmet need for family planning were identified in PDHS 2012-13 dataset through complex sample cross tabulation procedure in Statistical Packages for Social Sciences (SPSS.20), which accounts for stratification, clustering and sample weight.

Multivariate Analysis

Multivariate analysis was conducted to identify the influence of predictors upon contraceptive use behavior namely, current use of contraceptives and unmet need for contraception. The dependent variables were categorized into two groups: 'current use and current non-use' and 'unmet need and no unmet need'. Binary Logistic Regression method was applied to analyze the PDHS 2012-13 dataset. As a general rule, linear relationship among dependent and independent variables and normal distribution of variables in the data is not needed for binary logistic regression (234).

The logistic regression model took the form:

$$p = \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 X_1 + \dots + \hat{\beta}_p X_p}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 X_1 + \dots + \hat{\beta}_p X_p}}$$

Where p is the probability of outcome of interest, e is exponent function, and $x_1, \dots, x_p$ are the set of explanatory exposure variables. Using the above equation, the expected probability that $Y = 1$ (Letting Y be the binary outcome variable) for a given value of X s, is theoretically calculated. Additionally, the unknown parameters (the regression coefficients, $\beta_0, \beta_1, \dots, \beta_p$) are typically estimated by maximizing the likelihood,

$$\prod_{i=1}^n \{ p(\bar{x})^{y_i} [1 - p(\bar{x}_i)]^{1-y_i} \}$$

The logistic regression model presumes no relationship between the independent (exposure) variables $x_1, \dots, x_p$. Thus, before performing regression analysis, a multicollinearity test was done to see whether independent variables were correlated or not. For multicollinearity test, all categorical independent variables with greater than two categories were re-coded so that they become dichotomized and regarded as dummy variables. Thereupon, linear regression in SPSS was run using dummy variables as a set of independent variable and dichotomized current use of contraceptive variable as the dependent variable. Finally, the variance inflation factors (VIF) that indicates issue with multicollinearity were investigated and values of VIF that exceed 10 were regarded as indicating multicollinearity (235). In summary, the independent variables used in this thesis were not found to be collinear.

The logistic regression was conducted separately for current use of contraception, unmet need for spacing, unmet need for limiting and total unmet need. For analysis, each dependent (outcome) variables were dichotomized as follows:

- Women who were using any method of contraception at the time of survey were coded as 1 (current user), all other women (current nonuser) were coded as 0.
- Women with unmet need for spacing were coded as 1, and all other women who neither have unmet need for spacing nor for limiting were coded as 0,
- Women with unmet need for limiting were coded as 1, and all other women who neither have unmet need for spacing nor for limiting were coded as 0,
- Women with total unmet need were coded as 1, and all other women who neither have unmet need for spacing nor for limiting were coded as 0,

Five different logistic regression models were formulated for each dependent variable. In the first model, only socio-demographic characteristics of respondent were used to examine the strength and direction of association with the outcome variable. The second model added controls for reproductive variables. The third model kept the previous variables in place and spousal socio-demographic characteristics were introduced in the model to identify the association keeping other variables constant. In the fourth model, community level factors were put into the model and in the fifth and final model household characteristics were added. Taking in to account that all predictor variables are selected in advance on the basis of conceptual framework and are supported by literature, these regression models were fitted to the data using 'ENTER' method in which all variables are entered as block in a single step. For each variable, a reference category was chosen and will be discussed in next section.

The significance of specific independent variable as a predictor for outcome variable was determined by the magnitude of the regression coefficient along with its standard error, and the confidence of the relevance of the independent variable in the model was decided on the bases of p-value.

The results of the logistic regression models were presented as odds ratios, which are basically the exponential of the corresponding regression coefficient.

$$[e^{\beta}]$$

The odds ratio is the multiplier that shows the effect of one-unit increase in the value of explanatory variable on the dependent variable (current use of contraception

and unmet need for contraception). Odds ratios higher than 1.00, suggest a greater possibility of dependent variable (contraceptive use or unmet need) than that for the reference group; an odds ratios less than 1.00 suggests a smaller possibility of dependent variable compared with the reference group. 95% confidence intervals (95% CI) were calculated for each odds ratio to obtain the precision of the estimates.

The overall form of the model was determined by the square of the multiple correlation coefficients between the dependent and independent variables (R^2), measuring the percentage of variation explained by the variables. Nagelkerke's R^2 was used to assess the proportion of variance explained by the predictors. Nagelkerke's R^2 is an adjusted version of the Cox & Snell R -square that adjusts the scale of the statistic to cover the full range from 0 to 1, the higher the values indicate better model fit (236).

As mentioned before, DHS involve complex sampling designs that include stratification, clustering and sampling weight. Hence, in accordance with DHS recommendation (237) complex sample logistic regression procedure in Statistical Packages for Social Sciences (SPSS.20) was used. It was mentioned that this process of adjustment in analysis doesn't alter the coefficient but does alter standard error in opposite direction.

3.8.2. Coding of Variables

Coding and creation of dummy variables are part of incorporating categorical predictor variables into regression analysis. However a major issue when building a logistic model is selection of the reference category. Reference level selection can alter the model estimation; despite this, there is no apparent rule for the selection of reference category and it depends mainly on the logical preference of the researcher. In this analysis, reference categories were selected in line with prior studies that had tested the variable of interest and based on its expected effect as well as relationship with the outcome variable, in a way that the interpretations of result become easier. Table 3.2 describes variable coding along with category order and justifications for reference category selection.

Table 3.2. Categorization and Coding of Variables (Pakistan, DHS 2012-13).

Variables	Explanation	Coding	Reference Category	
			Current Use of Contraception	Unmet Need for Family Planning
Respondent’s Socio-Demographic Variables				
Age of respondent	Self-reported age of respondent at time of survey.	1=15-19; 2=20-25; 3=25-29; 4=30-34; 5=35-39; 6=40-44; 7=45-49.	Ref: 15-19. In accordance with literature	Ref: 15-19. (Unmet need for limiting) Ref: 45-49 (Unmet need for spacing and total unmet need) Based on women’s need for F.P. over reproductive life span.
Respondent educational attainment	Highest educational level attained.	0=none; 1=primary; 2=secondary 3=higher	Ref: None. In accordance with literature	Ref: Higher. In accordance with the highest CPR
Mother tongue	Self-reported mother tongue of respondent, used as a proxy for ethnicity.	1=Urdu; 2=Punjabi 3=Sindhi 4=Pushto 5=Balochi 6=Barauhi 7=Siraiki 8=Hindko 9=Others.	Ref: Urdu. National language	Ref: Urdu. In accordance with the highest CPR
Employment of respondent	Occupations of Respondents who worked in the 12 months preceding the survey.	0= unemployed; 1= Agricultural/ Domestic/Unskilled; 2=Professional/ Technical/ Services/ Sale.	Ref: Unemployed. In accordance with literature	Ref: Professional/ Technical/ Services/ Sale. In accordance with the highest CPR
Age at marriage	Age of respondent at the time of first marriage.	0=15 and less; 1=16-17; 2=18-19; 3=20-21; 4=22 and more.	Ref: 18-19. Mean and Median age at marriage was 18 years	Ref: 22 and more. In accordance with literature
Duration of marriage	Number of years spouses are married.	0=Less than 5; 1=5-9; 2=10-14; 3=15-19; 4=20 and more;	Ref: Less than 5. In accordance with literature	Ref: Less than 5. (Unmet need for limiting) Ref: 20 and more. (Unmet need for spacing and total unmet need) As per ‘Age of Respondent’

Continued.....

Table 3.2. (continued) Categorization and Coding of Variables (Pakistan, DHS 2012-13).

Variables	Explanation	Coding	Reference Category	
			Current Use of Contraception	Unmet Need for Family Planning
Respondent's Reproductive Variables				
Actual-Ideal Gap	Calculated by subtracting the actual number of living children from the ideal.	0=ideal=actual; 1=ideal>actual; 2=ideal<actual; 3=non numeric response.	Ref: ideal>actual Rational choice	Ref: ideal=actual. In accordance with literature
Number of Living Children	The total number of living children the respondent had at time of survey.	0=No child; 1=1-2; 2=3-4; 3=5 and more.	Ref: 1-2. F.P. campaign stress for two children per family	Ref: 5 and more. In accordance with literature
Sex of Living Children	The sex of living children the respondent had at time of survey.	0=Equal number of both sex; 1=More son; 2=More daughter; 3=No living child.	Ref: More daughters. Rational choice, based on male child preference	Ref: More sons. Rational choice, based on male child preference
Number of deceased children	Child mortality and survival status, based on number of children ever born and the number of living children.	In bivariate analysis: 0=None; 1=1; 2=2; 3=3 and more.	Ref: None. In accordance with literature	Ref: None. In accordance with literature
		In multivariate analysis; 0= no; 1= yes		
Abortion History	Number of pregnancies that were miscarried, aborted, or ended in a stillbirth.	In bivariate analysis: 0=None; 1=1; 2=2 and more.	Ref: None. In accordance with literature	Ref: None. In accordance with literature
		In multivariate analysis; 0= no; 1= yes		
Knowledge Of Ovulatory Cycle	Respondent knowledge of the fertile period.	0=correct answer; 1=wrong answer; 2=don't know.	Ref: Don't know. Rational choice	Ref: correct answer. In accordance with the highest CPR

Continued.....

Table 3.2 (continued) Categorization and Coding of Variables (Pakistan, DHS 2012-13).

Variables	Explanation	Coding	Reference Category	
			Current Use of Contraception	Unmet Need for Family Planning
Spousal's Socio-Demographic Variables				
Age of husband	Current age of husband reported by respondent.	0=Lowest through 24; 1=25-29; 2=30-34; 3=35-39; 4=40-44; 5=45-49; 6=50 and more.	Ref: Lowest through 24. Arbitrary choice	Ref: Lowest through 24. (Unmet need for limiting) Ref: 50 and more. (Unmet need for spacing and total unmet need) As per 'Age of Respondent'
Education of husband	Husband's highest level of educational attainment. As reported by respondent.	0=none; 1=primary; 2=secondary 3=higher	Ref: None. In accordance with literature	Ref: Higher. Rational choice
Husband occupation	Occupations of Respondent's husband.	0= unemployed; 1= Agricultural/ Domestic/Unskilled; 2=Professional/ Technical/ Services/ Sale.	Ref: Unemployed. Rational choice	Ref: Professional/ Technical/ Services/ Sale. Arbitrary choice
Husband's desire for children	Spousal Communication and agreement levels regarding fertility preference.	0=Both want same; 1=Husband wants more; 2=Husband wants fewer; 3=Don't know.	Ref: Husband wants more. Rational choice, based on patriarchal society	Ref: Both want same. In accordance with literature
Community Level Variables				
Knowledge about family planning From media	Exposure to family planning message by any of the three media (radio, television and newspaper).	0= No; 1= Yes	Ref: No. In accordance with literature	Ref: Yes. Rational choice
Visited by LHW	Respondent knowledge about presence of LHW in the area, and visit by LHW for providing family planning information.	0=LHW is not present or women don't know; 1=LHW is present but not visited; 2=LHW is present and visited.	Ref: LHW is not present or women don't know. Rational choice, based on effectiveness of LHW program	Ref: LHW is present and visited. Rational choice

Continued.....

Table 3.2 (continued) Categorization and Coding of Variables (Pakistan, DHS 2012-13).

Variables	Explanation	Coding	Reference Category	
			Current Use of Contraception	Unmet Need for Family Planning
Consanguinity in marriage	Marriages between relatives.	0=No relation; 1=2nd degree and other; 2=First cousin.	Ref: First cousin. Rational choice, based on traditional society	Ref: No relation. In accordance with the highest CPR
Gender equality	Participation of respondent in household decision making.	0=No; 1=Low; 2=Moderate; 3=High.	Ref: No. In accordance with literature	Ref: High. In accordance with the highest CPR
Household Level Variables				
Residence	The respondents' current place of residence.	0=Urban; 1=Rural	Ref: Urban. In accordance with literature	Ref: Urban. In accordance with the highest CPR
Region	Administrative zone in which respondent was living at the time of the survey.	0=Punjab; 1=Sindh; 2=Khyber Pakhtunkhwa; 3=Balochistan;	Ref: Balochistan. In regard to the lowest CPR	Ref: Punjab. In accordance with the highest CPR
Wealth index	Composite measure of a household's cumulative living standard.	1=Poorest; 2=Poorer; 3=Middle; 4=Richer 5=Richest.	Ref: Poorest. In accordance with literature	Ref: Richest In accordance with the highest CPR

Ref: Reference Group

4. RESULTS

This chapter presents the study findings from the dataset of Pakistan Demographic and Health Surveys. For the purpose of simplicity it is organized under the following parts:

Part I: Socio-demographic characteristics of the respondents in three PDHSs.

Part II: Trends in contraceptive knowledge, ever-use, and current-use.

Part III: Trends in unmet need for family planning.

Part IV: Trends in Fertility Preferences and Intention for Future Use of Contraception.

Part V: Bivariate and Multivariate analysis for determinant of contraceptive use

Part VI: Bivariate and Multivariate analysis for determinant of unmet need for family planning.

4.1. Part I - Socio-Demographic Characteristics of the Respondents

This section presents the characteristics of study sample in three DHS surveys conducted in Pakistan over 22 years period. Table 4.1.1 shows that more than 95% of women were married at the time of survey, and the eligible women response rates were more than 90% in all three PDHS. It was reported that the response rates were slightly lower in urban areas than in rural areas and the main reason for non-response was failure to find eligible respondent at home despite repeated visits to the household. Although, the refusal rates were negligible in all surveys (45,96,84).

Table 4.1.1. Percentage distribution of respondents in Demographic and Health Survey sample (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Married	96.3	6,364	6,393	95.3	9,556	9,580	95.4	12,937	13,010
Widowed	2.4	159	148	3.2	316	320	2.9	391	382
Divorced	0.3	22	19	0.5	53	44	0.9	127	95
Separated	1.0	65	51	1.0	98	79	0.8	103	71
Total	100.0	6,611	6,611	100.0	10,023	10,023	100.0	13,558	13,558
Eligible women Response Rate		95.7 %			94.5 %			93.0 %	

The mean and standard deviation of age of currently-married women in PHDS 1990-91, 2006-07 and 2012-13 were 31.04 ± 8.41 , 32.12 ± 8.61 and 32.25 ± 8.44 respectively. Furthermore, the age structure of respondents remained almost same in all surveys. The educational attainment and employment status of currently-married women is important indicators of socio-economic development, and it is worth to note in Table 4.1.2 that only one out of every five women were educated in 1990-91 but this figure remarkably changed and at least one in every two women was educated in 2012-13. Furthermore, it is observed that 9.5% of women had higher level of education in the recent survey. Besides education, the working status of women remained low in all three surveys; even in 2012-13 only 28.4% of women were working to earn money and most of them were involved in domestic, agriculture and unskilled manual work. Regarding ethnicity, nearly 38% of respondent were speaking Panjabi and it formed the largest ethnic group followed by Siraiki, Pushto and Sindhi.

Table 4.1.2. Percentage distribution of currently married women by selected socio-demographic characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Age									
15-19	6.6	418	398	5.8	559	571	4.6	594	559
20-24	16.4	1041	1049	15.3	1463	1532	15.9	2053	2010
25-29	22.8	1452	1436	20.6	1965	1975	20.6	2663	2667
30-34	18.0	1147	1170	18.1	1729	1663	19.0	2454	2380
35-39	14.6	931	983	16.4	1565	1563	16.5	2137	2212
40-44	12.6	803	775	12.6	1208	1188	12.5	1617	1674
45-49	9.0	572	582	11.2	1067	1088	11.0	1419	1508
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010
Education									
None	79.2	5044	4887	64.5	6165	6333	56.8	7347	7279
Primary	9.0	573	574	14.3	1371	1298	15.9	2057	1759
Secondary	10.6	672	820	14.6	1394	1306	17.8	2309	2327
Higher	1.2	75	112	6.6	626	643	9.5	1225	1645
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

Continued.....

Table 4.1.2. (Continued) Percentage distribution of currently married women, by selected socio- demographic characteristics (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Mother tongue									
Urdu	11.9	756	1042	8.0	768	701	9.6	1247	1238
Punjabi	43.2	2750	1605	41.1	3924	2944	38.0	4912	2895
Sindhi	15.1	961	1041	10.6	1014	1265	8.9	1153	1218
Pushto	12.6	800	1560	13.8	1322	1986	13.6	1754	2873
Balochi	1.2	74	195	3.5	336	536	4.1	531	575
Barauhi	1.7	105	226	.8	80	156	1.9	243	552
Siraiki	10.6	673	388	15.5	1477	1300	15.2	1971	1275
Hindko	2.3	144	204	2.9	273	270	3.2	409	522
Others ¹	1.4	92	104	3.7	357	416	5.5	711	1858
Total	100.0 ²	6355	6365	99.93 ³	9551	9574	100.0 ⁴	12931	13006
Employment									
Unemployed	83.8	5334	5405	70.8	6768	6833	71.6	9264	10249
Professional/ Technical/ Services/ Sale.	8.0	511	620	14.1	1346	1473	11.3	1465	1381
Agricultural/ Domestic/Unskilled	8.1	514	360	15.1	1439	1270	17.1	2207	1380
Total	99.9 ⁵	6359	6385	100.0 ⁶	9553	9576	100.0	12936	13010
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

1-Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko Potowari, Marwari, Farsi and English.

2-Missing weighted n 09 (0.05%) {Un-weighted 28}

3- Missing weighted n 07 (0.1%) {Un-weighted 06}

4- Missing weighted n 04 (0.03%) {Un-weighted 05}

5- Missing weighted n 05 (0.1%) {Un-weighted 08}

6- Missing weighted n 03 (0.05%) {Un-weighted 04}

Percentage distribution of currently married women by selected reproductive characteristics is presented in Table 4.1.3. As can be seen, marriage for women occurs relatively early in Pakistan. All of the three PDHS surveys showed that 2/3rd of all respondents married before twenties however a positive trend towards increasing age at first marriage was evident in the recent most survey. The sample population is somewhat evenly distributed across the marriage duration. The results of previous two surveys indicates that majorities of women had their first birth a year after the marriage but recent survey indicates that 1st birth is within a year of marriage in most of the cases.

Also it is seen in the same table that the ideal number of children desired by most of the respondents remained stagnant at four. However the proportion of respondents providing non numeric response that is an indicator of uncertainty and non decided attitude about family size was markedly decrease from 60% to 4% in the last two decades.

Pakistan Family Planning program advocates for two child policy since 1950's but study population is characterized by high parity with about 60% of respondents have more than two living children. It is also observed that approximately half of the women in all three surveys have fewer living children than their desired ideal number. Regarding sex of living children, Table 4.1.3 shows that number of male child slightly exceed female child but the ratio of male to female child is nearly constant in the last twenty years. It is found that 29.5% of respondents had at least one deceased child in 1990-91 survey. However, this figure was reduced to 25.2% in the last PDHS in year 2012-13.

In Pakistan, induced abortion is illegal except if the life of the mother is at risk (210). Hence, it is extremely difficult to gather accurate information about abortion. However, in the most recent survey women were asked about pregnancies that did not end in a life birth, and 21% of the currently married women admitted having at least one history of abortion, in addition 13.8% had more than one episodes of such pregnancy loss. Result shows that the correct awareness of the fertile period is negligible among Pakistani women. In PDHS 2013, about 77.4% of the currently married women reported that they have knowledge of ovulatory cycle, however when questioned specifically about the greatest chance of getting pregnant during the

monthly cycle, only 4.1% had correctly answered the question. Yet surprisingly this knowledge was reduced by 1.1percentage point in last twenty years.

In PDHS 2012-13, half of the women and their husbands agreed for number of child, however in the remaining half, husbands desire for more children dominated the respondents' desire. Comparing the previous surveys, it is indicted that there was more communication between husband and wife about family size as the respondent unawareness about number of children desired by her husband was reduced from 35.3% in 1990-91 to 10.3% in 2012-13.



Table 4.1.3. Percentage distribution of currently married women by selected reproductive characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Age at first marriage									
15 and less	30.7	1951	2038	24.3	2318	2449	15.9	2062	2354
16-17	19.8	1262	1296	22.0	2106	2103	24.7	3200	3070
18-19	18.9	1201	1119	19.9	1904	1882	21.5	2784	2746
20-21	12.9	824	826	13.8	1315	1317	15.6	2017	1982
22 and more	17.7	1126	1114	20.0	1913	1829	22.2	2874	2858
Total	100.0	6364	6393	100.0	9556	9580	99.9	12937	13010
Duration of marriage (years)									
Less than 5	19.5	1243	1213	21.5	2053	2053	22.6	2929	2837
5-9	20.3	1293	1280	18.4	1760	1765	19.5	2528	2486
10-14	19.8	1263	1269	17.4	1661	1644	17.0	2196	2195
15-19	16.0	1016	1038	15.3	1459	1467	14.8	1915	1948
20 and more	24.3	1549	1593	27.4	2623	2651	26.0	3369	3544
Total	99.9	6364	6393	100	9556	9580	99.9	12937	13010

Continued.....

Table 4.1.3. (Continued) Percentage distribution of currently married women by selected reproductive characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Ideal number of children									
1 or less	0.3	17	16	1.4	134	152	1.3	162	161
2	5.0	318	377	13.1	1255	1163	14.0	1808	1724
3	6.7	426	445	14.2	1355	1271	15.9	2055	1962
4	18.4	1171	1106	36.8	3514	3340	39.3	5086	4758
5	3.6	230	227	9.7	930	991	9.4	1220	1281
6	3.5	225	234	8.9	849	919	10.1	1306	1429
7 and more	2.0	133	159	6.2	597	776	6.1	786	1183
Up to God	N.A	N.A	N.A	6.4	616	596	2.1	269	249
Non-numeric response	60.3	3838	3818	3.0	288	356	1.8	230	243
Total	99.8 ¹	6358	6382	99.7 ²	9538	9564	100.0 ³	12922	12990
Number of living children									
No child	12.7	810	745	13.4	1278	1279	13.4	1728	1611
1-2	25.9	1645	1622	26.8	2565	2596	29.7	3856	3760
3-4	27.8	1770	1743	27.3	2604	2532	29.2	3772	3818
5 and more	33.6	2139	2283	32.5	3109	3173	27.7	3580	3821
Total	100	6364	6393	100	9556	9580	100.0	12936	13010

Continued.....

Table 4.1.3. (Continued) Percentage distribution of currently married women by selected reproductive characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Actual-ideal gap									
Ideal=actual	8.4	538	504	19.2	1833	1719	20.9	2698	2505
Ideal>actual	21.5	1366	1350	47.9	4574	4738	54.0	6992	7136
Ideal<actual	9.7	616	710	23.3	2228	2155	21.1	2735	2857
Non numeric response	60.4	3845	3829	9.5	904	952	4.0	512	512
Total	100.0	6365	6393	99.9 ⁴	9539	9564	100.0	12937	13010
Sex of living children									
Equal number of both sex	15.9	1009	1026	16.5	1586	1553	17.3	2242	2253
More son	37.5	2389	2423	38.2	3647	3662	37.5	4853	4903
More daughter	33.9	2156	2199	31.9	3045	3086	31.8	4113	4243
No living child	12.7	810	745	13.4	1278	1279	13.4	1728	1611
Total	100.0	6364	6393	100.0	9556	9580	100	12936	13010
Number of deceased children									
No	70.5	4493	4665	73.8	7056	7145	74.8	9675	9948
1	15.3	971	966	17.0	1620	1578	16.1	2088	1990
2	8.2	522	443	5.3	509	500	5.6	719	671
3 and more	6.0	379	319	3.9	371	357	3.5	455	401
Total	100.0	6365	6393	100	9556	9580	100	12937	13010

Continued.....

Table 4.1.3. (Continued) Percentage distribution of currently married women by selected reproductive characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Abortion history									
None	N.A	N.A	N.A	N.A	N.A	N.A	65.2	8433	8625
1	N.A	N.A	N.A	N.A	N.A	N.A	21.0	2721	2658
2 and more	N.A	N.A	N.A	N.A	N.A	N.A	13.8	1782	1727
Total	N.A	N.A	N.A	N.A	N.A	N.A	100.0	12936	13010
Knowledge of ovulatory cycle									
Correct answer	5.2	331	317	N.A	N.A	N.A	4.1	529	604
Wrong answer	43.5	2767	3194	N.A	N.A	N.A	73.3	9482	9259
Don't know	51.3	3262	2876	N.A	N.A	N.A	22.4	2893	3100
Total	100.0 ⁵	6360	6387	N.A	N.A	N.A	99.8 ⁶	12904	12963
Desire for children									
Both want same	42.3	2694	2646	49.7	4748	4406	52.6	6801	6552
Husband wants more	14.0	888	1032	18.4	1754	1903	24.0	3104	3532
Husband wants fewer	4.8	307	292	3.6	340	345	4.2	537	563
Don't know	35.3	2247	2170	20.0	1908	2140	10.3	1327	1355
Total	96.4 ⁷	6136	6140	91.7 ⁸	8750	8794	91.1 ⁹	11769	12002
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

N.A: Not Available.

1- Missing 07 weighted n (0.1%) {Un-weighted n 11}.

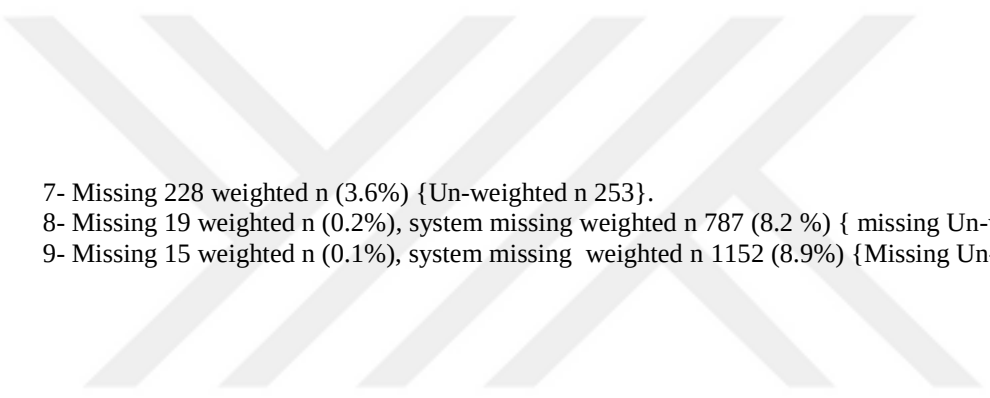
3- Missing 13 weighted n (0.1%) {Un-weighted n 20}.

5- Missing 04 weighted n (0.1%) {Un-weighted n 6}.

2- Missing 17 weighted n (0.2%) {Un-weighted n 16}.

4- Missing 17 weighted n (0.2%) {Un-weighted n 16}.

6- Missing 32 weighted n (0.2%) {Un-weighted n 47}.

- 
- 7- Missing 228 weighted n (3.6%) {Un-weighted n 253}.
- 8- Missing 19 weighted n (0.2%), system missing weighted n 787 (8.2 %) { missing Un-weighted n 21 system missing Un-weighted 765}.
- 9- Missing 15 weighted n (0.1%), system missing weighted n 1152 (8.9%) {Missing Un-weighted n 25, system missing Un-weighted n 983}.

In PDHS, respondent's knowledge about contraceptive methods was examined by her ability to recognize the name and/or description of specific methods listed in the ever-married Woman's Questionnaire. Table 4.1.4 shows that the contraceptive knowledge almost became universal among currently married women by the time of last PDHS in 2012-13. Women who reported that they knew a method of contraception were also asked whether they had ever used that method. Results show 34.1 percentage points increase in ever-use of any contraceptive among currently married women during the two decades, from 20.7% in 1990-91 to 54.8% in 2012-13. The corresponding figures for modern contraceptives were 16.2% in 1990-91 and 48.0% in 2012-13.

The current use of contraceptives among currently married women gives the contraceptive prevalence rate. Also seen in Table 4.1.4, during the 22 years period, the contraceptive prevalence rate increased three times from 11.8% in 1990-91 to 35.4% in 2012-13. Prevalence of modern contraceptives increased from 9.0% in 1990-91 to 26.1% in 2012-13. Among modern methods, condom and female sterilization were the most popular methods in 2012-13 while for the traditional methods, withdrawal was the most popular. It can be seen that, during 22 years there had been no remarkable change in the proportion of users of pill, IUD and male sterilization. Yet, the use of withdrawal increased seven times from 1.2% in 1990-91 to 8.5% in 2012-13.

Table 4.1.4. Percentage distribution of currently married women by selected contraceptive use characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Knowledge of any method									
Knows no method	22.1	1408	1332	4.1	391	426	1.1	147	307
Knows only traditional method	0.6	41	46	0.2	20	21	0.2	22	32
Knows modern method	77.2	4915	5015	95.7	9144	9133	98.7	12768	12671
Total	99.9	6364	6393	100	9555	9580	100	12937	13010
Ever-use of any method									
Never used	79.3	5045	4891	51.3	4905	5036	45.2	5846	5835
Used only folkloric method	0.4	23	18	0.2	21	21	0.2	25	17
Used only traditional method	4.1	262	248	9.6	919	815	6.6	861	796
Used modern method	16.2	1034	1236	38.8	3711	3708	48.0	6205	6362
Total	100	6364	6393	99.9	9556	9580	100.0	12937	13010

Continued.....

Table 4.1.4. (Continued) Percentage distribution of currently married women by selected contraceptive use characteristics (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Current Used									
No methods	88.2	5610	5534	70.4	6727	6859	64.6	8356	8359
Modern method	9.0	574	655	21.7	2078	2032	26.1	3376	3534
Pill	0.7	45	65	2.1	196	248	1.6	204	302
IUD	1.3	80	83	2.3	216	194	2.3	299	379
Injections	0.8	48	56	2.3	221	229	2.8	357	428
Condom	2.7	172	193	6.8	646	587	8.8	1140	1253
Female sterilization	3.5	225	251	8.2	781	760	8.7	1120	963
Male sterilization	0.04	03	02	0.1	06	05	0.3	32	20
Implants/norplant	N.A	N.A	N.A	0.1	13	09	0.1	08	16
Lactational amenorrhea	0.1	07	05	N.A	N.A	N.A	1.5	199	159
Other modern method	0.0	01	05	N.A	N.A	N.A	0.1	18	12
Traditional methods	2.6	167	190	7.7	736	675	9.2	1189	1105
Withdrawal	1.2	77	83	4.1	394	398	8.5	1103	1016
Periodic Abstinence	1.3	83	102	3.6	343	277	0.7	86	89
Folkloric methods	0.2	13	14	0.2	14	14	0.1	15	12
Any method	11.84	754	859	29.8	2830	2721	35.5	4581	4649
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

Continued.....

Table 4.1.4. (Continued) Percentage distribution of currently married women by selected contraceptive use characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Decision maker for using contraception									
Mainly respondent	N.A	N.A	N.A	N.A	N.A	N.A	2.5	327	377
Mainly husband	N.A	N.A	N.A	N.A	N.A	N.A	2.4	317	323
Joint decision	N.A	N.A	N.A	N.A	N.A	N.A	30.0	3887	3867
Other	N.A	N.A	N.A	N.A	N.A	N.A	0.2	27	22
Total	N.A	N.A	N.A	N.A	N.A	N.A	35.1 ¹	4558	4589
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

N.A: Not Available.

1. Missing 24 (0.2%) system missing 8356 (64.6%) { un weighted missing 62, system missing 8359}

According to 2012-13 survey results shown in Table 4.1.5, almost one-third (32.5%) of the husbands had no formal education, however the husband level of education was changed markedly in two decade with only 4.9% had higher education in 1990-91 became 16.9% in 2012-13. The table also shows that only 2.6% of women had spouse who were unemployed at the time of recent most survey. However, for those who were employed, unskilled & skilled manual work and agriculture remained the major occupations in all three surveys.



Table 4.1.5. Percentage distribution of currently married women by selected spousal characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Age of husband									
Lowest through 24	7.4	470	407	8.0	760	806	7.8	1010	932
25-29	14.7	937	921	14.6	1400	1404	14.8	1913	1893
30-34	17.6	1120	1056	16.6	1587	1550	18.2	2351	2276
35-39	16.9	1075	1106	17.2	1647	1599	17.1	2210	2241
40-44	14.8	941	985	15.5	1478	1491	15.5	2009	2005
45-49	11.4	728	782	13.0	1246	1225	13.5	1750	1795
50 and more	15.9	1014	1051	14.7	1401	1465	12.8	1660	1820
Total	98.7 ¹	6285	6308	99.6 ²	9519	9540	99.7 ³	12903	12962
Education of husband									
No education	48.6	3094	2859	34.6	3308	3437	32.5	4204	3978
Primary	17.0	1079	1010	16.2	1546	1522	16.4	2118	1762
Secondary	29.1	1852	2013	34.0	3248	3031	34.0	4394	4162
Higher	4.9	313	481	14.9	1422	1558	16.9	2187	3071
Total	99.6 ⁴	6338	6363	99.7 ⁵	9524	9548	99.8 ⁶	12903	12973

Continued.....

Table 4.1.5. (Continued) Percentage distribution of currently married women by selected spousal characteristics (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Occupation of husband									
Did not work	2.4	152	163	3.8	365	400	2.6	331	434
Professional/Technical/Managerial	5.8	370	542	9.1	865	914	8.9	1151	1570
Clerical	4.6	296	422	3.8	363	390	1.4	179	255
Sales	12.3	783	991	13.5	1289	1355	13.6	1766	1886
Agricultural - Self Employed	27.5	1752	1226	0.0	04	06	0.2	32	30
Agricultural - Employee	4.0	251	183	21.2	2027	1925	16.1	2081	1625
Household and Domestic	0.2	11	17	0.1	09	10	0.3	34	49
Services	7.0	445	469	10.1	964	1024	9.7	1250	1326
Skilled Manual	21.1	1344	1359	15.9	1517	1465	16.9	2190	2162
Unskilled Manual	11.5	733	755	22.5	2149	2088	30.3	3924	3670
Total	96.4 ⁷	6137	6127	100.0 ⁸	9552	9577	100.0 ⁹	12938	13007
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

1- Missing 80 weighted n (1.3%) {un weighted missing 85}
3- Missing 34 weighted n (0.3%) {un weighted missing 48}
5- Missing 32 weighted n (0.3%) {un weighted missing 32}
7- Missing don't know 228 (3,6%) { un weighted don't know 266}
9- Missing 01 weighted n (0.009%). {un weighted missing 02}

2- Missing 38 weighted n (0.4%) { un weighted missing 40 }
4- Missing 27 weighted n (0.4%) { un weighted missing 30}
6- Missing 34 weighted n (0.3%) {un weighted missing 37}
8- Missing don't know 3 (0.05%). { un weighted don't know }

Public exposure to family planning message by mass media, health facilities and LHW is low in Pakistan. Looking at Table 4.1.6, it is surprising to note that exposure to family planning message from radio, television or newspapers within few months prior to last PDHS 2012-13 was reduced by 17.7 percentage points as compared to 2006-07.

Health facility can play important role in spreading contraceptive knowledge, however it was found in PDHS 2013 that 79.4% of respondents were visited health facility one year prior to the interview but only 8.6% were told about family planning.

Regarding LHW, 68.3% of the respondents knows the presence of LHW in their area but less than half (33.6%) admitted that LHW had visited their home. Table 4.1.6 also shows that nearly half of all marriages are between first cousins and the national trend in consanguineous marriages remained unchanged in twenty two years.

Gender equality is a derived index to measure empowerment of women in family decision-making. The result of PDHS 2012-13 shows that more than half of the surveyed women had no or low gender role.

Table 4.1.6. Percentage distribution of currently married women by selected community characteristics
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Knowledge about family planning from media									
No	78.7	5011	4623	56.3	5377	5654	73.9	9556	9433
Yes	21.1	1345	1757	43.7	4175	3920	26.0	3367	3558
Total	99.8 ¹	6356	6380	100.0 ²	9552	9574	99.9 ³	12923	12991
Consanguinity in marriage									
No relation	37.0	2356	2595	32.8	3138	3246	34.5	4463	4955
2 nd degree and other	12.3	782	795	14.3	1369	1434	16.7	2164	2041
First cousin	50.5	3216	2989	52.8	5044	4893	48.7	6305	6008
Total	99.8 ⁴	6354	6379	99.9 ⁵	9551	9573	99.9 ⁶	12932	13004
Visited by LHW									
LHW is not present or women don't know	N.A	N.A	N.A	N.A	N.A	N.A	31.7	4095	4819
LHW is present but not visited	N.A	N.A	N.A	N.A	N.A	N.A	34.7	4494	4557
LHW is present and visited	N.A	N.A	N.A	N.A	N.A	N.A	33.6	4348	3634
Total	N.A	N.A	N.A	N.A	N.A	N.A	100.0	12937	13010

Continued.....

Table 4.1.6. (Continued) Percentage distribution of currently married women by selected community characteristics
(Pakistan, PDHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Health facility told about family planning									
Not visited	N.A	N.A	N.A	N.A	N.A	N.A	20.5	2658	3675
Visited not told	N.A	N.A	N.A	N.A	N.A	N.A	70.8	9155	8160
Visited & told	N.A	N.A	N.A	N.A	N.A	N.A	8.6	1113	1166
Total	N.A	N.A	N.A	N.A	N.A	N.A	99.9 ⁷	12926	13001
Gender equality									
No	N.A	N.A	N.A	N.A	N.A	N.A	38.4	4967	5516
Low	N.A	N.A	N.A	N.A	N.A	N.A	12.3	1590	1515
Moderate	N.A	N.A	N.A	N.A	N.A	N.A	11.0	1425	1430
High	N.A	N.A	N.A	N.A	N.A	N.A	38.2	4938	4526
Total	N.A	N.A	N.A	N.A	N.A	N.A	99.9 ⁸	12920	12987
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

N.A: Not Available.

1- Missing weighted n 07 (0.1%) {un weighted missing 13}
 3- Missing weighted n 13 (0.1%) {un weighted missing 19}
 5- Missing weighted n 5 (0.1%) {un weighted missing 7}
 7- Missing weighted n 11 (0.09%) {un weighted missing 09}

2-Missing weighted n 4 (0.05%) {un weighted missing 6}
 4- Missing weighted n 10 (0.2%) {un weighted missing 14}
 6- Missing weighted n 05 (0.03%) {un weighted missing 06}
 8- Missing weighted n 18 (0.1%) {un weighted missing 23}

Punjab, being the most populated province of Pakistan, more than half of the study participants was sampled from that province (Table 4.1.7). With regards to place of residence, the urban to rural ratio was 1:3 and remained constant in all surveys. Wealth index serves as indicator of house hold level wealth in demographic and health surveys and is constructed using data on household ownership of assets based on principle component analysis. In accordance with DHS methodology (231), it is evident in Table 4.1.7 that respondents were almost evenly distributed across the five wealth index quintiles.



Table 4.1.7. Percentage distribution of currently married women by selected household characteristics
(Pakistan, DH; 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91			PDHS 2006-07			PDHS 2012-13		
	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n	%	Weighted n	Un-Weighted n
Region									
Punjab	59.2	3768	2110	57.5	5495	4041	57.5	7436	4510
Sindh	23.3	1486	1741	24.2	2317	2611	23.2	3002	2809
Khyber Pakhtunkhwa	13.5	856	1620	13.6	1301	1792	15.0	1947	3795
Balochistan	4.0	254	922	4.6	443	1136	4.3	553	1896
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010
Place of residence									
Urban	30.3	1930	3256	33.4	3191	3645	33.3	4304	6071
Rural	69.7	4434	3137	66.6	6365	5935	66.7	8633	6939
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010
Wealth index									
Poorest	N.A	N.A	N.A	19.3	1847	1872	19.3	2501	2402
Poorer	N.A	N.A	N.A	19.8	1897	1939	19.6	2533	2469
Middle	N.A	N.A	N.A	19.3	1846	1846	19.7	2550	2457
Richer	N.A	N.A	N.A	20.5	1957	1930	20.7	2677	2572
Richest	N.A	N.A	N.A	21.0	2009	1993	20.7	2676	3110
Total	N.A	N.A	N.A	100.0	9556	9580	100.0	12937	13010
Total	100.0	6364	6393	100.0	9556	9580	100.0	12937	13010

N.A: Not Availabl

4.2. Part II - Trends in Contraceptive Knowledge, Ever-Use, and Current-Use

This section presents the trends in contraceptive knowledge and contraceptive use behavior of currently married women in all three Demographic and Health Surveys.

4.2.1. Trends in Contraceptive Knowledge

Knowledge of a contraceptive method is a prerequisite for making the decision about its use. Table 4.2.1a shows that by 2012-13, knowledge of family planning was almost universal among currently-married women in Pakistan and almost 99% currently married women knew at least one method of contraception. The results from three DHSs indicate that modern methods were always more widely known than traditional methods in Pakistan. Female sterilization, injectables and the pills were the most commonly known modern methods in every survey. Compared to female sterilization, male sterilization was not as commonly known and by 2012-13 only half of the currently married women were found to have knowledge of this method. Emergency contraceptive pills were introduced in Pakistan in mid-2000 but surprisingly, until the recent survey in 2012-13, only one-fourth of currently married women knew it as a method of contraception. The mean numbers of methods known to currently-married women were 3.5 ± 2.6 , 6.0 ± 2.6 and 7.4 ± 2.5 , in 1990-91, 2006-07 and 2012-13 respectively.

Table number 4.2.1b through 4.2.1d presents differentials in contraceptive knowledge by selected background characteristics. As evident from these tables, almost all of the surveyed women knew at least one method of contraception by 2012-13; and there were only minimal differences in knowledge by background characteristics of respondent in the last PDHS.

Comparisons of the level of contraceptive knowledge in the PDHS 2012-13 with earlier surveys shown in Table 4.2.1b revealed that substantial improvement in the level of contraceptive knowledge occurred for the women aged 15-19 during past two decades. In terms of respondents' ethnicity, there was an increase in the level of knowledge in each ethnic group, the greatest change up to 60.1 percentage points

was noticed for Balochi women. Despite this, the level of knowledge about contraception was still 15 percentage point less than the national level for Barauhi women. As shown in Table 4.2.1d, compared to the twenty-two years ago, there was minimal urban and rural disparity in the year 2012-13. In the mean time, regional disparity was also reduced. However, the level of knowledge of contraception was still 12% less than national level in the Baluchistan province. It is also interesting to note that compared to first PDHS survey, the differences in the level of contraceptive knowledge between those who had exposure or no exposure to media messages were found to be minimal.

Table 4.2.1a. Trend in Knowledge of Currently Married Women about Contraceptive Methods (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Method	PDHS 1990-91 %	PDHS 2006-07 %	PDHS 2012-13 %
Any method	77.9	95.9	98.9
Any modern method	77.2	95.7	98.7
Female Sterilization	69.7	86.7	90.9
Male Sterilization	20.2	40.7	51.0
Pill	62.2	91.7	95.4
IUD	51.5	74.8	86.0
Injectables	62.2	89.5	95.5
Implants	n.a	32.1	33.6
Condom	35.3	68.1	82.3
Lactational Amenorrhea (LAM)	N.A	N.A	64.9
Emergency Contraception	N.A	18.0	24.2
Standard days method (SDM)	N.A	N.A	5.2
Vaginal method	12.7	N.A	N.A
Any traditional method	25.7	63.8	72.5
Rhythm	17.8	49.2	41.9
Withdrawal	14.3	48.9	67.1
Other	3.5	2.9	1.8
Mean (±SD) number of methods known by respondents	3.5 ± 2.6	6.0 ± 2.6	7.4 ± 2.5
Number of respondents	6,364	9,556	12,937

N.A: Not Available.

Table 4.2.1b. Trends in Level of Contraceptive Knowledge by Selected Socio-demographic Characteristics of Currently Married Women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Age												
15-19	0.5	65.8	66.3	418	0.1	87.4	87.5	559	1.3	94.2	95.5	594
20-24	0.7	74.4	75.0	1041	0.2	95.8	96.0	1463	0.1	98.0	98.1	2053
25-29	0.7	76.7	77.4	1452	0.3	96.6	96.9	1965	-	99.0	99.0	2663
30-34	0.6	81.2	81.8	1147	0.3	96.1	96.4	1729	0.1	99.0	99.1	2454
35-39	0.2	81.3	81.5	931	0.1	96.5	96.7	1565	0.1	99.3	99.5	2137
40-44	0.8	77.9	78.7	803	0.1	96.2	96.3	1208	0.3	98.8	99.0	1617
45-49	0.9	76.6	77.8	572	0.2	95.6	95.8	1067	0.1	99.4	99.0	1419
Total				6364				9556				12937
Education												
None	0.7	73.0	73.8	5044	0.3	94.4	94.6	6165	0.2	98.0	98.2	7347
Primary	0.0	91.7	91.7	573	0.2	97.6	97.8	1371	0.2	99.5	99.7	2057
Secondary	0.2	94.5	94.7	672	0.0	98.1	98.1	1394	-	99.6	99.6	2309
Higher	2.0	94.5	96.5	75	0.2	99.2	99.4	626	-	99.8	99.8	1225
Total				6364				9556				12937

Continued.....

Table 4.2.1b. (Continued) Trends in level of contraceptive knowledge by selected socio-demographic characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Mother Tongue												
Urdu	0.5	94.8	95.3	756	0.2	99.8	99.9	768	-	99.5	99.5	1247
Punjabi	0.4	80.3	80.8	2750	0.2	97.1	97.3	3924	0.1	99.7	99.8	4912
Sindhi	0.5	59.3	59.8	961	0.4	96.5	96.9	1014	-	98.4	98.4	1153
Pushto	1.4	79.0	80.3	800	0.2	90.5	90.8	1322	0.9	97.5	98.4	1754
Balochi	3.1	35.2	38.3	74	0.3	93.1	93.4	336	-	98.4	98.4	531
Barauhi	0.0	45.2	45.2	105	-	85.8	85.8	80	-	84.1	84.1	243
Siraiki	0.9	77.1	78.0	673	0.1	94.8	94.9	1477	-	99.7	99.7	1971
Hindko	0.9	81.9	82.8	144	0.6	99.0	99.6	357	0.4	99.0	99.5	409
Others	-	80.3	80.3	92	0.2	93.8	94.0	273	0.2	96.3	96.6	716
Total				6355				9549				12933

Continued.....

Table 4.2.1b. (continued) Trends in level of contraceptive knowledge by selected socio-demographic characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Occupation												
Unemployed	0.7	78.2	78.9	5334	0.3	95.4	95.6	6768	0.2	98.6	98.8	9264
Agriculture/ Domestic/ Unskilled.	-	64.5	64.5	514	-	95.4	95.4	1439	-	98.6	98.6	2207
Professional/ Technical/ Services/ Sale.	0.5	80.2	80.7	511	0.1	97.7	97.8	1346	-	99.7	99.7	1465
Total				6359				9552				12937
TOTAL	0.6	77.2	77.9	6364	0.2	95.7	95.9	9556	0.2	98.5	98.7	12937

Table 4.2.1c. Trends in level of contraceptive knowledge by selected spousal characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Age of Husband												
lowest through 24	-	72.4	72.4	470	0.1	91.4	91.5	760	0.7	95.5	96.3	1010
25-29	0.8	73.2	74.0	937	0.4	95.8	96.2	1400	0.2	98.4	98.6	1913
30-34	0.8	76.6	77.4	1120	0.4	95.3	95.7	1587	-	99.0	99.0	2351
35-39	0.3	81.5	81.8	1075	0.0	97.0	97.0	1647	0.1	99.0	99.1	2210
40-44	0.4	75.3	75.6	940	0.1	96.7	96.8	1478		99.4	99.4	2009
45-49	0.7	84.0	84.7	728	0.2	96.5	96.7	1246	0.2	98.9	99.1	1750
50 and more	1.3	75.9	77.0	1014	0.2	95.2	95.3	1401	0.2	99.1	99.3	1660
Total				6284				9518				12903
Education of Husband												
None	0.7	69.8	70.4	3094	0.4	93.4	93.7	3308	0.3	97.5	97.8	4204
Primary	1.1	77.5	78.6	1079	0.1	96.6	96.7	1546	0.2	98.8	99.0	2118
Secondary	0.4	87.2	87.6	1852	0.1	97.0	97.1	3248	0.1	99.4	99.4	4394
Higher	0.9	90.0	90.9	313	0.2	97.0	97.2	1422	-	99.5	99.6	2187
Total				6338				9524				12903

Continued.....

Table 4.2.1c. (Continued) Trends in level of contraceptive knowledge by selected spousal characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Husband Occupation												
Unemployed	0.1	67.2	67.3	152	0.4	94.9	95.3	365	0.5	96.4	97.0	331
Agriculture/ Domestic/ Unskilled;	0.6	69.8	70.3	2747	0.2	94.5	94.7	4190	0.2	98.3	98.5	6069
Professional/ Technical/ Services/ Sale.	0.8	83.8	84.5	3237	0.2	96.7	96.9	4998	0.1	99.2	99.3	6535
Total				6136				9553				12936
TOTAL	0.6	77.2	77.9	6364	0.2	95.7	95.9	9556	0.2	98.5	98.7	12937

Table 4.2.1d. Trends in level of contraceptive knowledge by selected community and household characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Exposure to media message												
No	0.6	73.2	73.8	5011	0.4	92.7	93.1	5377	0.2	98.3	98.5	9556
Yes	0.6	92.5	93.1	1345	-	99.5	99.5	4175	-	99.9	99.9	3367
Total				6356				9551				12923
Residence												
Urban	0.7	90.6	91.3	1930	0.3	98.2	98.5	3191	0.1	99.2	99.3	4304
rural	0.6	71.4	72.0	4434	0.2	94.4	94.6	6365	0.2	98.5	98.7	8633
Total				6364				9556				12937
Region												
Punjab	0.6	79.9	80.6	3768	0.2	96.7	96.9	5495	0.1	99.5	99.6	7436
Sindh	0.6	73.9	74.4	1486	0.2	97.0	97.3	2317	-	99.5	99.5	3002
Khyber Pakhtunkhwa	0.3	83.3	83.6	856	0.4	91.5	91.9	1301	0.8	98.1	98.9	1947
Balochistan	0.4	85.6	86.0	254	0.2	88.0	88.2	443	0.4	85.6	86.0	533
Total				6364				9556				12937

Continued.....

Table 4.2.1d. Trends in level of contraceptive knowledge by selected community and household characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012 -13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	%	%	%	n	%	%	%	n	%	%	%	n
Wealth index												
Poorest	N.A	N.A	N.A	N.A	0.4	91.5	91.9	1847	0.4	96.2	96.6	2501
Poorer	N.A	N.A	N.A	N.A	0.2	93.3	93.5	1897	0.2	99.1	99.3	2533
Middle	N.A	N.A	N.A	N.A	0.2	96.8	97.0	1846	0.2	99.0	99.2	2550
Richer	N.A	N.A	N.A	N.A	0.1	97.6	97.7	1957	0.1	99.4	99.5	2677
Total				N.A				9556				12937
TOTAL	0.6	77.2	77.9	6364	0.2	95.7	95.9	9556	0.2	98.5	98.7	12937

N.A: Not Available.

Form above tables, it can be concluded that the women's level of contraceptive knowledge increases with the increasing age, education and wealth quintile.

4.2.2. Trends in Ever Use of Contraceptive

In demographic and health surveys all women who admitted that they knew a contraceptive method were also asked whether they had ever used that method to delay or avoid child birth. Table 4.2.2a shows that in 2012-13, about 54.8% of currently married women had ever used a contraceptive method, with 48% had used a modern contraceptive method and 23.5% had used a traditional method of contraception. Condoms were the most commonly used method as reported by 22.3% of currently married women in 2012-13, followed by withdrawal (20%), injectables (13.9%) and the pill (10.8%). Tables show that about 8.7% of currently married women were sterilized in 2012-13, yet the male sterilization was reported by only 0.3% of respondents. The use of emergency contraception was negligible and only one percent of respondents had ever used that method. Ever use of any contraceptive among currently married women had gradually and significantly added up by 34.1 percentage points during two decade period, from 20.7% in 1990-91 to 48.7% in 2006-07 and 54.8%. In 2012-13, it is also noticed that substantial increase in ever use of all methods except male sterilization had occurred in past 22 years.

Tables 4.2.2b-4.2.2f present comparative picture of trends in ever use of contraceptive over time and by background characteristics of currently married women. The proportion of ever-user of contraception in 2012-13 with respect to socio-demographic, reproductive, spousal and community level characteristics were significantly higher than estimated in 1990-91 surveys. In these tables, the most striking findings was noticed within ethnicity of women; the data form 1990-91 shows that ever use of contraception among currently married Sindhi, Balochi, Barauhi and Siraiki women were less than 5%, however recent data in 2012-13 suggests that nearly 53.8% of currently married Siraiki and 48.2% of Balochi women had ever used family planning method to delay or avoid getting pregnant but this figures was near thirty percent for Sindhi and Barauhi women (table 4.2.2b).

Table 4.2.2a. Trend in Ever use of Contraceptive Methods by Currently Married Women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Method	PDHS 1990-91 %	PDHS 2006-07 %	PDHS 2012-13 %
Any method	20.7	48.7	54.8
Any modern method	16.2	38.8	48.0
Female sterilization	3.5	8.2	8.7
Male sterilization	0.1	0.1	0.3
Pill	4.5	12.4	10.8
IUD	3.3	8.1	9.4
Injectables	3.3	11.4	13.9
Implants	n.a	0.6	0.2
Condom	7.2	17.2	22.3
Lactational amenorrhea (LAM)	N.A	N.A	9.4
Emergency contraception	N.A	0.9	1.0
Standard days method (SDM)	N.A	N.A	0.1
Vaginal method	0.5	N.A	N.A
Any traditional method	8.9	25.5	23.5
Rhythm	5.0	16.8	5.5
Withdrawal	3.8	17.1	20.3
Other	1.9	0.8	0.9
Number of respondents	6,364	9,556	12,937

N.A: Not Available.

While looking for differentials in ever use of contraceptive by background characteristics, it was found that respondent's age, 30-39 years, who are likely to have the greatest need for contraception, reported the significantly highest levels of ever use of contraception in all three surveys (Table 4.2.2b). Ever use of contraception was significantly higher for those who had any level of formal education compared to uneducated women. It is also evident that, ever use of contraception was historically remained high for women whose mother tongue was either Urdu or Panjabi and it was more than sixty percent for these two ethnic groups in 2012-13. The relative level of ever-use of contraceptive and working status of women did not show any clear pattern in any PDHS. It is also evident that ever-use of contraception increases significantly in all surveys after 5 years of cohabitation.

Table 4.2.2b. Trends in contraceptive method ever-use by socio-demographic characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age												
15-19	0.8 (0.3-2.2)	2.3 (1.2-4.4)	3.1 (1.8-5.4)	418	5.9 (4.1-8.4)	9.7 (7.2-13.0)	15.7 (12.6-19.3)	559	2.6 (1.4-4.9)	10.4 (7.5-14.2)	13.0 (9.7-17.1)	594
20-24	4.7 (3.2-7.0)	8.2 (6.2-10.7)	12.9 (10.5-15.7)	1041	9.5 (7.6-11.7)	20.8 (18.3-23.5)	30.3 (27.4-33.3)	1463	6.6 (5.3-8.3)	28.0 (25.3-30.9)	34.6 (31.8-37.6)	2053
25-29	3.7 (2.5-5.3)	15.5 (13.3-17.9)	19.1 (16.5-22.1)	1452	9.0 (7.5-10.7)	36.8 (34.1-39.6)	45.8 (43.0-48.6)	1965	8.4 (7.0-10.0)	45.4 (42.7-48.2)	53.8 (51.0-56.5)	2663
30-34	4.5 (3.1-6.5)	19.4 (16.5-22.7)	24.0 (20.8-27.4)	1147	10.0 (8.2-12.0)	46.3 (43.6-49.1)	56.3 (53.5-59.1)	1729	6.5 (5.3-8.0)	56.8 (53.8-59.8)	63.3 (60.2-66.3)	2454
35-39	6.3 (4.6-8.6)	25.8 (22.3-29.5)	32.1 (28.3-36.1)	931	9.9 (7.9-12.4)	49.4 (46.5-52.3)	59.3 (56.2-62.4)	1565	6.6 (5.3-8.1)	60.5 (57.2-63.8)	67.1 (63.9-70.2)	2137
40-44	5.8 (3.9-8.5)	20.1 (16.8-23.8)	25.9 (22.1-30.1)	803	9.9 (8.0-12.1)	50.9 (47.6-54.2)	60.8 (57.5-63.9)	1208	7.3 (5.6-9.4)	57.1 (53.2-60.9)	64.4 (60.8-67.8)	1617
45-49	3.8 (2.2-6.3)	15.8 (12.5-19.8)	19.6 (15.9-23.9)	572	13.5 (11.1-16.3)	41.3 (37.9-44.7)	54.8 (51.2-58.3)	1067	6.6 (5.0-8.7)	52.7 (49.0-56.3)	59.3 (55.7-62.7)	1419
Total				6364				9556				12937
Education												
None	3.6 (3.1-4.3)	10.9 (9.8-12.2)	14.6 (13.3-16.0)	5044	9.0 (8.1-10.0)	33.0 (31.5-34.6)	42.0 (40.3-43.8)	6165	5.5 (4.7-6.4)	43.8 (41.7-45.9)	49.2 (47.1-51.3)	7347
Primary	6.0 (4.0-8.8)	26.9 (22.5-31.8)	32.9 (27.9-38.3)	573	10.6 (8.9-12.6)	45.0 (41.6-48.5)	55.6 (52.4-58.7)	1371	8.1 (6.4-10.1)	52.3 (49.3-55.2)	60.4 (57.0-63.6)	2057
Secondary	9.3 (6.3-13.3)	42.1 (37.7-46.6)	51.3 (47.0-55.6)	672	12.0 (9.5-15.1)	50.8 (47.5-54.1)	62.8 (59.2-66.3)	1394	7.8 (6.5-9.3)	55.2 (52.4-58.0)	63.0 (60.1-65.8)	2309
Higher	6.0 (2.4-14.2)	61.8 (51.1-71.4)	67.8 (57.6-76.5)	75	11.5 (8.2-15.9)	55.9 (51.2-60.5)	67.4 (63.2-71.3)	626	11.3 (9.4-13.5)	52.4 (48.5-56.2)	63.7 (59.8-67.4)	1225
Total				6364				9556				12937

Continued.....

Table 4.2.2b. (Continued) Trends in contraceptive method ever-use by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Mother Tongue												
Urdu	8.1 (6.4-10.3)	43.2 (38.9 -47.7)	51.3 (46.7-56.0)	756	9.2 (6.9-12.2)	59.2 (54.6-63.7)	68.4 (64.0-72.5)	768	8.6 (6.8-10.9)	55.0 (51.2-58.8)	63.7 (59.5-67.7)	1247
Punjabi	5.5 (4.4 -6.8)	17.9 (16.1-19.8)	23.3 (21.1-25.7)	2750	14.5 (12.9-16.3)	40.7 (38.6-42.8)	55.2 (52.9-57.5)	3924	9.6 (8.4-11.0)	51.8 (49.4-54.3)	61.5 (58.8-64.1)	4912
Sindhi	1.3 (0.8 -2.3)	4.9 (3.8-6.3)	6.2 (4.9-7.9)	961	3.0 (2.1-4.2)	29.1 (25.7-32.7)	32.1 (28.4-36.1)	1014	1.8 (1.1-2.9)	32.9 (28.8-37.4)	34.7 (30.7-39.0)	1153
Pushto	1.8 (0.9 -3.6)	11.3 (8.7-14.6)	13.2 (10.8-15.9)	800	6.3 (5.2-7.7)	43.2 (39.6-46.7)	49.5 (46.1-52.9)	1322	6.3 (5.1-7.7)	45.8 (40.7-50.9)	52.0 (46.7-57.4)	1754
Balochi	1.8 (0.4 -8.6)	5.1 (1.7-14.1)	6.9 (2.9-15.6)	74	2.8 (1.5-5.2)	20.4 (15.1-26.9)	23.2 (17.7-29.7)	336	2.5 (1.6-3.9)	45.7 (33.3-58.5)	48.2 (35.0-61.6)	531
Barauhi	0.1 (0.0 -0.6)	2.4 (0.9-6.4)	2.5 (0.9-6.5)	105	1.4 (0.4-5.3)	25.3 (15.5-38.4)	26.7 (16.7-39.8)	80	0.3 (0.1-1.2)	30.2 (23.5-37.8)	30.5 (23.7-38.2)	243
Siraiki	5.7 (3.5 -8.9)	4.9 (2.9-8.0)	10.5 (7.3-14.9)	673	6.5 (4.9-8.6)	30.6 (26.7-34.8)	37.1 (33.2-41.2)	1477	4.4 (3.2-5.9)	49.4 (45.2-53.7)	53.8 (49.4-58.1)	1971
Hindko	1.1 (0.3-4.9)	11.8 (8.0-16.9)	12.9 (8.8-18.6)	144	16.3 (11.8-22.1)	47.7 (39.0-56.5)	64.0 (52.8-73.8)	357	8.6 (5.6-13.1)	43.0 (37.1-49.1)	51.6 (44.2-58.9)	409
Others	4.4 (1.7 -11.1)	22.1 (8.8-45.7)	26.5 (13.7-45.2)	92	8.5 (5.7-12.5)	34.1 (27.8-41.1)	42.6 (35.8-49.8)	273	5.4 (3.4-8.7)	45.3 (39.1-51.8)	50.6 (44.2-57.0)	716
Total				6355				9549				12933

Continued.....

Table 4.2.2b (Continued): Trends in contraceptive method ever use by socio-demographic characteristics of currently married women (Pakistan, 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Occupation												
Unemployed	4.6 (3.9 -5.4)	16.9 (15.6-18.3)	21.5 (19.9-23.1)	5334	10.2 (9.1-11.5)	39.7 (38.2-41.3)	50.0 (48.3-51.7)	6768	7.4 (6.6-8.2)	47.2 (45.3-49.0)	54.5 (52.6-56.4)	9264
Agricultural/ Domestic/ Unskilled	3.1 (1.7-5.5)	7.6 (4.9-11.6)	10.7 (7.4-15.1)	514	9.8 (7.7-12.2)	29.9 (26.9-33.0)	39.6 (36.4-42.9)	1439	5.7 (4.5-7.2)	47.2	52.9 (48.7-57.0)	2207
Professional/ Technical/ Services/ Sale.	4.9 (3.3-7.3)	18.3 (14.5-22.8)	23.2 (18.7-28.5)	511	7.9 (6.4-9.8)	43.8 (40.5-47.1)	51.7 (48.5-54.9)	1346	5.2 (3.8-6.9)	54.2 (50.4-57.9)	59.4 (55.5-63.2)	1465
Total				6359				9553				12937
Age At First Marriage												
15 and less	3.7 (2.8-4.8)	12.6 (10.6-14.8)	16.3 (14.3-18.5)	1950	7.5 (6.2-9.0)	37.9 (35.3-40.5)	45.4 (42.8-48.0)	2318	5.2 (3.9-6.7)	53.4 (48.6-58.2)	58.6 (53.9-63.2)	2062
16-17	5.5 (4.1-7.1)	17.4 (14.9-20.3)	22.9 (20.1-25.9)	1262	8.5 (7.1-10.1)	39.3 (36.7-41.9)	47.7 (45.1-50.4)	2106	6.3 (5.1-7.6)	45.7 (43.0-48.5)	52.0 (49.3-54.7)	3200
18-19	5.0 (3.7-6.7)	19.8 (16.8-23.3)	24.8 (21.6-28.4)	1201	11.6 (10.0-13.4)	40.3 (37.7-43.0)	51.9 (49.0-54.8)	1904	5.5 (4.6-6.6)	47.9 (45.2-50.6)	53.4 (50.7-56.1)	2784
20-21	4.2 (2.8-6.2)	17.5 (14.6-20.8)	21.6 (18.6-25.0)	824	11.1 (9.3-13.3)	41.5 (38.3-44.7)	52.6 (49.1-56.0)	1315	8.4 (6.8-10.2)	49.3 (46.1-52.6)	57.7 (54.6-60.7)	2017
22 and more	4.4 (2.9-6.5)	16.6 (13.8-19.7)	20.9 (17.4-25.0)	1126	11.5 (9.3-14.2)	36.3 (33.5-39.1)	47.8 (44.8-50.8)	1913	9.0 (7.6-10.6)	45.6 (42.9-48.0)	54.6 (51.6-57.5)	2874
Total				6364								12937

Continued.....

Table 4.2.2b. (Continued) Trends in contraceptive method ever-use by socio-demographic characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Duration of Marriage (years)												
Less than 5	3.0 (1.9-4.6)	6.0 (4.7-7.6)	8.9 (7.2-11.1)	1243	9.5 (7.8-11.4)	17.0 (15.1-19.0)	26.5 (23.9-29.1)	2053	7.0 (5.9-8.3)	21.5 (19.4-23.7)	28.5 (26.2-31.0)	2929
5-9	3.4 (2.5-4.6)	16.0 (13.3-19.0)	19.4 (16.5-22.6)	1293	9.1 (7.3-11.4)	36.1 (33.3-38.9)	45.2 (42.3-48.1)	1760	7.9 (6.5-9.6)	48.2 (45.3-51.1)	56.1 (52.8-59.4)	2528
10-14	6.2 (4.5-8.4)	18.1 (15.5-21.0)	24.3 (21.3-27.6)	1263	9.2 (7.6-11.2)	45.4 (42.5-48.5)	54.7 (51.7-57.6)	1661	6.6 (5.3-8.2)	58.4 (55.7-61.1)	65.1 (62.3-67.7)	2196
15-19	5.0 (3.6-7.0)	20.6 (17.8-23.9)	25.7 (22.4-29.3)	1016	9.0 (7.1-11.2)	50.5 (47.2-53.8)	59.5 (56.3-62.6)	1459	5.9 (4.6-7.6)	60.7 (57.8-63.4)	66.6 (63.5-69.4)	1915
20 and more	4.9 (3.5-6.6)	20.3 (17.7-23.2)	25.2 (22.2-28.3)	1549	11.5 (10.0-13.2)	47.1 (44.8-49.5)	58.6 (56.2-60.9)	2623	6.6 (5.4-8.0)	56.7 (54.0-59.4)	63.3 (60.9-65.7)	3369
Total				6364				9556				12937
TOTAL	4.5 (3.9-5.2)	16.2 (15.1-17.5)	20.7 (19.3-22.2)	6364	9.8 (9.0-10.8)	38.8 (37.5-40.2)	48.7 (47.2-50.2)	9556	6.8 (6.2-7.6)	48.0 (46.4-49.5)	54.8 (53.1-56.5)	12937

As shown in Table 4.2.2c, ever-use of contraception increases significantly in all surveys with four numbers of living children. According to expectation, ever-use of contraception was significantly lower in those who had greater ideal number than actual number of children compared to those whose ideal and actual number of children were either same or had more children than they desired. In last two DHSs, ever-use of contraception was significantly lower in respondents having more daughters compared to respondents with more sons or equal number of daughter(s) and son(s), this pattern was not evident in 1990-91 data.

It was also found that correct knowledge of reproductive cycle was significantly associated with ever-use of family planning methods. It is also worthy to note that ever-use of contraception is higher with history of abortion. However at this point, the pattern of contraceptive use before and after pregnancy loss had not been known.

Husband education and occupation were positively related with ever-use of contraceptives in all three surveys. In relation to husband's and wife's desire for more children, the ever-use of contraceptives was lower when husband wants more children compared with respondent desire for more children. Though this statistically significant pattern was evident in only 2012-13 but it highlights that use of contraceptives in Pakistani society was largely affected by husband lack of desire for the children rather than wife (Table 4.2.2d).

Table 4.2.2c. Trends in contraceptive method ever-use by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Actual-Ideal Gap												
Ideal=actual	8.9 (5.9-13.1)	39.1 (34.1-44.2)	47.9 (42.2-53.7)	538	12.1 (10.2-14.3)	50.6 (47.9-53.3)	62.7 (59.9-65.4)	1833	9.1 (7.6-10.9)	66.7 (64.1-69.2)	75.8 (73.3-78.3)	2698
Ideal>actual	5.0 (3.6-6.8)	14.2 (12.4-16.3)	19.2 (16.8-21.8)	1366	8.7 (7.4-10.2)	23.9 (22.4-25.6)	32.7 (30.8-34.5)	4574	6.2 (5.5-7.1)	32.0 (30.4-33.6)	38.2 (36.5-40.0)	6992
Ideal<actual	8.0 (5.9-10.8)	50.1 (45.2-55.0)	58.1 (52.9-63.1)	616	11.0 (9.6-12.6)	61.9 (59.4-64.4)	73.0 (70.5-75.3)	2228	6.4 (5.2-7.9)	71.2 (68.3-73.8)	77.6 (75.0-79.9)	2735
Non numeric response	3.1 (2.5-3.8)	8.3 (7.2-9.7)	11.5 (10.1-12.9)	3845	7.8 (6.0-10.1)	33.8 (29.4-38.5)	41.6 (37.3-46.0)	904	5.4 (3.4-8.6)	43.4 (36.4-50.7)	48.8 (41.6-56.0)	512
Total				6364				9539				12937
Number of Living Children												
No child	0.5 (0.1-1.7)	0.8 (0.3-2.1)	1.3 (0.6-2.7)	810	2.8 (1.5-5.0)	2.7 (1.9-4.0)	5.5 (3.9-7.7)	1278	0.8 (0.5-1.6)	2.3 (1.5-3.4)	3.1 (2.2-4.4)	1728
1-2	3.4 (2.2-5.1)	9.4 (7.8-11.2)	12.7 (10.8-15.0)	1645	11.7 (10.1-13.5)	29.1 (27.0-31.4)	40.8 (38.3-43.4)	2565	9.9 (8.6-11.4)	39.0 (36.7-41.3)	48.9 (46.2-51.6)	3856
3-4	6.4 (5.1-8.1)	19.5 (17.4-21.9)	26.0 (23.3-28.9)	1770	11.1 (9.4-13.2)	49.8 (47.4-52.3)	61.0 (58.6-63.3)	2604	7.3 (6.2-8.5)	62.3 (59.8-64.7)	69.6 (67.1-72.0)	3772
5 and more	5.2 (4.1-6.6)	24.7 (22.1-27.4)	29.9 (27.2-32.8)	2139	10.1 (8.9-11.5)	52.4 (50.1-54.8)	62.5 (60.2-64.8)	3109	6.0 (4.9-7.2)	64.6 (62.2-67.0)	70.6 (68.3-72.8)	3580
Total				6364				9556				12389

Continued.....

Table 4.2.2c. (Continued) Trends in contraceptive method ever-use by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	No of Women	Only Traditional	Only Modern	Any Method	No of Women	Only Traditional	Only Modern	Any Method	No of Women
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Sex of Living Children												
Equal number of both sex	7.0 (5.1-9.4)	21.6 (18.2-25.4)	28.5 (24.9-32.4)	1009	12.1 (10.2-14.3)	47.1 (44.4-49.8)	59.2 (56.3-62.0)	1586	8.1 (6.5-9.9)	60.7 (57.6-63.7)	68.8 (65.8-71.5)	2242
More son	4.1 (3.2-5.4)	18.3 (16.5-20.3)	22.5 (20.4-24.7)	2389	10.3 (9.1-11.7)	46.2 (44.3-48.2)	56.6 (54.5-58.7)	3647	7.9 (6.8-9.1)	56.5 (54.1-58.8)	64.4 (62.1-66.6)	4853
More daughter	5.2 (4.1-6.6)	17.2 (15.1-19.6)	22.4 (20.1-24.9)	2156	11.0 (9.7-12.5)	40.8 (38.4-43.2)	51.8 (49.4-54.2)	3045	7.5 (6.4-8.6)	50.2 (47.6-52.8)	57.6 (55.0-60.3)	4113
No living child	0.5 (0.1-1.7)	0.8 (0.3-2.1)	1.3 (0.6-2.7)	810	2.8 (1.5-5.0)	2.7 (1.9-4.0)	5.5 (3.9-7.7)	1278	0.8 (0.5-1.6)	2.3 (1.5-3.4)	3.1 (2.2-4.4)	1728
Total				6364				9556				12936
Number of Deceased Children												
No	4.4 (3.7-5.3)	15.6 (14.2-17.1)	20.0 (18.4-21.8)	4493	9.7 (8.7-10.8)	37.9 (36.5-39.4)	47.6 (46.0-49.2)	7056	6.9 (6.1-7.7)	45.9 (44.1-47.7)	52.8 (50.9-54.7)	9674
1	5.4 (3.8-7.6)	20.4 (17.7-23.4)	25.8 (22.5-29.4)	971	10.4 (8.6-12.4)	41.5 (38.6-44.5)	51.9 (48.8-55.0)	1620	7.0 (5.6-8.7)	53.2 (49.9-56.6)	60.2 (56.8-63.6)	2088
2	3.9 (2.2-6.9)	14.2 (10.8-18.4)	18.1 (14.2-22.8)	522	9.5 (6.8-13.1)	43.1 (38.1-48.2)	52.6 (47.4-57.7)	509	6.7 (4.5-10.0)	53.5 (47.7-59.1)	60.2 (54.7-65.5)	719
3 and more	3.4 (1.5-7.4)	16.3 (11.5-22.6)	19.7 (14.5-26.2)	379	10.3 (7.1-14.7)	38.7 (32.7-45.1)	49.0 (42.7-55.4)	371	5.7 (3.3-9.8)	58.9 (52.3-65.1)	64.6 (58.1-70.5)	455
Total				6364				9556				12937

Continued.....

Table 4.2.2c. (Continued) Trends in contraceptive method ever-use by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Abortion History												
None	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.9 (6.1-7.7)	44.5 (42.8-46.3)	51.4 (49.6-53.2)	8433
1	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.5 (5.4-7.9)	53.1 (50.1-56.1)	59.7 (56.6-62.6)	2721
2 and more	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.2 (5.8-8.9)	56.3 (53.1-59.5)	63.5 (60.1-66.7)	1782
Total				N.A				N.A				12937
Knowledge of Ovulatory Cycle												
Correct answer	21.8 (16.1-28.7)	35.2 (29.5-41.4)	57.0 (48.9-64.7)	331	N.A	N.A	N.A	N.A	10.5 (7.6-14.4)	58.2 (52.3-63.8)	68.7 (63.4-73.6)	529
Wrong answer	5.5 (4.5-6.8)	19.9 (18.0-22.0)	25.5 (23.3-27.8)	2767	N.A	N.A	N.A	N.A	7.0 (6.3-7.9)	49.7 (47.9-51.5)	56.7 (54.9-58.5)	9482
Don't know	1.8 (1.3-2.6)	11.2 (10.0-12.7)	13.1 (11.7-14.5)	3262	N.A	N.A	N.A	N.A	5.6 (4.6-6.9)	40.5 (37.6-43.4)	46.1 (43.1-49.2)	2893
Total				6360	-	-	-	N.A				12904
TOTAL	4.5 (3.9-5.2)	16.2 (15.1-17.5)	20.7 (19.3-22.2)	6364	9.8 (9.0-10.8)	38.8 (37.5-40.2)	48.7 (47.2-50.2)	9556	6.8 (6.2-7.6)	48.0 (46.4-49.5)	54.8 (53.1-56.5)	12937

N.A: Not Available.

Table 4.2.2d. Trends in contraceptive method ever-use by spousal characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age of Husband												
Lowest through 24	2.2 (1.0-5.2)	5.4 (3.2-8.8)	7.6 (5.0-11.4)	470	7.2 (5.2-10.0)	12.6 (10.1-15.7)	19.9 (16.5-23.7)	760	4.3 (2.8-6.6)	16.4 (13.4-20.0)	20.8 (17.5-24.5)	1010
25-29	3.9 (2.6-6.1)	9.3 (7.1-12.2)	13.3 (10.5-16.7)	937	7.5 (5.8-9.8)	23.8 (21.1-26.8)	31.4 (28.4-34.5)	1400	6.2 (4.8-8.0)	32.2 (29.2-35.3)	38.4 (35.5-41.4)	1913
30-34	3.7 (2.5-5.4)	13.1 (10.4-16.4)	16.8 (13.9-20.3)	1120	10.6 (8.8-12.8)	37.2 (34.5-40.0)	47.8 (44.8-50.9)	1587	7.9 (6.2-10.0)	47.9 (45.4-50.4)	55.8 (52.8-58.7)	2351
35-39	5.1 (3.7-7.1)	20.3 (17.8-23.0)	25.4 (22.3-28.8)	1075	9.6 (7.7-11.9)	45.0 (42.3-47.8)	54.6 (51.8-57.4)	1647	7.3 (6.0-8.9)	53.5 (50.3-56.6)	60.8 (57.6-63.9)	2210
40-44	4.6 (3.1-6.7)	21.2 (18.3-24.3)	25.7 (22.5-29.3)	940	10.1 (8.4-11.9)	48.0 (44.9-51.1)	58.1 (55.1-61.0)	1478	6.9 (5.4-8.9)	59.9 (56.4-63.3)	66.8 (63.4-70.1)	2009
45-49	5.0 (3.3-7.5)	23.1 (19.3-27.3)	28.1 (23.8-32.7)	728	11.3 (9.3-13.6)	49.9 (46.5-53.4)	61.2 (58.0-64.4)	1246	7.3 (5.8-9.3)	57.0 (53.6-60.3)	64.3 (61.2-67.3)	1750
50 and more	5.5 (4.1-7.5)	18.2 (14.8-22.0)	23.7 (20.0-27.8)	1014	11.2 (9.4-13.3)	43.4 (40.4-46.4)	54.6 (51.6-57.5)	1401	6.5 (5.0-8.4)	54.1 (50.7-57.4)	60.5 (57.1-63.8)	1660
Total				6284				9518				12903
Education of Husband												
None	3.0 (2.2-3.9)	10.1 (8.6-11.7)	13.0 (11.6-14.6)	3094	9.1 (7.8-10.4)	32.3 (30.3-34.3)	41.3 (39.2-43.5)	3308	4.7 (3.9-5.7)	43.0 (40.1-45.9)	47.7 (44.8-50.6)	4204
Primary	4.0 (2.8-5.7)	11.8 (9.5-14.5)	15.7 (13.0-18.9)	1079	9.0 (7.6-10.8)	37.0 (34.4-39.6)	46.0 (43.3-48.7)	1546	7.1 (5.7-8.8)	47.5 (44.4-50.6)	54.6 (51.4-57.8)	2118
Secondary	6.8 (5.3-8.8)	25.0 (22.8-27.4)	31.8 (29.2-34.7)	1852	10.7 (9.2-12.4)	42.1 (39.8-44.5)	52.8 (50.4-55.2)	3248	8.0 (6.9-9.2)	50.4 (48.0-52.8)	58.4 (55.7-61.0)	4394
Higher	7.6 (4.8-11.8)	40.6 (33.1-48.5)	48.2 (40.8-55.6)	313	10.4 (8.5-12.7)	48.5 (45.1-51.9)	58.9 (55.4-62.3)	1422	8.5 (7.1-10.2)	53.2 (50.3-56.2)	61.7 (58.9-64.5)	2187
Total				6338				9524				12903

Continued.....

Table 4.2.2d. (Continued) Trends in contraceptive method ever use by spousal characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women	Only Traditional	Only Modern	Any Method	No. of Women
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Husband Occupation												
Unemployed	6.0 (2.5-13.9)	7.5 (4.3-13.0)	13.6 (8.3-21.3)	152	7.8 (5.2-11.6)	31.7 (26.3-37.7)	39.5 (33.7-45.6)	365	3.7 (1.8-7.3)	42.8 (35.5-50.5)	46.5 (39.0-54.3)	331
Agricultural/ Domestic/ Unskilled	2.8 (2.0-3.9)	8.0 (6.7-9.6)	10.8 (9.3-12.4)	2747	9.0 (8.0-10.2)	31.6 (29.8-33.8)	40.6 (38.6-42.7)	4190	5.8 (4.9-6.8)	44.4 (41.9-47.0)	50.2 (47.6-52.8)	6069
Professional/ Technical/ Service/Sale	5.9 (5.1-6.9)	23.8 (21.9-25.7)	29.7 (27.6-31.9)	3237	10.7 (9.3-12.2)	45.4 (43.6-47.3)	56.1 (54.1-58.0)	4998	8.0 (7.1-9.0)	51.5 (49.5-53.5)	59.5 (57.5-61.5)	6535
Total				6136				9553				12936
Husband's Desire For Children												
Both want same	5.4 (4.2-6.8)	19.0 (17.0-21.2)	24.4 (21.9-27.1)	2694	11.3 (10.0-12.8)	36.3 (34.6-38.1)	47.6 (45.7-49.6)	4748	8.8 (7.8-9.9)	46.1 (44.3-48.0)	54.9 (52.8-57.0)	6801
Husband wants more	3.7 (2.4-5.7)	15.0 (12.5-17.7)	18.7 (15.9-21.8)	888	10.5 (9.0-12.3)	39.6 (36.7-42.5)	50.1 (47.1-53.0)	1754	5.6 (4.5-7.0)	41.3 (38.6-44.0)	46.9 (44.0-49.8)	3104
Husband wants fewer	4.7 (2.3-9.1)	18.2 (13.6-23.9)	22.8 (17.6-29.0)	307	14.3 (9.7-20.4)	43.0 (36.9-49.3)	57.2 (50.5-63.7)	340	7.3 (4.7-11.0)	51.0 (45.3-56.6)	58.2 (52.6-63.7)	537
Don't know	4.1 (3.2-5.2)	4.6 (3.5-6.2)	8.8 (7.4-10.4)	2247	8.7 (7.4-10.4)	18.7 (16.6-20.9)	27.4 (25.0-30.0)	1908	5.6 (4.1-7.7)	26.6 (23.3-30.1)	32.2 (28.9-35.7)	1327
Total				6136				8750				11769
TOTAL	4.5 (3.9-5.2)	16.2 (15.1-17.5)	20.7 (19.3-22.2)	6364	9.8 (9.0-10.8)	38.8 (37.5-40.2)	48.7 (47.2-50.2)	9556	6.8 (6.2-7.6)	48.0 (46.4-49.5)	54.8 (53.1-56.5)	12937

Ever-use of contraceptives was positively associated with family planning media message exposure, presence of LHW in the area and women's empowerment. Also, ever-use of contraceptives was lower when consanguinity in marriage was higher and this pattern was evident in all of the three PDHSs reflecting social trend of larger family size with first cousin's unions. Significantly greater ever-use of contraceptives was noticed among women having higher gender equality index compared with women with no gender equality index; this highlights that women having say in household decision making are also more likely to use family planning method (Table 4.2.2e).

Table 4.2.2f shows that urban-rural difference was most pronounced in 1990-91 but this difference was reduced in 2012-13. Meanwhile, regional differences became most pronounced in 2012-13 highlighting uneven utilization of contraceptive and family planning services in different region of country during last two decades.

In the above table, ever-use of contraception was found to be positively associated with wealth index and living in urban area. In 2012-13, highest ever use of contraceptives was in Punjab (61.3%) while Baluchistan had lowest level of ever-use of contraceptives (32.0%).

Table 4.2.2e. Trends in contraceptive method ever-use by community level characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Knowledge of Family Planning From Media												
No	3.5 (2.9-4.3)	12.9 (11.6-14.3)	16.4 (15.0-17.9)	5011	8.5 (7.6-9.5)	30.9 (29.3-32.6)	39.4 (37.6-41.2)	5377	6.4 (5.6-7.2)	44.8 (43.1-46.5)	51.2 (49.4-53.0)	9556
Yes	8.2 (6.5-10.2)	28.7 (26.0-31.7)	36.9 (33.7-40.2)	1345	11.6 (10.0-13.4)	49.0 (47.0-51.1)	60.6 (58.6-62.6)	4175	8.1 (6.9-9.6)	56.9 (54.2-59.7)	65.1 (61.9-68.1)	3367
Total				6357				9551				12923
Visited by LHW												
LHW is not present or women don't know	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.0 (5.1-7.1)	39.5 (36.9-42.1)	45.5 (42.7-48.3)	4095
LHW is present but not visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.8 (5.8-8.0)	45.7 (43.5-47.8)	52.5 (50.1-54.9)	4494
LHW is present and visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.6 (6.4-9.1)	58.3 (55.7-60.9)	66.0 (63.3-68.5)	4348
Total				N.A				N.A				12937

Continued.....

Table 4.2.2e. (Continued) Trends in contraceptive method ever use by community level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Consanguinity in Marriage												
No relation	4.5 (3.6-5.5)	19.8 (17.7-22.1)	24.3 (21.8-26.9)	2356	10.2 (9.0-11.5)	42.7 (40.7-44.8)	52.9 (50.7-55.1)	3138	7.5 (6.4-8.7)	49.3 (47.0-51.7)	56.8 (54.2-59.4)	4463
2 nd degree and other	4.9 (3.3-7.4)	17.2 (14.0-21.0)	22.1 (18.3-26.5)	782	9.3 (7.5-11.5)	42.4 (39.5-45.5)	51.7 (48.5-54.9)	1369	6.0 (4.7-7.6)	51.9 (48.7-54.9)	57.9 (54.6-61.0)	2164
First cousin	4.4 (3.6-5.4)	13.4 (11.9-15.0)	17.8 (16.1-19.6)	3216	9.8 (8.6-11.0)	35.4 (33.6-37.3)	45.2 (43.2-47.2)	5044	6.7 (5.8-7.7)	45.6 (43.6-47.7)	52.3 (50.3-54.4)	6305
Total				6354				9550				12932
Gender Equality												
No	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.0 (5.2-6.9)	36.6 (34.4-38.8)	42.5 (40.2-44.9)	4967
Low	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.9 (5.0-9.4)	47.4 (43.6-51.3)	54.3 (50.7-57.8)	1590
Moderate	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.0 (5.3-9.0)	56.6 (52.6-60.9)	63.8 (59.4-67.8)	1425
High	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.7 (6.6-8.9)	57.1 (55.0-59.1)	64.8 (62.4-67.1)	4938
Total				N.A				N.A				12920
TOTAL	4.5 (3.9-5.2)	16.2 (15.1-17.5)	20.7 (19.3-22.2)	6364	9.8 (9.0-10.8)	38.8 (37.5-40.2)	48.7 (47.2-50.2)	9556	6.8 (6.2-7.6)	48.0 (46.4-49.5)	54.8 (53.1-56.5)	12937

N.A: Not Available.

Table 4.2.2f. Trends in contraceptive method ever-use by household level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method	
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Residence												
Urban	6.9 (5.8-8.3)	34.8 (32.7-36.9)	41.7 (39.2-44.2)	1930	11.3 (9.5-13.3)	53.0 (50.6-55.3)	64.2 (61.8-66.6)	3191	8.9 (7.8-10.2)	56.2 (53.8-58.5)	65.1 (62.6-67.5)	4304
Rural	3.4 (2.7-4.3)	8.2 (6.9-9.7)	11.6 (10.0-13.4)	4434	9.1 (8.2-10.1)	31.8 (30.1-33.4)	40.9 (39.1-42.7)	6365	5.8 (5.1-6.7)	43.9 (41.8-46.0)	49.7 (47.5-51.9)	8633
Total				6364				9556				12937
Region												
Punjab	5.6 (4.6-6.)	17.3 (15.6-19.1)	22.9 (20.9-25.0)	3768	12.9 (11.5-14.4)	39.9 (38.0-41.9)	52.8 (50.6-55.0)	5495	8.5 (7.5-9.7)	52.8 (50.8-54.9)	61.3 (59.1-63.5)	7436
Sindh	4.1 (3.2-5.2)	17.7 (15.4-20.3)	21.8 (19.1-24.9)	1486	5.5 (4.7-6.4)	36.6 (34.3-39.0)	42.1 (39.6-44.6)	2317	3.9 (3.2-4.9)	40.1 (37.5-42.8)	44.1 (41.5-46.7)	3002
Khyber Pakhtunkhwa	1.4 (0.9-2.1)	12.7 (10.7-14.9)	14.1 (11.9-16.7)	856	6.9 (5.6-8.5)	43.5 (40.1-47.0)	50.5 (47.0-53.9)	1301	6.0 (5.0-7.2)	46.9 (42.0-51.9)	52.9 (47.8-58.0)	1947
Baluchistan	0.9 (0.3-2.3)	3.8 (2.5-5.7)	4.7 (3.2-6.7)	254	3.1 (2.1-4.6)	23.1 (20.0-26.5)	26.2 (23.1-29.5)	443	3.4 (2.0-5.6)	28.6 (23.6-34.1)	32.0 (26.7-37.8)	553
Total				6364				9556				12937
Wealth Index												
Poorest	N.A	N.A	N.A	N.A	5.7 (4.4-7.2)	20.4 (18.2-22.8)	26.1 (23.6-28.8)	1847	3.0 (2.2-4.1)	33.3 (28.2-38.9)	36.3 (31.0-42.0)	2501
Poorer	N.A	N.A	N.A	N.A	8.0 (6.5-9.7)	29.4 (27.0-32.0)	37.4 (34.8-40.1)	1897	5.1 (4.1-6.3)	44.8 (41.8-47.8)	49.8 (46.7-52.9)	2533
Middle	N.A	N.A	N.A	N.A	10.4 (8.7-12.4)	39.1 (36.3-42.1)	49.6 (46.8-52.4)	1846	7.6 (6.1-9.4)	50.2 (47.3-53.1)	57.8 (54.7-60.8)	2550
Richer	N.A	N.A	N.A	N.A	11.5 (9.9-13.3)	47.1 (44.5-49.7)	58.6 (55.9-61.2)	1957	8.1 (6.7-9.7)	53.7 (50.4-57.0)	61.8 (58.6-64.9)	2677
Richest	N.A	N.A	N.A	N.A	13.2 (10.8-16.2)	56.3 (53.2-59.3)	69.5 (66.4-72.5)	2009	10.2 (8.8-11.9)	56.8 (54.0-59.5)	67.0 (64.1-69.7)	2676
Total				N.A				9556				12937
TOTAL	4.5 (3.9-5.2)	16.2 (15.1-17.5)	20.7 (19.3-22.2)	6364	9.8 (9.0-10.8)	38.8 (37.5-40.2)	48.7 (47.2-50.2)	9556	6.8 (6.2-7.6)	48.0 (46.4-49.5)	54.8 (53.1-56.5)	12937

N.A: Not Available.

4.2.3. Trends in Current Use of Contraceptive

The prevalence of current use of contraceptive is known as ‘Contraceptive Prevalence Rate’ (CPR) and it is the most relevant indicator of the family planning programs’ achievement. Table 4.2.3a shows that in 2012-13, about 35.4% of currently married Pakistani women were using some method of contraceptives; 26.1% were using modern methods and 9% were using traditional methods. It is also evident that during the 22 years period, the contraceptive prevalence rate had increased three times from 11.8 % in 1990-91 to 35.4% in 2012-13.

The prevalence of modern contraceptive use had increased from 9.0% to 26.1% during the same period with substantial increase in the use of condoms and female sterilization. Results show that by 2012-13 the use of condoms and female sterilization were 9% each. The changes in the use of pill, IUD, implants and male sterilization over 22 year period had been small. Among traditional methods, withdrawal became seven times more popular, and reported by 8.5% of currently married women in 2012-13.

Table 4.2.3a. Trend in Current Use of Contraceptive Methods by Currently Married Women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Method	PDHS 1990-91	PDHS 2006-07	PDHS 2012-13
Any method	11.8	29.6	35.4
Any modern method	9.0	21.7	26.1
Female sterilization	3.5	8.2	8.7
Male sterilization	<0.05	0.1	0.3
Pill	0.7	2.1	1.6
IUD	1.3	2.3	2.3
Injectables	0.8	2.3	2.8
Implants	N.A	0.1	N.A
Condom	2.7	6.8	8.8
Lactational amenorrhea	N.A	N.A	1.5
Other	N.A	N.A	0.2
Any traditional method	2.8	7.9	9.3
Rhythm	1.3	3.6	0.7
Withdrawal	1.2	4.1	8.5
Other	0.3	0.2	0.1
TOTAL	6,364	9,556	12,937

N.A: Not Available.

Figure 4.2.1 depicts trend in the distribution of current use of contraceptive method mix among currently married women aged 15-49 in three Pakistan Demographic and Health Surveys (it is important to note that the trend data in this figure and throughout this analysis is based on varying intervals of time between Demographic and Health Surveys). It is evident from the figure that in early 1990s, amongst the small percent of current-users of family planning methods in Pakistan, the most preferred modern method of contraception was female sterilization, up to 30% of women admitted that they had tubal ligation before the survey followed by condom (23%). In the remaining half of current-users, one quarter were practicing traditional methods of birth control whereas another quarter practicing IUD, Pill or injectables as method of contraception.

This figure illustrates that during the subsequent two decades, the overall choice of family planning method among current-users in Pakistan had not changed; traditional methods, condom and female sterilization remained most popular methods of contraception. However, female sterilization had undergone 6% drops in its share of contraceptive method mix, whereas the proportion of current-users practiced condoms and traditional methods had slightly increased their share up to 2% and 1% respectively.

Detailed examination of the trend presented in the figure shows that surprisingly, IUD and pill had also lost their preference in contraceptive method mix during the past 22 years. The percentage share of IUD fell from 11% to 6%, whereas pill share fell from 6% to 4%. Moreover, this decline was compensated by the increase in percentage share of lactational amenorrhea and injectables.

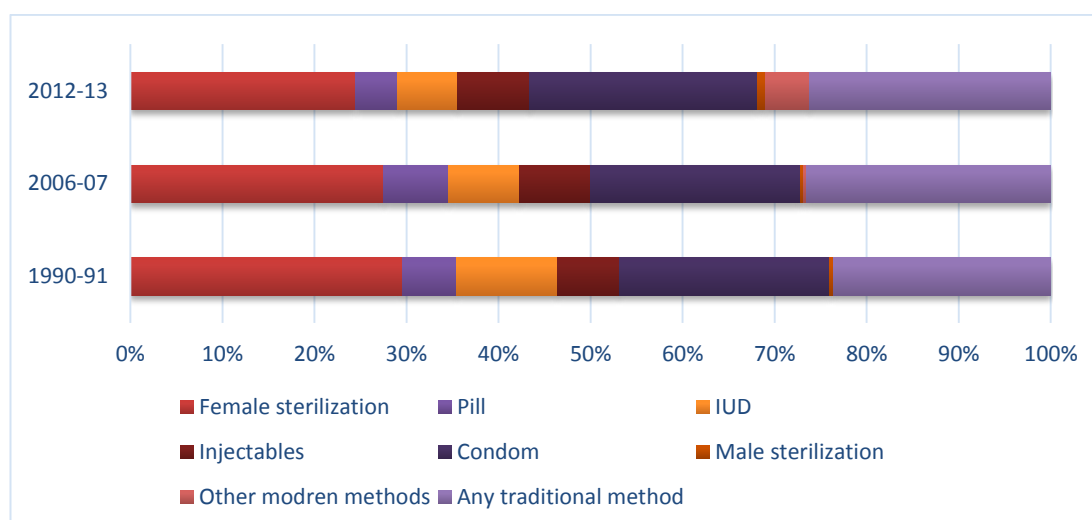


Figure 4.2.1. Percentage distribution of current users of contraception by type of method and survey time (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Figure 4.2.2 presents the level of current use of family planning by the purpose of use in all three Pakistan Demographic and Health surveys. In general, the level of current contraceptive use is a measure of actual family planning practice in Pakistan at the time of the survey. This figure distinctly demonstrates that family planning users in Pakistan utilized contraceptives mostly for the purpose of permanent cessation of childbearing and not for the postponing the next birth. For instance, among married women, contraceptive use for limiting the birth showed substantial increase from 9.8% in 1990-91 to 26.2% in 2012-13, while the use of contraception for spacing the birth showed only a modest increase during this period.

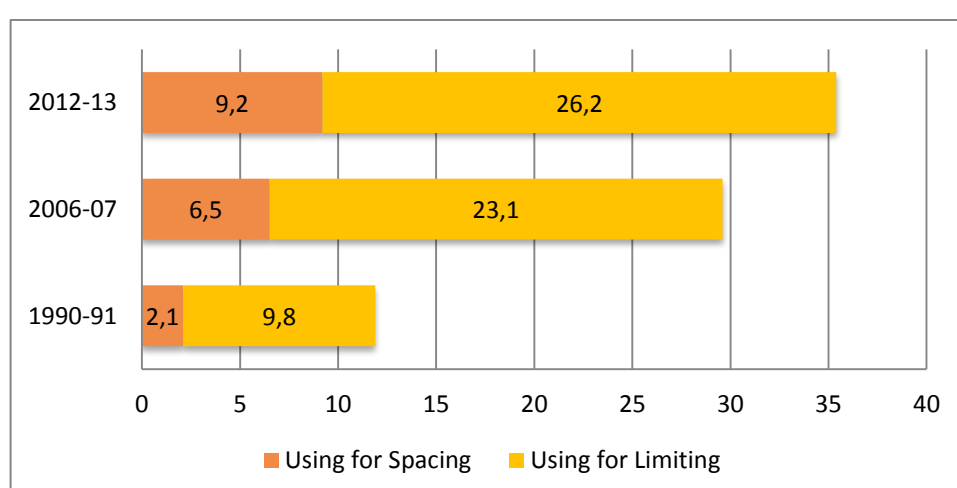


Figure 4.2.2. Percentage of currently married women aged 15-49 currently using any method of contraceptive method, by the purpose of use (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Understanding the differentials in the use of family planning by background characteristics is important to identify current and potential users of family planning services. In accordance with this, trends in current use of contraceptive by background characteristics shown in Table 4.2.3b-4.2.3f. It was found that significant change had occurred between 1990-91 and 2012-13, but the pace of change was slower in between last two surveys. In terms of woman's age, substantial improvement occurred at younger age groups during last two decades. CPR was increased in all ethnic groups but the pace of change was very heterogeneous.

It is shown in Table 4.2.3b that contraceptive prevalence remained significantly higher among women aged 25 to 39 in all three surveys. Women's level of education also had a positive association with current use of contraceptives. For instance, in PDHS 2012-13 the CPR was 30.2% among women with no education whereas, it was 43.8% among women with higher education.

In terms of ethnicity, Urdu and Panjabi speaking women had higher CPR in all surveys compared to others, moreover in 2012-13, current use of contraceptive was more than 40% for these two groups. Table 4.2.3b also revealed that the current use of contraception among currently married Sindhi, Balochi, Barauhi and Siraiki women were near or less 3% in 1990-91 but in 2006-07, CPR for Sindhi, and Siraiki women was about 20% and for Balochi, and Barauhi women it was around 12%. This heterogynous growth in CPR continued in next five years and by 2012-13, CPR for Siraiki women became more than 30% and for Sindhi and Balochi women about 25% but in case of Barauhi it was remained at 12%.

It might be expected that women who are working would be more likely to use contraceptives than those who are not working. However, the result shows complex pattern of relationship between contraceptive use and working status of women in all three surveys.

Table 4.2.3b. Trends in current use of contraceptive method by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age												
15-19	0.6 (0.2-2.0)	1.9 (0.9-3.9)	2.5 (1.3-4.6)	418	2.5 (1.1-5.5)	4.2 (2.7-6.4)	6.7 (4.4-10.0)	559	3.4 (2.0-5.9)	6.9 (4.5-10.5)	10.3 (7.4-14.2)	594
20-24	2.4 (1.5-3.8)	3.8 (2.6-5.5)	6.2 (4.8-8.0)	1041	-4.8 (3.6-6.3)	10.6 (8.8-12.8)	15.4 (13.2-17.9)	1463	6.5 (5.2-8.0)	14.9 (12.9-17.1)	21.3 (18.9-24.0)	2053
25-29	2.2 (1.4-3.5)	7.1 (5.8-8.7)	9.4 (7.6-11.4)	1452	7.6 (6.2-9.3)	17.2 (15.2-19.3)	24.8 (22.4-27.3)	1965	10.3 (8.7-12.2)	21.0 (18.9-23.1)	31.2 (28.7-33.9)	2663
30-34	3.7 (2.5-5.4)	9.3 (7.2-11.8)	12.9 (10.4-15.9)	1147	8.7 (7.3-10.4)	26.9 (24.5-29.4)	35.6 (33.2-38.1)	1729	10.3 (8.7-12.0)	31.4 (28.4-34.6)	41.7 (38.4-45.0)	2454
35-39	4.3 (2.9-6.3)	15.0 (12.3-18.2)	19.3 (16.3-22.8)	931	10.2 (8.3-12.4)	29.8 (27.0-32.6)	39.9 (37.0-43.0)	1565	11.3 (9.3-13.6)	36.6 (33.5-39.8)	47.9 (44.7-51.1)	2137
40-44	2.9 (1.8-4.4)	12.2 (9.5-15.4)	15.0 (12.0-18.6)	803	10.3 (8.4-12.5)	31.4 (28.2-34.7)	41.6 (38.6-44.8)	1208	10.9 (8.8-13.4)	33.3 (29.7-37.0)	44.2 (40.2-48.2)	1617
45-49	1.4 (0.6-3.1)	9.6 (6.9-13.0)	11.0 (8.2-14.5)	572	7.8 (6.0-10.2)	23.6 (20.8-26.7)	31.5 (28.4-34.7)	1067	7.7 (5.9-9.9)	26.8 (23.9-30.0)	34.5 (31.2-38.0)	1419
Total				6364				9556				12937
Education												
None	1.5 (1.2-2.0)	6.0 (5.1-6.9)	7.5 (6.5-8.5)	5044	6.4 (5.6-7.3)	18.9 (17.6-20.2)	25.3 (23.8-26.8)	6165	6.8 (5.9-7.9)	23.4 (21.7 -25.2)	30.2 (28.4-32.2)	7347
Primary	3.6 (2.4-5.4)	13.3 (10.5-16.8)	17.0 (14.0-20.4)	573	8.6 (6.9-10.6)	25.8 (23.0-28.8)	34.4 (31.5-37.4)	1371	12.1 (10.0 -14.5)	28.8 (26.0 -31.7)	40.8 (37.2-44.6)	2057
Secondary	9.8 (7.0-13.5)	22.4 (18.9-26.3)	32.2 (28.0-36.7)	672	12.2 (10.0-14.8)	26.1 (23.1-29.3)	38.3 (35.0-41.7)	1394	12.2 (10.6 -14.0)	30.4 (27.7 -33.2)	42.6 (39.6-45.6)	2309
Higher	13.0 (9.1-18.2)	33.9 (25.7-43.3)	47.0 (36.9-57.3)	75	11.1 (8.4-14.6)	31.4 (27.4-35.8)	42.6 (37.7-47.5)	626	14.2 (11.6 -17.2)	29.7 (26.9 -32.6)	43.8 (40.4-47.3)	1225
Total				6364				9556				12937

Continued.....

Table 4.2.3b. (Continued) Trends in current use of contraceptive method by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Mother Tongue												
Urdu	8.8 (6.4-12.0)	22.1 (18.8-25.7)	30.8 (27.1-34.9)	756	11.2 (8.6-14.5)	35.6 (31.3-40.0)	46.8 (42.0-51.6)	768	13.3 (11.0-16.1)	31.9 (28.8-35.2)	45.3 (41.2-49.4)	1247
Punjabi	3.0 (2.3-3.9)	9.3 (8.0-10.8)	12.3 (10.8-14.0)	2750	10.8 (9.6-12.1)	23.7 (22.0-25.5)	34.6 (32.5-36.6)	3924	12.8 (11.2-14.6)	28.9 (26.5-31.3)	41.7 (38.7-44.7)	4912
Sindhi	0.3 (0.1-0.9)	2.5 (1.8-3.6)	2.8 (2.0-3.9)	961	1.5 (0.9-2.4)	18.1 (15.5-21.0)	19.6 (16.7-22.8)	1014	1.6 (1.0-2.4)	21.0 (17.7-24.7)	22.6 (19.2-26.4)	1153
Pushto	1.3 (0.7-2.2)	6.5 (4.7-8.9)	7.7 (6.0-10.0)	800	6.8 (5.5-8.4)	18.9 (16.5-21.5)	25.6 (22.9-28.5)	1322	8.5 (7.1-10.2)	20.1 (17.0-23.5)	28.6 (25.0-32.6)	1754
Balochi	0.3 (0.1-1.8)	1.0 (0.3-3.3)	1.4 (0.5-3.6)	74	1.1 (0.2-4.9)	12.0 (8.2-17.2)	13.1 (9.0-18.6)	336	2.6 (1.6-4.4)	22.8 (14.4-34.3)	25.5 (16.2-37.6)	531
Barauhi	-	1.7 (0.5-5.8)	1.7 (0.5-5.8)	105	0.6 (0.1-2.4)	10.1 (5.2-18.9)	10.7 (5.6-19.4)	80	0.1 (0.0-1.0)	12.6 (9.0-17.3)	12.7 (9.0-17.7)	243
Siraiki	1.2 (0.5-2.7)	3.7 (2.1-6.4)	4.9 (3.0-7.8)	673	5.9 (4.4-7.8)	17.0 (14.3-20.2)	22.9 (19.9-26.3)	1477	6.7 (5.0-8.9)	27.5 (24.4-30.8)	34.2 (30.4-38.1)	1971
Hindko	0.1 (0.0-0.9)	8.3 (5.4-12.5)	8.4 (5.6-12.6)	144	9.1 (5.9-13.7)	25.5 (19.7-32.4)	34.6 (28.0-41.8)	357	9.0 (6.8-11.9)	19.2 (15.4-23.8)	28.3 (23.3-33.8)	409
Others	2.0 (0.5-7.5)	10.7 (4.1-25.3)	12.7 (5.4-27.2)	92	4.9 (2.9-8.3)	20.0 (15.5-25.4)	24.9 (20.1-30.4)	273	8.1 (5.7-11.4)	26.8 (21.6-32.6)	34.9 (29.6-40.5)	716
Total				6355				9549				12933

Continued.....

Table 4.2.3b. (Continued) Trends in current use of contraceptive method by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Occupation												
Unemployed	2.7 (2.2-3.4)	9.3 (8.3-10.4)	12.0 (10.9-13.2)	5334	7.9 (7.1-8.8)	22.2 (20.9-23.5)	30.1 (28.7-31.5)	6768	9.6 (8.6 -10.6)	25.2 (23.8-26.7)	34.8 (33.0-36.6)	9264
Agricultural/ Domestic/ Unskilled	2.1 (1.0-4.4)	3.4 (1.8-6.6)	5.5 (3.3-9.0)	514	7.3 (5.7-9.3)	16.9 (14.7-19.4)	24.2 (21.5-27.2)	1439	7.8 (6.1 -9.9)	26.9 (24.1-30.0)	34.7 (31.2-38.4)	2207
Professional/ Technical/ Service/Sales	3.4 (2.0-5.7)	8.1 (5.9-11.0)	11.5 (8.5-15.3)	511	8.4 (6.7-10.5)	24.6 (22.0-27.3)	33.0 (30.1-36.1)	1346	9.9 (7.9 -12.3)	30.7 (27.3-34.3)	40.6 (36.9-44.4)	1465
Total				6359				9553				12937
Age At First Marriage												
15 and less	2.0 (1.4-2.8)	6.9 (5.7-8.5)	8.9 (7.5-10.7)	1950	5.1 (4.0-6.5)	21.6 (19.7-23.6)	26.7 (24.4-29.0)	2318	7.0 (5.4 -9.1)	32.2 (28.5 -36.2)	39.3 (35.3 -43.4)	2062
16-17	2.9 (2.0-4.3)	9.5 (7.6-11.8)	12.4 (10.2-15.0)	1262	8.3 (6.9-9.9)	22.9 (20.8-25.1)	31.2 (28.7-33.8)	2106	8.3 (6.9 -9.9)	25.4 (23.3 -27.6)	33.7 (31.3 -36.2)	3200
18-19	3.7 (2.7-5.1)	10.4 (8.2-13.2)	14.1 (11.7-16.9)	1201	9.4 (7.7-11.4)	22.9 (20.6-25.5)	32.3 (29.5-35.3)	1904	8.4 (7.0 -10.0)	25.4 (23.0 27.9)	33.8 (31.0 -36.6)	2784
20-21	3.2 (1.9-5.2)	9.4 (7.1-12.3)	12.6 (10.1-15.5)	824	9.2 (7.4-11.4)	23.4 (20.9-26.1)	32.6 (29.5-35.8)	1315	10.6 (8.9 -12.6)	26.4 (23.6 -29.3)	37.0 (34.2 -39.9)	2017
22 and more	2.4 (1.4-4.1)	8.4 (6.8-10.3)	10.8 (8.7-13.3)	1126	8.3 (6.7-10.2)	18.3 (16.0-21.0)	26.6 (23.9-29.5)	1913	12.1 (10.6 -13.7)	23.0 (20.7 -25.4)	35.0 (32.3 -37.9)	2874
Total				6364								12937

Continued.....

Table 4.2.3b. (Continued) Trends in current use of contraceptive method by socio-demographic characteristics of currently married women (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Duration of Marriage (years)												
Less than 5	1.2 (0.6-2.2)	2.8 (2.0-3.9)	4.0 (3.0-5.1)	1243	4.8 (3.8-6.0)	7.6 (6.3-9.1)	12.3 (10.7-14.2)	2053	7.0 (5.7 -8.4)	11.3 (9.7 -13.2)	18.3 (16.3 -20.5)	2929
5-9	2.8 (1.9-4.1)	7.3 (5.5-9.5)	10.1 (8.1-12.4)	1293	6.8 (5.5-8.3)	16.9 (14.8-19.1)	23.7 (21.4-26.1)	1760	9.4 (7.8 -11.3)	22.6 (20.5 -24.9)	32.1 (29.3 -35.0)	2528
10-14	3.5 (2.4-5.1)	9.0 (7.0-11.5)	12.5 (10.1-15.4)	1263	8.7 (7.0-10.8)	25.8 (23.5-28.3)	34.5 (31.8-37.4)	1661	11.8 (10.0 -13.9)	30.3 (27.8 -32.9)	42.1 (39.1 -45.1)	2196
15-19	3.9 (2.7-5.8)	11.4 (9.4-13.9)	15.4 (12.7-18.5)	1016	10.7 (8.7-13.0)	29.9 (27.0-32.9)	40.5 (37.4-43.8)	1459	11.1 (9.3 -13.3)	37.9 (34.7 -41.3)	49.1 (45.6 -52.6)	1915
20 and more	2.5 (1.8-3.4)	12.3 (10.2-14.8)	14.8 (12.6-17.3)	1549	8.9 (7.5-10.5)	29.0 (26.9-31.2)	37.9 (35.6-40.3)	2623	8.6 (7.3 -10.2)	32.1 (29.8 -34.5)	40.7 (38.2 -43.2)	3369
Total				6364				9556				12937
TOTAL	2.7 (2.2-3.3)	8.7 (7.8-9.6)	11.4 (10.4-12.5)	6364	7.9 (7.1-8.6)	21.7 (20.7-22.9)	29.6 (28.3-30.9)	9556	9.3 (8.5 -10.2)	26.1 (24.8-27.5)	35.4 (33.8 -37.1)	12937

Generally, currently married women do not begin the use contraceptive until they have had at least two children and five years of cohabitation, after which the use increases significantly with the number of children and duration of marriage. With regard to actual and ideal number of children, the use of contraceptive was significantly lower among non-numeric responders and in those who desire more children than they actually had compared to those whose ideal and actual number of children were either same or had more children than they desired. In line with ever-use of contraceptives, current use was also found significantly lower in respondents having more daughters compared to respondent with more son or equal number of daughter(s) and son(s) during last the two DHSs. No significant association was found between current use of contraception and child mortality and history of pregnancy loss however correct knowledge of ovulatory cycle was found to be positively associated with contraceptive use (Table 4.2.3c).

It is evident from Table 4.2.3d that the contraceptive use increases with husband's level of education but the relationship was not as strong as with women's education. Use of contraceptive was significantly highest when there is an agreement between spouse for the number of children and lowest when the respondent doesn't know husband's desire for number of children.

Table 4.2.3c. Trends in current use of contraceptive method by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Actual-Ideal Gap												
Ideal=actual	7.5 (5.1-10.9)	23.8 (20.0-28.2)	31.3 (26.3-36.8)	538	11.4 (9.4-13.7)	31.6 (29.2-34.1)	43.0 (40.2-45.9)	1833	14.5 (12.8-16.5)	39.7 (37.3-42.1)	54.2 (51.6-56.8)	2698
Ideal>actual	2.4 (1.7-3.4)	6.4 (5.1-8.1)	8.8 (7.3-10.7)	1366	5.0 (4.2-5.9)	10.6 (9.5-11.8)	15.6 (14.3-17.0)	4574	6.2 (5.4-7.1)	15.0 (13.9-16.3)	21.2 (19.8-22.7)	6992
Ideal<actual	9.0 (6.6-12.1)	27.1 (23.5-31.0)	36.0 (31.8-40.4)	616	11.5 (9.9-13.2)	37.1 (34.7-39.7)	48.6 (45.8-51.4)	2228	12.2 (10.5-14.1)	42.4 (39.5-45.4)	54.6 (51.7-57.4)	2735
Non numeric response	1.2 (0.8-1.7)	4.5 (3.6-5.6)	5.7 (4.7-6.8)	3845	6.1 (4.5-8.2)	20.4 (17.1-24.2)	26.5 (22.5-31.0)	904	9.0 (6.2-12.8)	18.8 (14.0-24.8)	27.8 (21.9-34.6)	512
Total				6364				9539				12937
Number of Living Children												
No child	-	0.1 (0.0-0.7)	0.1 (0.0-0.7)	810	0.1 (0.0-0.3)	0.5 (0.2-1.3)	0.6 (0.3-1.3)	1278	0.3 (0.1-0.8)	0.6 (0.3-1.5)	0.9 (0.5-1.8)	1728
1-2	1.9 (1.2-2.8)	4.7 (3.7-6.0)	6.5 (5.4-8.0)	1645	7.0 (5.9-8.4)	13.2 (11.7-14.9)	20.3 (18.3-22.3)	2565	10.7 (9.4-12.3)	18.1 (16.4-19.9)	28.8 (26.5-31.3)	3856
3-4	3.7 (2.5-5.4)	9.8 (8.2-11.7)	13.6 (11.4-16.1)	1770	10.3 (8.6-12.2)	28.9 (26.8-31.1)	39.2 (36.8-41.6)	2604	11.2 (9.9-12.6)	35.2 (33.0-37.6)	46.4 (43.8-49.0)	3772
5 and more	3.6 (2.8-4.7)	14.2 (12.2-16.3)	17.8 (15.7-20.1)	2139	9.7 (8.6-11.0)	31.5 (29.4-33.7)	41.2 (38.9-43.6)	3109	10.2 (8.8-11.8)	37.4 (35.0-39.8)	47.6 (45.1-50.0)	3580
Total				6364				9556				12389

Continued.....

Table 4.2.3c. (Continued) Trends in current use of contraceptive method by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Sex of Living Children												
Equal number of both sex	4.3 (2.8-6.5)	11.9 (9.5-14.8)	16.2 (13.4-19.4)	1009	9.8 (8.1-11.8)	28.5 (26.0-31.1)	38.3 (35.5-41.1)	1586	12.2 (10.5-14.2)	32.4 (29.5-35.5)	44.6 (41.7-47.5)	2242
More son	2.7 (2.0-3.7)	10.3 (8.8-11.9)	13.0 (11.3-14.9)	2389	8.8 (7.6-10.0)	26.6 (24.9-28.4)	35.4 (33.4-37.5)	3647	11.0 (9.5-12.6)	32.8 (30.4-35.2)	43.7 (41.1-46.3)	4853
More daughter	3.0 (2.2-4.1)	8.7 (7.1-10.5)	11.7 (9.9-13.8)	2156	9.0 (7.8-10.5)	21.3 (19.4-23.2)	30.3 (28.1-32.6)	3045	9.6 (8.3-11.0)	25.5 (23.4-27.8)	35.1 (32.6-37.7)	4113
No living child	-	0.1 (0.0-0.7)	0.1 (0.0-0.7)	810	0.1 (0.0-0.3)	0.5 (0.2-1.3)	0.6 (0.3-1.3)	1278	0.3 (0.1-0.8)	0.6 (0.3-1.5)	0.9 (0.5-1.8)	1728
Total				6364				9556				12936
Number of Deceased Children												
No	3.0 (2.3-3.8)	8.6 (7.6-9.6)	11.5 (10.3-12.8)	4493	7.7 (6.9-8.5)	21.2 (20.0-22.5)	28.9 (27.5-30.4)	7056	9.6 (8.7-10.7)	24.8 (23.4-26.4)	34.5 (32.7-36.3)	9674
1	2.8 (1.7-4.5)	11.2 (8.9-14.0)	14.0 (11.4-17.0)	971	8.7 (7.0-10.7)	23.1 (20.7-25.6)	31.8 (29.0-34.7)	1620	8.2 (6.6-10.2)	28.3 (25.3-31.4)	36.4 (33.4-39.6)	2088
2	2.1 (1.0-4.4)	6.0 (3.8-9.3)	8.0 (5.4-11.7)	522	6.8 (4.4-10.4)	26.1 (21.8-31.0)	33.0 (28.3-38.0)	509	10.3 (7.5-13.9)	30.0 (24.8-35.8)	40.3 (35.1-45.8)	719
3 and more	0.5 (0.1-1.8)	7.4 (4.7-11.6)	7.9 (5.1-12.2)	379	8.5 (5.4-13.2)	20.1 (16.0-24.9)	28.6 (23.5-34.3)	371	6.5 (3.7-11.1)	36.7 (31.7-42.1)	43.2 (37.7-49.0)	455
Total				6364				9556				12937

Continued.....

Table 4.2.2c. (Continued) Trends in current use of contraceptive method by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Abortion History												
None	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	9.2 (8.3-10.2)	25.0 (23.6-26.4)	34.2 (32.5-35.9)	8433
1	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	9.2 (7.8-10.9)	28.6 (25.9-31.4)	37.8 (34.9-40.8)	2721
2 and more	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	10.0 (8.1-12.4)	27.5 (24.7-30.5)	37.5 (34.4-40.8)	1782
Total				N.A				N.A				12937
Knowledge of Ovulatory Cycle												
Correct answer	9.4 (6.1-14.3)	14.4 (10.6-19.3)	23.8 (18.4-30.3)	331	N.A	N.A	N.A	N.A	15.5 (12.1-19.7)	31.0 (26.0 -36.5)	46.5 (41.6- 51.4)	529
Wrong answer	3.8 (3.0-4.8)	10.7 (9.4-12.1)	14.5 (13.0-16.2)	2767	N.A	N.A	N.A	N.A	9.5 (8.5-10.6)	27.7 (26.2 -29.2)	37.2 (35.3 -39.1)	9482
Don't know	1.1 (0.8-1.6)	6.4 (5.4-7.6)	7.5 (6.4-8.8)	3262	N.A	N.A	N.A	N.A	7.6 (6.3-9.2)	19.9 (17.7 -22.3)	27.5 (24.9 -30.3)	2893
Total				6360				N.A				12904
TOTAL	2.7 (2.2-3.3)	8.7 (7.8-9.6)	11.4 (10.4-12.5)	6364	7.9 (7.1-8.6)	21.7 (20.7-22.9)	29.6 (28.3-30.9)	9556	9.3 (8.5 -10.2)	26.1 (24.8-27.5)	35.4 (33.8 -37.1)	12937

N.A-Not Available.

Table 4.2.3d. Trends in current use of contraceptive method by spousal characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age of Husband												
Lowest through 24	1.1	3.1	4.2	470	3.0	5.2	8.2	760	4.4	9.2	13.6	1010
	(0.4-3.5)	(1.5-6.1)	(2.4-7.4)		(1.8-4.8)	(3.7-7.4)	(6.2-10.9)		(2.9-6.6)	(6.6-12.7)	(10.8-17.1)	
25-29	1.8	4.5	6.3	937	5.1	11.3	16.4	1400	7.0	16.3	23.4	1913
	(1.0-3.3)	(3.2-6.5)	(4.6-8.7)		(3.8-6.9)	(9.3-13.5)	(14.1-19.0)		(5.5-8.9)	(14.2-18.7)	(20.8-26.1)	
30-34	2.0	6.4	8.4	1120	7.5	19.5	27.0	1587	9.2	23.0	32.2	2351
	(1.2-3.2)	(4.5-8.9)	(6.3-11.0)		(6.0-9.3)	(17.3-22.0)	(24.4-29.8)		(7.5-11.2)	(20.9-25.3)	(29.5-35.1)	
35-39	4.3	10.3	14.6	1075	7.8	25.0	32.7	1647	11.0	28.8	39.8	2210
	(3.0-6.1)	(8.4-12.6)	(12.3-17.3)		(6.4-9.4)	(22.6-27.5)	(30.3-35.3)		(9.4-12.9)	(25.7-32.0)	(36.5-43.3)	
40-44	4.0	13.0	17.0	940	10.3	28.5	38.8	1478	12.6	35.4	48.0	2009
	(2.6-6.1)	(10.5-15.9)	(14.3-20.1)		(8.6-12.4)	(25.7-31.4)	(35.7-42.0)		(10.4-15.2)	(32.1-38.8)	(44.7-51.4)	
45-49	2.0	13.4	15.4	728	11.1	29.8	40.9	1246	10.0	34.0	43.9	1750
	(1.1-3.5)	(10.5-16.9)	(12.3-19.1)		(8.9-13.9)	(26.8-32.8)	(37.7-44.1)		(8.2-12.2)	(31.0-37.1)	(40.6-47.4)	
50 and more	3.4	11.1	14.5	1014	8.1	26.1	34.2	1401	8.2	28.9	37.1	1660
	(2.4-4.7)	(8.6-14.2)	(11.8-17.7)		(6.6-10.0)	(23.4-28.9)	(31.3-37.2)		(6.5-10.3)	(26.1-31.8)	(34.0-40.4)	
Total				6284				9518				12903
Education of Husband												
None	1.3	5.3	6.5	3094	6.2	18.8	25.0	3308	6.4	23.8	30.3	4204
	(0.8-1.9)	(4.3-6.5)	(5.4-7.8)		(5.1-7.5)	(17.3-20.5)	(23.2-26.9)		(5.3 -7.7)	(21.5-26.3)	(27.8-32.9)	
Primary	1.6	6.0	7.6	1079	7.2	20.7	27.9	1546	8.5	26.5	35.0	2118
	(0.9-2.8)	(4.6-7.8)	(6.0-9.7)		(6.0-8.8)	(18.6-23.0)	(25.5-30.5)		(7.2 -10.2)	(23.9-29.2)	(32.2-38.0)	
Secondary	4.8	13.7	18.5	1852	8.7	22.4	31.1	3248	11.0	26.5	37.6	4394
	(3.5-6.6)	(11.9-15.7)	(16.4-20.8)		(7.6-10.0)	(20.4-24.5)	(29.0-33.3)		(9.6 -12.7)	(24.6-28.6)	(34.8-40.4)	
Higher	8.3	21.9	30.2	313	10.3	28.4	38.7	1422	12.3	29.5	41.8	2187
	(5.7-11.9)	(17.0-27.8)	(24.2-37.0)		(8.5-12.5)	(25.7-31.3)	(35.5-42.1)		(10.5-14.3)	(27.2-31.9)	(39.2-44.4)	
Total				6338				9524				12903

Continued.....

Table 4.2.3d (Continued) Trends in current use of contraceptive method by spousal characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Husband Occupation												
Unemployed	3.3 (1.0-10.3)	5.5 (2.7-10.7)	8.8 (4.8-15.7)	152	6.7 (4.0-10.9)	14.1 (10.7-18.2)	20.7 (16.5-25.7)	365	4.7 (2.6-8.4)	25.1 (19.6-31.4)	29.8 (24.0-36.4)	331
Agricultural/ Domestic/ Unskilled	4.1 (3.3-5.1)	12.5 (11.2-13.9)	16.6 (15.1-18.2)	2747	9.2 (8.2-10.4)	25.5 (23.9-27.1)	34.6 (32.8-36.6)	4190	10.8 (9.7-11.9)	28.2 (26.5-29.9)	38.9 (36.8-41.1)	6069
Professional/ Technical/ Service/Sale	1.0 (0.7-1.6)	4.7 (3.7-5.9)	5.7 (4.6-7.0)	3237	6.4 (5.5-7.4)	18.0 (16.6-19.5)	24.4 (22.7-26.1)	4998	8.0 (6.8-9.4)	23.9 (22.0-26.0)	31.9 (29.8-34.1)	6535
Total				6136				9553				12936
Husband's Desire For Children												
Both want same	4.8 (3.8-6.1)	8.1 (6.9-9.6)	13.0 (11.2-14.9)	2694	8.7 (7.7-9.9)	16.4 (15.1-17.7)	25.1 (23.6-26.6)	4748	12.1 (10.9-13.4)	20.9 (19.2-22.6)	32.9 (30.7-35.2)	6801
Husband wants more	2.3 (1.3-3.8)	6.0 (4.4-8.2)	8.3 (6.3-10.7)	888	9.8 (8.2-11.8)	17.3 (15.3-19.5)	27.2 (24.5-30.1)	1754	7.9 (6.7-9.4)	17.3 (15.4-19.4)	25.2 (23.0-27.5)	3104
Husband wants fewer	3.4 (1.8-6.5)	6.5 (3.2-12.7)	9.9 (6.0-16.0)	307	12.9 (9.1-17.9)	19.7 (15.2-25.0)	32.5 (27.3-38.3)	340	11.2 (7.7-16.0)	19.8 (15.5-25.0)	31.1 (25.9-36.8)	537
Don't know	0.8 (0.5-1.5)	2.4 (1.5-3.8)	3.2 (2.3-4.5)	2247	6.2 (5.0-7.6)	7.5 (6.2-9.0)	13.7 (11.9-15.7)	1908	5.8 (4.2-7.9)	11.9 (9.7-14.6)	17.7 (15.1-20.7)	1327
Total				6136				8750				11769
TOTAL	2.7 (2.2-3.3)	8.7 (7.8-9.6)	11.4 (10.4-12.5)	6364	7.9 (7.1-8.6)	21.7 (20.7-22.9)	29.6 (28.3-30.9)	9556	9.3 (8.5-10.2)	26.1 (24.8-27.5)	35.4 (33.8 -37.1)	12937

The descriptive analysis results of current use of contraception by community level factors were according to expectation. It was found that the exposure to the messages related to family planning by radio, television or newspapers and more over, visit by LHW were positively associated with current use of contraception in Pakistan. Also, women who have relatively higher role in household decisions making were also have higher contraceptive prevalence (Table 4.2.3e).

With regard to Consanguinity in Marriage, significant difference in contraceptive prevalence was evident in all three surveys, and current use of any method of contraception were higher among couples having no blood relation compared to those who had have first degree relationship. It is also notable that the wider difference in this variable that was evident in earlier survey became narrower in the recent most survey.

Table 4.2.3f revealed that the marked urban-rural CPR difference evident in 1990-91 survey was reduced in current 2012-13survey. However in the meantime, due to heterogeneous utilization of family planning among different ethnic groups, the regional differences in CPR became most pronounced in 2012-13.

In general, women in the urban area and living in Punjab were more likely use contraceptives than those in rural areas and living in other provinces of Pakistan. Contraceptive use increases dramatically with increasing wealth quintiles (Table 4.2.3f).

Table 4.2.3e. Trends in current use of contraceptive method by community level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Knowledge of Family Planning From Media												
No	2.0 (1.6-2.5)	6.8 (6.0-7.8)	8.9 (7.9-9.9)	5011	6.1 (5.3-7.1)	17.1 (16.0-18.4)	23.2 (21.8-24.7)	5377	8.3 (7.4-9.4)	24.0 (22.6-25.5)	32.3 (30.7-34.0)	9556
Yes	5.4 (4.0-7.3)	15.5 (13.4-17.9)	20.9 (18.3-23.7)	1345	10.1 (8.8-11.6)	27.7 (25.9-29.5)	37.8 (35.8-39.8)	4175	12.1 (10.5-13.9)	32.1 (29.7-34.6)	44.2 (40.9-47.5)	3367
Total				6357				9551				12923
Visited by LHW												
LHW is not present or women don't know	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.0 (7.0-9.3)	21.3 (19.3-23.4)	29.3 (26.8-31.9)	4095
LHW is present but not visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.9 (7.6-10.4)	25.4 (23.5-27.4)	34.3 (32.1-36.5)	4494
LHW is present and visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	11.0 (9.4-12.7)	31.4 (29.1-33.8)	42.3 (39.7-44.9)	4348
Total				N.A				N.A				12937

Continued.....

Table 4.2.3e. (Continued) Trends in current use of contraceptive method by community level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method		Only Traditional	Only Modern	Any Method	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Consanguinity in Marriage												
No relation	3.6 (2.8-4.7)	10.6 (9.2-12.1)	14.2 (12.5-16.1)	2356	9.4 (8.2-10.8)	22.4 (20.6-24.3)	31.8 (29.8-34.0)	3138	10.5 (9.2-11.8)	27.4 (25.4-29.5)	37.8 (35.4-40.3)	4463
2 nd degree and other	3.1 (1.9-5.2)	9.7 (7.1-13.1)	12.8 (9.9-16.3)	782	8.4 (6.7-10.4)	24.6 (22.0-27.3)	32.9 (30.0-36.0)	1369	8.9 (7.4-10.8)	27.9 (25.4-30.6)	36.9 (34.1-39.7)	2164
First cousin	2.0 (1.3-2.9)	7.0 (5.9-8.2)	8.9 (7.8-10.3)	3216	6.7 (5.8-7.7)	20.6 (19.2-22.1)	27.3 (25.6-29.0)	5044	8.6 (7.6-9.7)	24.6 (23.0-26.3)	33.2 (31.3-35.1)	6305
Total				6354				9550				12932
Gender Equality												
No	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.5 (5.7-7.5)	18.8 (17.1-20.6)	25.3 (23.4-27.4)	4967
Low	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	10.0 (8.0-12.4)	24.1 (21.3-27.1)	34.1 (30.8-37.6)	1590
Moderate	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	12.2 (10.0-14.9)	29.6 (26.2-33.2)	41.8 (37.8-45.8)	1425
high	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	11.0 (9.8 -12.5)	33.1 (31.2-35.1)	44.2 (42.0-46.5)	4938
Total				N.A				N.A				12920
TOTAL	2.7 (2.2-3.3)	8.7 (7.8-9.6)	11.4 (10.4-12.5)	6364	7.9 (7.1-8.6)	21.7 (20.7-22.9)	29.6 (28.3-30.9)	9556	9.3 (8.5 -10.2)	26.1 (24.8-27.5)	35.4 (33.8 -37.1)	12937

N.A: Not Available.

Table 4.2.3f. Trends in current use of contraceptive method by household level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n	Only Traditional	Only Modern	Any Method	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Residence												
Urban	6.8 (5.3-8.6)	17.9 (16.2-19.6)	24.6 (22.5-26.9)	1930	11.2 (9.8-12.8)	29.9 (27.8-32.0)	41.1 (38.7-43.5)	3191	12.8 (11.2-14.5)	32.0 (29.7-34.5)	44.8 (41.9-47.8)	4304
Rural	0.9 (0.7-1.3)	4.6 (3.7-5.7)	5.6 (4.6-6.8)	4434	6.2 (5.4-7.1)	17.7 (16.4-19.0)	23.9 (22.5-25.3)	6365	7.6 (6.7-8.6)	23.1 (21.5-24.9)	30.7 (28.8-32.7)	8633
Total				6364				9556				12937
Region												
Punjab	3.1 (2.4-3.9)	9.4 (8.2-10.7)	12.4 (11.1-13.9)	3768	10.1 (9.0-11.4)	23.1 (21.5-24.7)	33.2 (31.3-35.1)	5495	11.7 (10.4-13.3)	29.1 (27.2-31.1)	40.8 (38.4-43.3)	7436
Sindh	3.3 (2.1-5.0)	8.8 (7.4-10.5)	12.1 (10.0-14.6)	1486	4.7 (3.7-6.0)	22.0 (20.1-23.9)	26.7 (24.5-29.0)	2317	5.0 (4.3-5.9)	24.5 (22.2-26.9)	29.5 (27.1-32.0)	3002
Khyber Pakhtunkhwa	1.0 (0.6-1.5)	7.4 (5.9-9.1)	8.3 (6.7-10.3)	856	6.2 (5.1-7.6)	18.7 (16.4-21.1)	24.9 (22.3-27.6)	1301	8.4 (7.2-9.9)	19.9 (16.6-23.7)	28.3 (24.6-32.4)	1947
Baluchistan	0.3 (0.1-0.6)	1.7 (0.9-3.3)	2.0 (1.1-3.5)	254	1.0 (0.6-1.8)	13.4 (11.2-16.0)	14.4 (12.2-17.0)	443	3.1 (1.9-5.0)	16.3 (13.0-20.3)	19.5 (15.8-23.8)	553
Total				6364				9556				12937
Wealth Index												
Poorest	N.A	N.A	N.A	N.A	3.2 (2.3-4.4)	12.4 (10.6-14.4)	15.6 (13.7-17.8)	1847	2.7 (2.0-3.6)	18.1 (14.7-22.2)	20.8 (17.2-25.0)	2501
Poorer	N.A	N.A	N.A	N.A	5.3 (4.1-6.7)	15.5 (13.7-17.5)	20.8 (18.7-23.1)	1897	6.7 (5.4-8.3)	22.9 (20.2-25.8)	29.7 (26.7-32.8)	2533
Middle	N.A	N.A	N.A	N.A	8.1 (6.8-9.7)	21.9 (19.8-24.2)	30.1 (27.6-32.6)	1846	11.2 (9.5-13.3)	26.9 (24.4-29.6)	38.2 (35.3-41.1)	2550
Richer	N.A	N.A	N.A	N.A	10.4 (8.7-12.5)	26.3 (24.1-28.7)	36.8 (34.1-39.5)	1957	11.2 (9.5-13.2)	30.3 (27.9-32.8)	41.5 (38.5-44.5)	2677
Richest	N.A	N.A	N.A	N.A	11.8 (10.1-13.8)	31.6 (28.9-34.4)	43.4 (40.2-46.6)	2009	14.2 (12.3-16.4)	31.6 (29.2-34.2)	45.8 (42.7-48.9)	2676
Total				N.A				9556				12937
TOTAL	2.7 (2.2-3.3)	8.7 (7.8-9.6)	11.4 (10.4-12.5)	6364	7.9 (7.1-8.6)	21.7 (20.7-22.9)	29.6 (28.3-30.9)	9556	9.3 (8.5-10.2)	26.1 (24.8 -27.5)	35.4 (33.8 -37.1)	12937

N.A: Not Available.

Figure 4.2.3 illustrates gaps between knowledge, ever-use and current-use of contraception among currently married respondents in all three Pakistan Demographic and Health Surveys. From this figure, it is evident that unlike the knowledge of contraceptive methods, their use had not increased in a similar manner over the last two decades in Pakistan. Moreover, the progress in the current-use of any method was slower than ever-use of contraception.

Through inspection of the graph indicates that the ever-use of contraception had increased from 21% in 1990-91, to 49% in 2006-07, and finally to 55% in 2012-13. In contrast to ever use, progress was much slower in current-use of contraception, and the contraceptive prevalence of 11.8% in the first survey became 29.6% in the second and eventually in the recent survey, it had reached to 35.4%. More importantly, estimated from these figures, it is revealed that the current-use of contraception has increased by the rate of hardly one percent (1.07%) per annum during the 22 years.

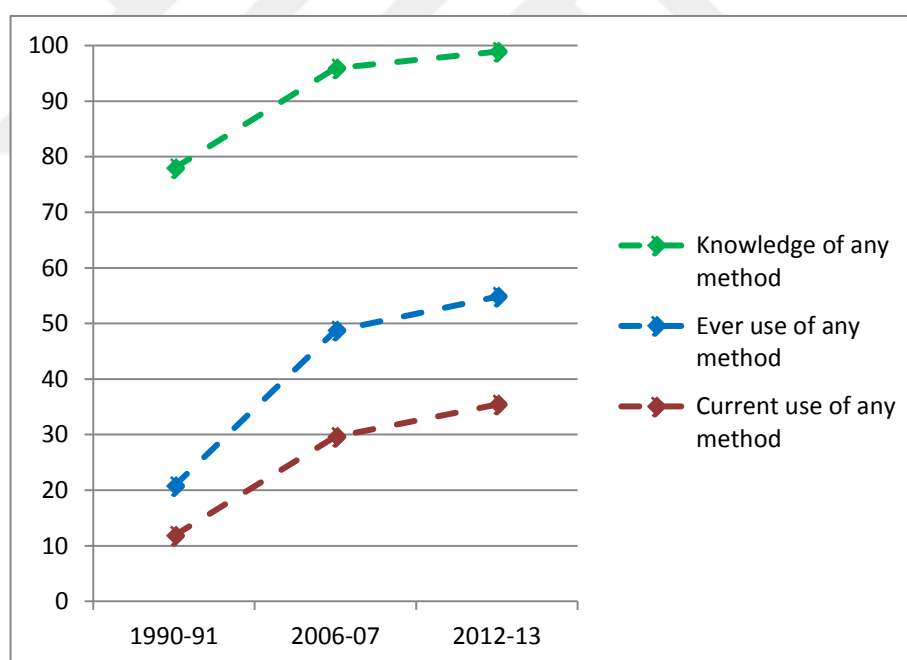


Figure 4.2.3. Percentage trend in knowledge, ever-use and current-use of any contraceptive method among currently married women aged 15-49 (Pakistan, DHS 1990-91, 2006-07, 2012-13).

4.2.4. Trends in Contraceptive Use Prevalence, Based on ‘Exposure Status’ of Women.

In this section, currently married surveyed women are decomposed according to their current family planning need and use status. They are divided into mutually exclusive and exhaustive exposure/prevalence categories, which are then further analyzed by standard demographic variables.

The aim of this classification is to evaluate the effect of contraceptive method use on fertility and to develop meaningful result for family planning program managers and policy makers. The PDHS 1990-91, 2006-07 and 2012-13 country reports present contraceptive prevalence distribution, which are less detailed than those defined in this section. These tables are the actual prevalence results for women exposed to risk of pregnancy and are presented by contraceptive surveys.

Ideally, exposure status of all women (ever-married and never-married) should be taken into account for this type of analyses. However, the questions about contraceptive usage were asked to only married women in PDHSs. Taking the social and culture structure of Pakistan into consideration, premarital births are negligible and the never-married women might be considered as not exposed to risk of pregnancy. In this context, exposure status of currently married women is taken into account for the analysis in this section.

The cross-sectional PDHS data gives snapshot of contraceptive use status of currently married women in 1990-91, 2006-07 and 2012-13. This analysis does not give information about transition of women from one exposure category to another, and is not useful for study contraceptive dynamics.

For this analysis, all currently married women in PDHS 1990-91, 2006-07 and 2012-13 are initially categorized by whether or not they are exposed to the risk of pregnancy. Currently pregnant, postpartum amenorrheic, menopausal and infecund women are regarded as **“not exposed”** since theoretically it is impossible for these women to become pregnant, while currently married and fecund women are considered as **“exposed”**.

Exposed currently married women were further grouped into two headings according to contraceptive use status; these are **“exposed using a method”** and **“exposed not using a method”**; within the category of using a method, all modern

and traditional methods listed in contraceptive questionnaire are included. Category 'not using a method' is further divided according to intention for another child into following groups: "desire more within 2 years", "desire more after 2 years", "desire no more" and "intention undetermined" (women who gave un-codable or ambiguous answer for their future reproductive intention accounts for less than 2% of all women).

Table 4.2.4 shows the distribution of currently married women in 1990-91, 2006-07 and 2012-13 Pakistan Demographic and Health Surveys by exposure/prevalence categories. It is evident that 54.4% of all women were not exposed to risk of pregnancy in 1990-91 while the proportion was 42.1% in 2006-07 and further reduced to 38.7% in 2012-13. Among exposed to the risk of pregnancy, prevalence of contraceptive is changed from 10.8% in 1990-91 to 31.3% in 2012-13. The prevalence of modern contraceptive was 8.2% in 1990-91 whereas it was increased to 22.7% in 2012-13. Prevalence of traditional method is also increased more than three times during this period. During 1990-91 and 2006-07, female sterilization followed by condom was most commonly used modern methods, however in 2012-13 prevalence of condom (8.3%) exceeds female sterilization (7.3%). No more than one percent change is observed for other modern methods during 22 years. This slow change in more reliable modern methods such as female/male sterilization, IUDs, implants is noteworthy for family planning program managers and policy makers.

Withdrawal remained the method of choice among traditional methods users and significant increase in its use has been observed in the most recent survey (7.9% in PDHS 2012-13). Proportion of currently married women who are exposed to the risk of pregnancy but wants no more children and are not using contraception remained near 10% in all surveys, however the percentage of women with undetermined reproductive intention was reduced from 5.9% in 1990-91 to 1.8% in 2012-13. It can be assumed that large proportion of unintended pregnancy can be prevented if these women start using contraception.

Table 4.2.4. Percentage Distribution of Currently Married Women by Exposure and Contraceptive method use Categories (Pakistan, DHS 1990-91, 2006-07, 2012-13).

Prevalence Categories	PDHS1990-91			PDHS2006-07			PDHS 2012-13		
	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n	%	Weighted n	Un-weighted n
Not Exposed									
Infecund /menopausal	22.5	1430	1460	18.2	1735	1719	18.4	2373	2487
Pregnant	15.5	989	987	12.5	1191	1245	11.3	1458	1492
Postpartum amenorrheic	16.4	1043	965	11.4	1087	1049	9.0	1159	1048
Exposed Using Method									
Modern methods	8.2	521	594	19.3	1829	1784	22.7	2941	3096
Pill	0.7	42	61	2.0	186	237	1.5	198	294
IUD	1.2	74	78	2.2	208	184	2.2	289	351
Injectable	0.7	47	54	2.0	188	193	2.4	311	361
Condom	2.6	164	181	6.3	599	539	8.3	1068	1185
Female sterilization	2.9	186	210	6.6	632	620	7.3	942	768
Male sterilization	0.0	03	02	0.1	06	05	0.2	30	19
Implants	N.A	N.A	N.A	0.1	10	06	0.1	08	16
Lactational amenorrhea	0.1	04	03	N.A	N.A	N.A	0.6	78	91
Other modern method	0.0	01	05	N.A	N.A	N.A	0.1	17	11
Traditional methods	2.6	159	179	7.3	690	634	8.6	1108	1054
Withdrawal	1.2	74	78	3.9	368	368	7.9	1017	961
Periodic abstinence	1.2	74	92	3.3	311	255	0.6	83	85
Others	0.2	11	09	0.1	11	11	0.1	08	08
Exposed not using method									
Desire more within 2 years	11.3 ¹	722	668	12.8 ²	1219	1252	13.4 ³	1736	1541
Desire more after 2 years	6.2	396	361	5.4	516	577	4.9	634	669
Desire no more	11.4	723	670	11.7	1116	1146	9.9	1283	1269
Intention undetermined	5.9	378	503	1.7	167	166	1.8	235	342
Total	100.0	6,364	6,393	100.0	9,556	9,580	100.0	12,928	13,000

N.A: Not Available.

1- Un weighted 03 and weighted 02 (0.05%) women are missing mainly because their desire was not known.

2- Un weighted 08 and weighted 05 (0.1%) women are missing mainly because their desire was not known.

3- Un weighted 10 and weighted 09 (0.1%) women are missing mainly because their desire was not known.

4.3. Part III -Trends in Unmet Need for Family Planning

This section provides information on the extent of unmet need for family planning services of currently married women by various socio-demographic, socio-economic, reproductive and spousal characteristics. Throughout the analysis, ‘revised definition’ of unmet need for family planning was used in order to keep the levels of unmet need comparable over the time and across all three Pakistan Demographic and Health surveys.

Figure 4.3.1 presents the trends and level of unmet need for spacing the birth as well as limiting the birth among currently married women in Pakistan. It is evident from the picture that the level of unmet need had changed in the past decade. For instance, the unmet need among currently married Pakistani women was 16.5% for spacing and 15.5% for limiting in PDHS 1990-91 but dropped to 8.8% for spacing and 11.3% for limiting in PDHS 2012-13.

The trend presented in the figure clearly shows that, in contrast to unmet need for birth limiting, the unmet need for birth spacing declined more remarkably during the last two decades. Data suggests that there was 7.7% point decline in unmet need for spacing while there was only a 4.2% point decline of unmet need for limiting.

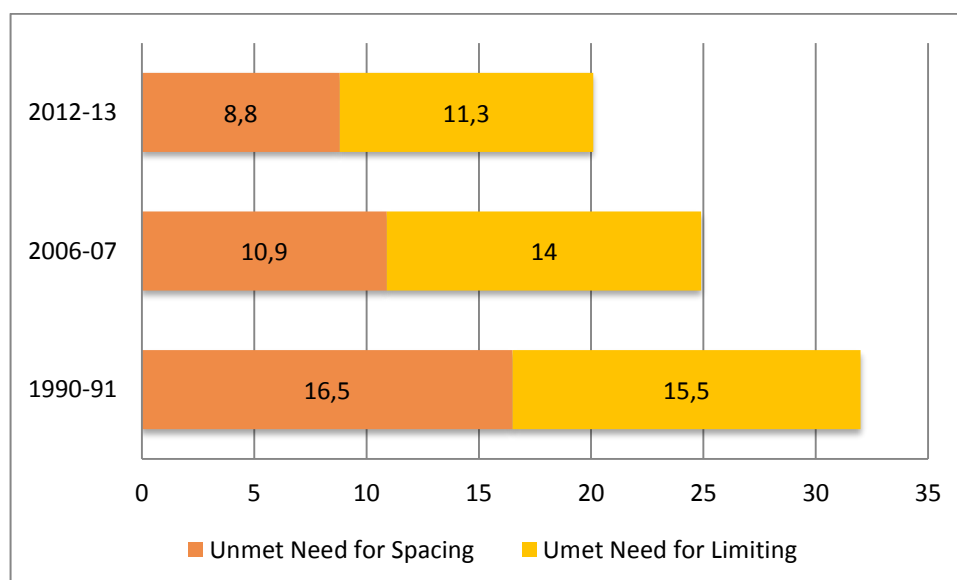


Figure 4.3.1. Percentage trends in unmet need for family planning among currently married women aged 15-49 (Pakistan, DHS 1990-91, 2006-07, 2012-13).

As shown in Table 4.3.1, the relationship between age and total unmet need and its two components are found to be consistent in 1990-91, 2006-07 and 2012-13. However compared to 1990-91, significant decrease in the level of unmet need is noticed in each age categories over twenty two years period. It is interesting to note that total unmet need reached its peak among women aged 35-39, 30-34 and 25-29 in the year 1990-91, 2006-07 and 2012-13, respectively. This gradually shifting of peak towards younger age group indicates that progressively women at the commencement of their childbearing age become more in need of contraceptive.

In all three surveys, the unmet need for spacing decreases with age, and indeed it declines markedly after age 25-29, however contrary to spacing component, the unmet need for limiting increases with age. These antagonistic trends highlights that women who are in early stages of childbearing are more in need of family planning for spacing purposes than older women who are more focused on limiting their fertility. The level of the total unmet need and its two components are slightly lower for the women in oldest age who are also at the end of childbearing age. In fact at this point, they no longer in need of family planning at all and the total unmet need for this age group is almost equal to the level of unmet need for limiting. Reverse is true for the women in youngest age group, the level of unmet need for limiting at age 15-19 is very minimal and the total unmet need at this point is similar to the level of unmet need for spacing.

In 2012-13, the peak value of total unmet need is 22.2% among women aged 25-29, and unmet need for spacing drops from its peak 18.2% in women aged 20-24 to almost 1.1% for women aged 40 and above. In addition, it is also evident that women in age group 35-44 are in the greatest need for limiting childbirth in 2012-13.

As seen in Table 4.3.1, unmet need is inversely related to women's level of education and the total unmet need decreases slightly with increase in educational level of currently married women. The peaked level of unmet need is evident among women with no education in all surveys. Compared to spacing component, the limiting component of unmet need is strongly associated with educational status of women and in 2012-13, the level of unmet need for limiting dropped from 13.8% for women with no education to 6.6% for women with higher level of education. This reflects that for limiting the family size educated women are more likely to use

contraceptives compared to uneducated women. It is also evident that during 22 years period, there is noticeable decline in total unmet need of women with secondary and higher education level.

It is evident that the total unmet need, as well as demand for spacing and limiting differs among women within different ethnic groups. During two decades, total unmet need decreased significantly among women whose mother tongue is Urdu, Punjabi, Pushto or Siraiki. On the other hand, the unmet need remained stationary for Sindhi, Balochi, or Barauhi women and there is no substantial change in unmet need of these women. The Barauhi woman seems more disadvantageous group and contrary to other ethnic groups, their demand for the family planning was increased from 29.2% in 1990-91 to 39.1% in 2012-13. Urdu speaking women have the lowest level of unmet need in all three surveys and in 2012-13 their unmet need was found to be 7% below the national level (Table 4.3.1).

Researchers suggest that need varies according to women's working status, but there is inconsistency between employment status of women and her demand for family planning. Moreover, in 2012-13, the total unmet need of women working in professional, managerial, sale, services and skilled manual sector is approximately 4% lower than women in agriculture, domestic and unskilled manual sector or unemployed women (Table 4.3.1).

Table 4.3.1. Trends in unmet need for family planning by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age												
15-19	32.1 (24.3-40.9)	1.5 (0.7-3.5)	33.6 (25.9-42.3)	418	18.6 (15.1-22.6)	1.4 (0.6-3.1)	20.0 (16.3-24.3)	559	14.6 (10.9-19.3)	0.3 (0.1-1.3)	14.9 (11.2-19.6)	592
20-24	25.7 (22.3-29.5)	5.1 (3.6-7.1)	30.7 (27.1-34.7)	1041	22.1 (19.8-24.5)	5.1 (3.9-6.6)	27.2 (24.7-29.8)	1463	18.2 (16.0-20.7)	2.4 (1.7-3.3)	20.6 (18.4-23.1)	2049
25-29	22.0 (19.4-24.7)	13.2 (10.7-16.1)	34.9 (31.3-38.7)	1452	16.7 (14.9-18.6)	9.8 (8.4-11.5)	26.5 (24.3-28.8)	1963	13.5 (11.8-15.4)	8.6 (7.0-10.6)	22.2 (19.6-24.9)	2659
30-34	14.3 (12.0-16.9)	19.2 (16.8-21.8)	33.4 (30.7-36.2)	1147	9.6 (8.1-11.3)	18.9 (17.0-20.9)	28.4 (26.2-30.7)	1726	8.9 (7.2-11.1)	12.5 (10.8-14.5)	21.4 (19.1-24.0)	2445
35-39	11.7 (9.3-14.7)	27.1 (23.5-31.0)	38.5 (34.6-42.6)	931	5.3 (4.1-6.8)	21.3 (18.9-23.9)	26.6 (24.0-29.4)	1565	3.4 (2.7-4.4)	17.7 (15.7-20.0)	21.2 (18.9-23.6)	2136
40-44	4.9 (3.6-6.7)	24.6 (20.7-28.9)	28.8 (24.8-33.2)	803	2.3 (1.5-3.5)	20.7 (18.2-23.5)	23.0 (20.4-25.9)	1208	1.1 (0.7-1.9)	18.5 (16.0-21.4)	19.7 (17.0-22.6)	1617
45-49	2.5 (1.0-5.7)	13.0 (10.0-16.7)	14.1 (10.9-18.1)	572	0.9 (0.4-2.0)	14.6 (12.5-17.1)	15.5 (13.3-18.1)	1067	0.8 (0.2-3.1)	13.5 (11.2-16.2)	14.3 (11.6-17.5)	1419
Total				6364				9551				12917
Education												
None	16.2 (14.6-17.9)	16.2 (14.8-17.7)	32.0 (30.1-34.0)	5044	10.6 (9.7-11.5)	15.8 (14.7-16.9)	26.4 (25.1-27.7)	6160	8.1 (7.3-9.1)	13.8 (12.6-15.0)	21.9 (20.5-23.3)	7340
Primary	19.9 (15.8-24.7)	12.9 (10.1-16.4)	32.6 (28.1-37.4)	573	11.8 (10.0-13.8)	12.8 (10.9-14.9)	24.5 (22.0-27.3)	1370	10.7 (8.1-13.9)	8.5 (7.0-10.2)	19.1 (16.3-22.4)	2054
Secondary	15.5 (12.9-18.6)	14.5 (12.1-17.2)	30.0 (26.6-33.5)	672	12.0 (10.1-14.2)	9.9 (8.0-12.1)	21.9 (19.2-24.8)	1394	9.8 (8.3-11.7)	8.4 (7.0-10.0)	18.2 (16.1-20.5)	2303
Higher	16.6 (9.4-27.4)	10.2 (4.8-20.2)	26.7 (19.6-35.3)	75	9.5 (7.0-12.7)	8.6 (6.4-11.5)	18.1 (14.6-22.2)	626	8.1 (6.3-10.3)	6.6 (5.0-8.6)	14.7 (12.2-17.5)	1219
Total				6364				9551				12917

Continued.....

Table 4.3.1. (Continued) Trends in unmet need for family planning by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Character istics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Mother Tongue												
Urdu	15.0 (12.7-17.7)	15.5 (13.0-18.4)	29.7 (26.6-33.0)	756	7.4 (5.3-10.2)	11.9 (9.5-14.9)	19.3 (15.6-23.6)	767	4.8 (3.8-6.2)	8.8 (7.0-10.9)	13.6 (11.5-16.1)	1242
Punjabi	15.6 (13.2-18.3)	18.1 (16.1-20.2)	33.5 (30.5-36.6)	2750	8.2 (7.3-9.3)	13.3 (12.1-14.7)	21.5 (19.9-23.3)	3922	8.2 (6.6-10.1)	10.1 (8.6-11.7)	18.2 (15.9-20.9)	4905
Sindhi	14.4 (12.3-16.8)	11.1 (9.1-13.5)	25.0 (22.1-28.0)	961	13.5 (11.4-15.8)	14.2 (12.1-16.7)	27.7 (25.1-30.4)	1012	10.9 (8.7-13.7)	12.0 (10.0-14.3)	22.9 (20.0-26.1)	1150
Pushto	23.0 (19.7-26.6)	17.1 (14.8-19.8)	39.7 (36.2-43.3)	800	15.5 (13.3-17.9)	16.4 (14.1-19.1)	31.9 (29.5-34.3)	1321	9.2 (8.1-10.4)	15.3 (13.5-17.2)	24.4 (22.3-26.7)	1753
Balochi	19.9 (13.4-28.4)	7.4 (4.1-12.9)	27.2 (19.9-36.0)	74	14.8 (11.6-18.8)	11.2 (8.8-14.3)	26.1 (21.9-30.7)	336	14.3 (10.0-20.1)	11.0 (8.4-14.3)	25.3 (22.0-29.0)	530
Barauhi	25.1 (15.9-37.4)	4.0 (1.8-8.6)	29.2 (21.2-38.6)	105	30.1 (22.0-39.7)	9.1 (5.5-14.7)	39.2 (30.9-48.1)	80	23.6 (17.1-31.7)	15.5 (12.1-19.5)	39.1 (31.5-47.2)	243
Siraiki	16.1 (12.6-20.2)	13.4 (9.6-18.3)	29.4 (25.1-34.2)	673	10.9 (9.2-12.9)	15.7 (13.7-17.9)	26.6 (23.9-29.4)	1477	8.3 (6.5-10.6)	11.3 (9.4-13.6)	19.7 (17.2-22.4)	1971
Hindko	13.0 (5.4-28.1)	15.8 (11.1-22.0)	29.5 (21.2-39.4)	144	9.0 (5.1-15.4)	16.0 (12.1-20.9)	25.0 (19.0-32.1)	273	6.2 (4.3-8.7)	17.3 (14.4-20.7)	23.5 (20.2-27.1)	408
Others	14.8 (9.7-21.8)	14.8 (10.3-20.9)	28.4 (19.5-39.2)	92	16.7 (12.9-21.2)	12.4 (8.9-17.0)	29.0 (23.4-35.4)	3556	9.7 (7.1-13.2)	8.3 (6.4-10.7)	18.0 (15.1-21.4)	711
Total				6355				9544				12913

Continued.....

Table 4.3.1. (Continued) Trends in unmet need for family planning by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Occupation												
Unemployed	16.6 (15.1-18.2)	15.5 (14.3-16.8)	31.8 (29.9-33.7)	5334	11.6 (10.7-12.5)	13.5 (12.6-14.6)	25.1 (23.9-26.4)	6764	9.8 (8.9-10.9)	10.9 (10.0-11.9)	20.7 (19.4-22.1)	9249
Agricultural/ Domestic/ Unskilled	15.5 (10.4-22.7)	13.7 (10.1-18.3)	29.0 (22.5-36.5)	514	9.4 (7.8-11.3)	16.8 (14.7-19.2)	26.2 (23.7-29.0)	1439	5.8 (4.5-.7.4)	14.5 (12.5-16.7)	20.2 (17.6-23.1)	2204
Professional/ Technical/ Services/ Sale.	15.9 (12.5-19.9)	18.7 (14.8-23.4)	34.4 (29.2-40.0)	511	8.8 (7.3-10.7)	13.5 (11.5-15.7)	22.3 (19.8-25.0)	1345	7.1 (5.5-9.1)	8.9 (7.3-11.0)	16.0 (13.7-18.7)	1464
Total				6359				9547				12917
Age At First Marriage												
15 and less	15.9 (13.8-18.4)	16.5 (14.5-18.8)	31.8 (29.2-34.5)	1950	11.2 (9.9-12.8)	16.9 (15.1-18.7)	28.1 (26.0-30.3)	2317	7.1 (5.7-8.9)	13.9 (12.1-16.0)	21.0 (18.8-23.4)	2058
16-17	16.9 (14.4-19.8)	14.7 (12.6-17.1)	31.6 (28.7-34.6)	1262	10.8 (9.4-12.4)	14.3 (12.6-16.1)	25.1 (23.0-27.3)	2105	9.6 (8.1-11.4)	13.6 (11.8-15.6)	23.2 (21.1-25.5)	3199
18-19	15.1 (12.4-18.3)	15.9 (13.1-19.1)	30.8 (26.7-35.3)	1201	9.7 (8.3-11.4)	14.5 (12.7-16.5)	24.2 (22.1-26.5)	1902	10.2 (8.4-12.3)	10.5 (8.9-12.3)	20.7 (18.6-23.0)	2779
20-21	17.3 (14.1-21.1)	16.2 (13.4-19.4)	33.2 (29.1-37.6)	824	12.1 (10.3-14.2)	13.6 (11.5-16.1)	25.8 (23.1-28.7)	1313	8.6 (7.2-10.3)	11.0 (9.2-13.0)	19.6 (17.4-21.9)	2014
22 and more	17.7 (14.6-21.3)	14.4 (11.8-17.5)	31.9 (28.5-35.4)	1126	10.8 (9.2-12.5)	10.2 (8.5-12.1)	20.9 (18.9-23.2)	1913	8.0 (6.8-9.5)	7.8 (6.6-9.1)	15.8 (14.1-17.7)	2868
Total				6364				9551				12917

Continued.....

Table 4.3.1. (Continued) Trends in unmet need for family planning by socio-demographic characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Duration of Marriage (years)												
Less than 5	30.7 (26.2-35.6)	2.4 (1.5-3.7)	33.0 (28.5-37.8)	1243	20.4 (18.5-22.5)	1.9 (1.2-3.2)	22.4 (20.2-24.6)	2053	15.8 (14.0-17.8)	1.2 (0.8-1.9)	17.0 (15.2-19.1)	2923
5-9	21.0 (18.3-24.0)	10.4 (8.4-12.8)	31.4 (28.5-34.5)	1293	17.8 (16.0-19.8)	9.7 (8.3-11.4)	27.6 (25.4-29.9)	1758	14.5 (12.8-16.5)	7.3 (6.0-8.9)	21.9 (19.7-24.1)	2520
10-14	15.9 (13.6-18.4)	19.6 (16.9-22.7)	35.4 (32.3-38.7)	1263	9.9 (8.6-11.4)	18.0 (15.8-20.3)	27.8 (25.5-30.3)	1658	8.4 (6.8-10.3)	15.2 (13.2-17.4)	23.6 (21.3-26.0)	2193
15-19	12.5 (9.9-15.5)	24.1 (20.6-28.0)	36.1 (32.4-39.9)	1016	5.7 (4.5-7.2)	21.6 (19.3-24.0)	27.3 (24.9-29.8)	1459	4.5 (3.3-6.1)	16.3 (14.2-18.7)	20.8 (18.4-23.5)	1913
20 and more	4.4 (3.1-6.2)	21.8 (19.4-24.4)	25.2 (22.7-27.9)	1549	2.3 (1.6-3.1)	19.7 (17.9-21.7)	22.0 (20.0-24.0)	2622	1.3 (0.8-1.9)	17.6 (15.8-19.4)	18.8 (17.0-20.8)	3369
Total				6364				9551				12917
TOTAL	16.5 (15.1-17.9)	15.6 (14.5-16.8)	31.8 (30.1-33.4)	6364	10.9 (10.2-11.6)	14.0 (13.2-14.9)	24.9 (23.9-26.0)	9551	8.8 (8.0-9.7)	11.3 (10.5-12.1)	20.1 (19.0-21.3)	12917

The unmet need for spacing and limiting by cohabitation duration follows similar pattern to those by women's age and parity. Shown in Table 4.3.1, during the first few years of marriage, women want to space birth intervals. Therefore, over the first ten years of marital duration, high level of unmet need for spacing is evident in all surveys and after that time, unmet need for limiting increases sharply with increase in marital duration. In 2012-13, the unmet need for limiting change from 1.2% to 17.6% for women with marital duration less than 5 years to more than 20 years. On the other hand, unmet need for spacing dropped from 15.8% to 1.3% for these women. The association between the duration of marriage and total unmet need follows complex pattern in all three surveys.

As shown in Table 4.3.2, the patterns for unmet need by parity are very similar to those by age of respondent because with the increasing number of children, woman's unmet need for spacing births tends to decrease, while unmet need for limiting increases. In all three surveys, the unmet need for limiting is lower than 1% for women at parity zero and at this point, unmet need for spacing fully contributes to the level of total unmet need. It is also evident that when women have had three or four children, limiting purposes increase markedly and significantly.

In terms of ideal and actual disparity, the relationship between the tendency of women towards attaining their desired number of children and unmet need for family planning does not changed over two decades, albeit the levels were higher in 1990-91 than in 2012-13. As might be expected, when the desired level of fertility is yet to be attained, unmet need for spacing is more likely higher. On the other hand, when the desired fertility has been exceeded, demand for limiting fertility gains importance and this pattern can obviously seen in Table 4.3.2. The number of deceased children and unmet need for family planning does not show any noticeable pattern, except in 2012-13 women who loss at least one child is more in demand of limiting than spacing (Table 4.3.2). One reason for this might be older age structure of women with respect to number of deceased children as these women are more in need of limiting than spacing childbirth.

Table 4.3.2 also presents sex ratio of living children and unmet need of currently married women. According to expectation, total unmet need of women without any children depends largely on demand for spacing. It is evident that if

women have had more sons than daughters, the unmet need for limiting exceeds the unmet need for spacing and this difference become wider in 2012-13. In previous surveys, the total unmet need peaks if the women have had more sons than daughters but in the recent survey, total unmet need is highest among women having more daughters than sons. This reflects increased utilization of contraceptive in women having more sons in 2012-13. These findings might imply an association between non utilization of family planning services and sex preference towards male children in Pakistan, but to demonstrate such association, further in-depth analyses are needed which are not the objective of this thesis.

In 2012-13, women were also asked about abortion in their pregnancy history. The results reveal that unmet need, especially desire to terminate childbearing is higher among women who had two or more abortions. Even though exact number and cause of abortion might be under reported in PDHS because of social and legal consequences, this finding is statistically significant. In view of close relation between unmet need for family planning, unintended pregnancies and unskilled abortions, this highlights the importance of fulfillment of family planning demand in Pakistan. Although only small proportion of women gave correct answer to the question about fertile period during ovulatory cycle, the relationship shows that when women have had idea about their most fertile period, they are less likely to have an unmet need for family planning.

Table 4.3.2. Trends in unmet need for family planning method by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Actual-Ideal Gap												
Ideal=actual	7.5 (5.2-10.7)	30.9 (25.8-36.5)	38.1 (32.5-44.1)	538	6.0 (4.7-7.7)	23.8 (21.5-26.3)	29.9 (27.2-32.7)	1833	4.1 (3.2-5.3)	18.6 (16.5-20.9)	22.7 (20.5-25.1)	2696
Ideal>actual	21.1 (17.8-24.8)	4.6 (3.4-6.3)	25.4 (22.0-29.2)	1366	16.3 (15.1-17.6)	3.9 (3.3-4.6)	20.2 (18.9-21.7)	4572	13.0 (11.8-14.4)	3.8 (3.2-4.5)	16.8 (15.4-18.4)	6981
Ideal<actual	4.2 (2.8-6.1)	33.4 (29.1-38.0)	37.0 (32.6-41.6)	616	3.5 (2.8-4.5)	25.4 (23.4-27.5)	29.0 (26.9-31.1)	2227	2.5 (1.7-3.5)	22.5 (20.5-24.6)	24.9 (22.9-27.1)	2733
Non numeric response	18.0 (16.2-20.0)	14.6 (12.8-16.5)	32.3 (30.2-34.4)	3845	11.1 (9.0-13.6)	17.4 (14.7-20.4)	28.5 (25.1-32.1)	904	10.4 (7.1-15.0)	14.9 (11.0-19.8)	25.3 (20.8-30.3)	507
Total				6364				9536				12917
Number of Living Children												
No child	14.8 (11.6-18.8)	0.7 (0.3-1.8)	15.5 (12.2-19.5)	810	7.5 (6.0-9.3)	0.3 (0.1-0.9)	7.8 (6.3-9.7)	1278	3.9 (2.8-5.4)	0.3 (0.1-0.7)	4.1 (3.0-5.7)	1725
1-2	26.3 (23.1-29.8)	4.1 (3.1-5.4)	29.9 (26.6-33.4)	1645	20.4 (18.6-22.2)	4.8 (3.9-5.9)	25.2 (23.2-27.3)	2562	16.0 (14.4-17.9)	3.1 (2.4-4.0)	19.2 (17.3-21.2)	3850
3-4	16.5 (14.2-19.1)	16.9 (14.3-19.9)	33.2 (30.3-36.4)	1770	10.5 (9.2-11.9)	16.0 (14.5-17.6)	26.5 (24.5-28.5)	2604	8.8 (7.5-10.3)	14.0 (12.5-15.7)	22.8 (20.9-24.9)	3764
5 and more	9.5 (8.1-11.0)	29.0 (26.7-31.5)	38.1 (35.8-40.6)	2139	4.8 (3.9-5.8)	25.6 (23.8-27.6)	30.4 (28.5-32.4)	3107	3.5 (2.6-4.6)	22.5 (20.7-24.4)	26.0 (23.9-28.2)	3578
Total				6364				9551				12917

Continued.....

Table 4.3.2. (Continued) Trends in unmet need for family planning by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Sex of Living Children												
Equal number of both sex	17.0 (14.0-20.5)	18.8 (15.8-22.2)	35.2 (31.4-39.3)	1009	10.4 (8.8-12.3)	17.2 (15.1-19.6)	27.6 (24.9-30.6)	1586	8.1 (6.8-9.7)	11.8 (10.1-13.7)	19.9 (17.7-22.3)	2240
More son	17.2 (15.1-19.4)	20.7 (18.3-23.2)	37.5 (34.6-40.5)	2389	11.2 (10.0-12.5)	17.0 (15.6-18.4)	28.1 (26.3-30.0)	3646	8.1 (7.0-9.3)	14.1 (12.7-15.6)	22.2 (20.5-24.0)	4844
More daughter	16.1 (14.1-18.2)	14.1 (12.4-16.0)	29.9 (27.5-32.4)	2156	12.2 (10.9-13.6)	14.6 (13.3-16.1)	26.8 (25.1-28.5)	3041	12.2 (10.7-13.9)	12.3 (11.0-13.7)	24.5 (22.5-26.7)	4190
No living child	14.8 (11.6-18.8)	0.7 (0.3-1.8)	15.5 (12.2-19.5)	810	7.5 (6.0-9.3)	0.3 (0.1-0.9)	7.8 (6.3-9.7)	1278	3.9 (2.8-5.4)	0.3 (0.1-0.7)	4.1 (3.0-5.7)	1725
Total				6364				9551				12917
Number of Deceased Children												
No	18.6 (16.8-20.6)	13.4 (12.2-14.6)	31.8 (29.8-33.8)	4493	12.0 (11.2-12.8)	12.7 (11.9-13.7)	24.7 (23.6-25.9)	7052	9.6 (8.8-10.6)	10.0 (9.2-10.9)	19.7 (18.5-20.9)	9661
1	12.1 (9.8-14.9)	20.6 (17.4-24.3)	32.3 (29.6-28.6)	971	8.5 (6.9-10.3)	15.0 (13.1-17.1)	23.4 (21.1-26.0)	1620	7.7 (6.3-9.5)	13.8 (11.9-16.0)	21.6 (19.2-24.2)	2083
2	10.9 (7.8-15.2)	20.9 (16.5-26.1)	31.6 (26.4-37.3)	522	6.3 (4.2-9.4)	20.3 (16.5-24.7)	26.6 (22.2-31.5)	507	3.1 (1.9-5.0)	17.4 (14.2-21.1)	20.5 (17.1-24.3)	718
3 and more	9.4 (6.4-13.6)	22.3 (16.9-28.8)	30.6 (24.4-37.6)	379	6.9 (4.5-10.4)	26.0 (21.2-31.4)	32.9 (28.1-38.1)	371	6.0 (2.9-12.2)	16.5 (12.6-21.2)	22.5 (17.8-28.1)	455
Total				6364				9551				12917

Continued.....

Table 4.3.2. (Continued) Trends in unmet need for family planning by reproductive characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Abortion History												
None	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	9.8 (8.8-10.8)	10.0 (9.1-11.0)	19.8 (18.4-21.2)	8418
1	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.9 (6.5-9.5)	12.1 (10.5-13.9)	20.0 (18.1-22.1)	2717
2 and more	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.9 (4.6-7.6)	16.1 (14.0-18.3)	22.0 (19.6-24.6)	1782
Total				N.A				N.A				12917
Knowledge of Ovulatory Cycle												
Correct answer	16.1 (11.9-21.3)	22.0 (16.0-29.6)	38.0 (31.8-44.6)	331	N.A	N.A	N.A	N.A	6.9 (4.0-11.7)	7.5 (5.0-11.1)	14.5 (10.5-19.6)	529
Wrong answer	16.0 (14.6-17.5)	15.3 (13.8-16.9)	31.0 (29.1-33.0)	2767	N.A	N.A	N.A	N.A	8.3 (7.4-9.2)	11.6 (10.6-12.5)	19.8 (18.5-21.2)	9464
Don't know	16.9 (14.8-19.3)	15.3 (13.6-17.0)	31.7 (29.2-34.4)	3262	N.A	N.A	N.A	N.A	11.1 (9.5-13.1)	11.1 (9.6-12.8)	22.2 (20.1-24.5)	2891
Total				6360				N.A				12885
TOTAL	16.5 (15.1-17.9)	15.6 (14.5-16.8)	31.8 (30.1-33.4)	6364	10.9 (10.2-11.6)	14.0 (13.2-14.9)	24.9 (23.9-26.0)	9551	8.8 (8.0-9.7)	11.3 (10.5-12.1)	20.1 (19.0-21.3)	12917

N.A: Not Available.

Table 4.3.3 presents the unmet need for spacing and limiting according to husbands' level of education. Inverse relationship between women's unmet need and their husband's education is evident in all three surveys. In 2012-13, it is found that 22.2% of women with uneducated husband had an unmet need for family planning and even though this figure is 17.5% for women with higher educated husband. From 1990-91 to 2012-13, significant decline in unmet need, particularly the limiting component is noticed within all categories of husband's education level. Unlike education, no perceptible association between the age and employment status of husbands and unmet need of women for family planning is evident in any survey.

In all PDHSs, respondents were asked whether they or their husband wants more children. It is observed that if there is a conscience among couple for family size, unmet need for family planning is lower. Regarding husband versus wife desire for more children, no remarkable difference in the level of unmet need is observed and moreover in 2012-13, the level of total unmet need and its two components is almost same regardless of dominance of husband versus wife desire for more children (Table 4.3.3).

Table 4.3.3. Trends in unmet need for family planning by spousal characteristics of currently married women
(Pakistan, PDHS; 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Age of Husband												
Lowest through 24	32.1 (24.4-41.0)	2.9 (1.3-6.1)	34.5 (27.0-42.9)	470	16.4 (13.6-19.7)	2.1 (1.2-3.6)	18.6 (15.6-22.0)	760	18.6 (15.1-22.8)	1.3 (0.7-2.4)	20.0 (16.4-24.1)	1007
25-29	25.7 (21.8-30.0)	5.3 (3.8-7.3)	30.9 (26.9-35.3)	937	21.5 (19.1-24.1)	5.8 (4.6-7.3)	27.3 (24.7-30.0)	1398	16.9 (14.8-19.3)	2.8 (2.0-4.0)	19.7 (17.4-22.2)	1911
30-34	20.6 (17.7-23.8)	12.5 (10.3-15.1)	32.9 (29.3-36.6)	1120	16.3 (14.3-18.5)	10.3 (8.7-12.1)	26.6 (24.2-29.1)	1587	13.2 (11.2-15.6)	7.6 (6.3-9.1)	20.9 (18.6-23.4)	2348
35-39	16.4 (13.7-19.5)	18.1 (15.1-21.4)	34.4 (31.3-37.6)	1075	12.4 (10.6-14.4)	15.9 (13.8-18.1)	28.2 (25.8-30.9)	1647	7.6 (6.4-9.1)	14.4 (12.5-16.5)	22.0 (19.8-24.3)	2205
40-44	12.3 (9.8-15.3)	23.2 (19.7-27.2)	35.3 (31.3-39.6)	940	4.7 (3.8-6.0)	21.3 (18.9-23.8)	26.0 (23.6-28.6)	1478	4.4 (3.1-6.3)	16.3 (14.0-18.9)	20.7 (18.0-23.7)	2008
45-49	9.3 (6.9-12.5)	25.5 (21.6-29.9)	34.2 (29.5-39.2)	728	3.2 (2.3-4.5)	19.7 (17.2-22.4)	22.9 (20.3-25.8)	1245	2.8 (1.9-4.2)	17.5 (14.9-20.5)	20.3 (17.5-23.5)	1750
50 and more	5.3 (3.8-7.4)	18.4 (15.5-21.6)	22.9 (19.7-26.5)	1014	2.3 (1.4-3.7)	18.1 (15.8-20.6)	20.4 (18.0-23.1)	1401	0.7 (0.4-1.3)	15.5 (13.3-18.0)	16.2 (14.0-18.7)	1660
Total				6284				9516				12889

Continued.....

Table 4.3.3. (Continued) Trends in unmet need for family planning by spousal characteristics of currently married women
(Pakistan, PDHS; 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Education of Husband												
None	16.1 (14.2-18.1)	16.3 (14.7-18.1)	31.9 (29.9-33.9)	3094	10.5 (9.3-11.8)	17.0 (15.6-18.6)	27.5 (25.8-29.4)	3306	8.2 (7.0-9.6)	14.0 (12.6-15.5)	22.2 (20.4-24.2)	4199
Primary	18.3 (14.7-22.5)	15.3 (12.7-18.3)	33.3 (29.2-37.6)	1079	8.6 (7.1-10.3)	15.5 (13.6-17.6)	24.0 (21.8-26.5)	1545	8.8 (7.2-10.8)	10.5 (8.8-12.4)	19.3 (16.9-21.9)	2117
Secondary	16.7 (14.7-19.0)	15.0 (12.9-17.4)	31.6 (28.6-34.7)	1852	12.3 (11.2-13.5)	12.4 (11.1-13.9)	24.7 (23.0-26.6)	3247	9.5 (8.2-10.9)	10.3 (9.1-11.6)	19.8 (17.9-21.7)	4387
Higher	12.9 (9.3-17.5)	13.7 (10.4-17.9)	26.4 (21.8-31.7)	313	10.6 (8.9-12.5)	9.3 (7.6-11.4)	19.9 (17.5-22.5)	1422	8.8 (7.2-10.6)	8.8 (7.4-10.3)	17.5 (15.5-19.8)	2186
Total				6338				9521				12889
Husband Occupation												
Unemployed	21.8 (13.7-32.9)	9.8 (5.2-17.6)	31.4 (22.1-42.6)	152	10.1 (7.3-14.0)	15.7 (12.1-20.2)	25.9 (21.3-31.0)	365	7.2 (4.5-11.4)	10.7 (7.4-15.3)	17.9 (13.3-23.7)	331
Agricultural/ Domestic/ Unskilled	17.1 (15.7-18.7)	15.6 (13.9-17.4)	32.4 (30.4-34.4)	2747	11.3 (10.3-12.3)	12.7 (11.7-13.7)	23.9 (22.5-25.3)	4186	8.9 (7.9-9.9)	10.3 (9.3-11.4)	19.2 (17.9-20.5)	6054
Professional/ Technical/ Service/Sale	15.5 (13.4-17.8)	15.7 (13.8-17.8)	30.8 (28.0-33.8)	3237	10.5 (9.4-11.7)	15.5 (14.3-16.9)	26.0 (24.4-27.7)	4996	8.9 (7.7-10.3)	12.3 (11.3-13.5)	21.1 (19.5-23.1)	6531
Total				6136				9548				12916

Continued.....

Table 4.3.3. (Continued) Trends in unmet need for family planning by spousal characteristics of currently married women
(Pakistan, PDHS; 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Husband's Desire For Children												
Both want same	14.1 (12.3-16.1)	17.7 (16.0-19.5)	31.7 (29.4-34.0)	2694	10.9 (10.0-11.9)	14.2 (13.1-15.5)	25.2 (23.8-26.5)	4748	8.8 (7.6-10.1)	11.3 (10.2-12.7)	20.2 (18.4-22.0)	6792
Husband wants more	14.8 (12.7-17.1)	18.6 (15.7-21.9)	32.4 (28.8-36.3)	888	12.0 (10.3-13.9)	18.7 (16.7-20.9)	30.7 (28.2-33.3)	1753	10.6 (9.2-12.2)	14.9 (13.3-16.7)	25.5 (23.6-27.6)	3099
Husband wants fewer	19.2 (13.0-27.4)	16.5 (12.5-21.5)	35.6 (28.0-44.1)	307	13.5 (9.9-18.2)	14.5 (10.5-19.7)	28.0 (22.5-34.2)	340	10.8 (7.4-15.6)	14.6 (11.0-19.0)	25.4 (20.4-31.1)	537
Don't know	21.2 (18.7-24.0)	13.4 (11.2-16.0)	34.3 (31.2-37.6)	2247	13.7 (12.1-15.6)	15.0 (13.4-16.7)	28.7 (26.5-31.0)	1907	11.7 (9.6-14.2)	10.8 (9.0-12.9)	22.5 (19.6-25.6)	1327
Total				6136				8749				11758
TOTAL	16.5 (15.1-17.9)	15.6 (14.5-16.8)	31.8 (30.1-33.4)	6364	10.9 (10.2-11.6)	14.0 (13.2-14.9)	24.9 (23.9-26.0)	9551	8.8 (8.0-9.7)	11.3 (10.5-12.1)	20.1 (19.0-21.3)	12917

Exposure to family planning media messages exerts a considerable influence on unmet need and it is evident in the unmet need for family planning especially demand for limiting childbirth is significantly less among women who were exposed to family planning media message than unexposed women. In PDHS 2012-13, women were also asked about presence and visit of LHW in their area, however as shown in Table 4.3.4, no perceptible variation in unmet need and its component is found with respect to presence or absence of LHW. In addition to this, unmet need shows no difference between the women whose marriages reflect traditionalist and those reflecting modernity in any survey (Table 4.3.4).

The relationship between unmet need of women and her gender role shows that, when women have no or low role in decision-making, they became more disadvantageous in terms of their demand for spacing the childbirth. The data reveals that more than 50% reduction occurred in the proportion of women with unmet need for spacing as their autonomy in decision-making increase from not at all to highest level. The limiting component of unmet need does not show such relation and surprisingly women with higher gender role are more in demand for limiting their birth; this reflects low-level decision-making autonomy for limiting family size among Pakistani women (Table 4.3.4).

Table 4.3.4. Trends in unmet need for family planning by community level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Knowledge of Family Planning from Media												
No	16.7 (15.1-18.4)	15.4 (14.1-16.8)	31.8 (29.9-33.6)	5011	11.8 (10.8-12.9)	15.4 (14.-16.6)	27.2 (25.9-28.6)	5374	9.1 (8.3-10.0)	11.9 (11.0-12.9)	21.0 (19.8-22.4)	9546
Yes	15.8 (14.0-17.8)	16.4 (14.3-18.7)	31.7 (29.1-34.5)	1345	9.7 (8.7-10.8)	12.3 (11.1-13.5)	22.0 (20.5-23.5)	4173	8.0 (6.4-9.9)	9.4 (8.1-10.9)	17.4 (15.4-19.6)	3364
Total				6357				9548				12909
Visited by LHW												
LHW is not present or women don't know	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	9.7 (8.2-11.5)	10.6 (9.4-12.0)	20.3 (18.3-22.5)	4089
LHW is present but not visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.3 (7.2-9.6)	11.1 (9.9-12.5)	19.4 (17.8-21.1)	4489
LHW is present and visited	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.5 (7.4-9.8)	12.1 (10.6-13.7)	20.6 (18.9-22.5)	4339
Total				N.A				N.A				12917

Continued.....

Table 4.3.4. (Continued) Trends in unmet need for family planning by community level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need		Unmet need for spacing	Unmet need for limiting	Total unmet need	
	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n	% (CI)	% (CI)	% (CI)	n
Consanguinity in Marriage												
No relation	16.2 (14.3-18.3)	17.3 (15.5-19.4)	33.2 (30.7-35.8)	2356	10.2 (9.1-11.5)	14.5 (13.1-16.0)	24.7 (22.9-26.5)	3136	8.5 (7.2-9.9)	11.3 (10.1-12.6)	19.7 (17.9-21.7)	4454
2 nd degree and other	18.0 (14.3-22.5)	14.2 (11.1-17.9)	31.7 (27.1-36.6)	782	10.0 (8.4-11.7)	15.4 (13.2-17.8)	25.3 (22.8-28.1)	1368	9.5 (8.1-11.1)	12.5 (10.9-14.3)	22.0 (19.9-24.2)	2160
First cousin	16.3 (14.4-18.3)	14.7 (13.1-16.5)	30.7 (28.4-33.2)	3216	11.5 (10.5-12.6)	13.4 (12.4-14.5)	25.0 (23.6-26.4)	5041	8.9 (7.9-9.9)	10.9 (9.9-12.0)	19.8 (18.4-21.1)	6298
Total				6354				9546				12913
Gender Equality												
No	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	12.7 (11.3-14.3)	9.7 (8.6-10.9)	22.4 (20.6-24.3)	4960
Low	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	9.0 (7.2-11.3)	10.8 (8.6-13.4)	19.8 (16.7-23.3)	1589
Moderate	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.9 (6.0-10.3)	11.2 (8.9-14.1)	19.1 (16.1-22.4)	1421
high	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.1 (4.3-6.0)	13.0 (11.7-14.5)	18.1 (16.7-19.7)	4936
Total				N.A				N.A				12905
TOTAL	16.5 (15.1-17.9)	15.6 (14.5-16.8)	31.8 (30.1-33.4)	6364	10.9 (10.2-11.6)	14.0 (13.2-14.9)	24.9 (23.9-26.0)	9551	8.8 (8.0-9.7)	11.3 (10.5-12.1)	20.1 (19.0-21.3)	12917

N.A: Not Available.

Trend of unmet need by place of residence of currently married women is given in Table 4.3.5. It is significant to note that the difference in unmet need by place of residence increased during 22 years period. As shown here, in 1990-91 the level of unmet need is relatively higher but the urban versus rural difference was negligible. Successive surveys in 2006-7 and 2012-13 indicate decrease in level of unmet needs but the urban versus rural disparity become more evident in them.

Table 4.3.5 shows that between PDHS 1990-91 and PDHS 2012-13, unmet need in family planning reduced significantly in all provinces except Baluchistan where increase in unmet need had occurred during this period. Besides, it is also evident that regional difference in unmet need and both of its components became more pronounced in PDHS 2012-13. The order of the regions from the highest to the lowest unmet need in 2012-13 is Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan. Data also revealed that the limiting component of unmet need is much more pronounced in Khyber Pakhtunkhwa whereas spacing component is more evident in Baluchistan and this trend remained same in all three surveys. Data also revealed that the women in Khyber Pakhtunkhwa are almost always in higher demand for limiting child birth than other provinces, whereas women in Baluchistan are higher in demand for spacing childbirth throughout two decades.

Table 4.3.5 also shows that unmet need decreases as the household wealth increases. In PDHS 2012-13, 1/4 women in the lowest wealth quintile has had unmet need for family planning compare to 1/7 women having unmet need in the wealthiest household. This is probably due to increase in contraceptive prevalence with increase in household wealth level. It is also evident that proportions of unwanted pregnancy decrease as the house hold wealth increases.

Table 4.3.5. Trends in unmet need for family planning by household level characteristics of currently married women
(Pakistan, DHS 1990-91, 2006-07, 2012-13).

Characteristics	PDHS 1990-91				PDHS 2006-07				PDHS 2012-13			
	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n	Unmet need for spacing	Unmet need for limiting	Total unmet need	n
	% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)		% (CI)	% (CI)	% (CI)	
Residence												
Urban	16.3 (14.8-17.9)	16.8 (15.4-18.3)	32.5 (30.7-34.3)	1930	9.1 (8.1-10.1)	12.8 (11.6-14.2)	21.9 (20.3-23.6)	3188	7.6 (6.0-9.5)	9.5 (8.5-10.7)	17.2 (15.1-19.5)	4295
Rural	16.5 (14.7-18.5)	15.1 (13.6-16.8)	31.4 (29.3-33.7)	4434	11.8 (10.9-12.8)	14.6 (13.6-15.7)	26.4 (25.2-27.7)	6362	9.4 (8.5-10.5)	12.1 (11.1-13.3)	21.6 (20.2-23.1)	8622
Total				6364				9551				12917
Region												
Punjab	15.3 (13.2-17.6)	16.8 (15.1-18.6)	31.9 (29.4-34.5)	3768	9.0 (8.1-9.9)	13.9 (12.8-15.0)	22.8 (21.5-24.3)	5492	7.4 (6.2-8.8)	10.3 (9.1-11.6)	17.6 (15.9-19.5)	7422
Sindh	16.0 (14.4-17.8)	13.1 (11.4-15.0)	28.4 (26.3-30.6)	1486	12.4 (11.0-13.9)	13.1 (11.5-14.8)	25.4 (23.4-27.5)	2315	10.1 (8.7-11.8)	10.7 (9.5-12.0)	20.8 (19.1-22.7)	2999
Khyber Pakhtunkhwa	20.5 (18.6-22.6)	18.3 (16.0-20.9)	38.4 (36.0-40.8)	856	13.8 (11.3-16.6)	16.8 (14.4-19.4)	30.5 (28.0-33.2)	1300	9.1 (7.9-10.4)	16.2 (14.5-18.1)	25.3 (23.3-27.4)	1944
Baluchistan	23.2 (18.5-28.6)	4.1 (2.2-7.5)	27.2 (22.7-32.1)	254	18.4 (15.7-21.4)	13.1 (11.2-15.3)	31.5 (28.0-35.2)	443	20.7 (17.2-24.7)	10.5 (8.2-13.4)	31.2 (26.2-36.7)	552
Total				6364				9551				12917
Wealth Index												
Poorest	N.A	N.A	N.A	N.A	13.2 (11.5-15.1)	17.9 (16.0-20.0)	31.1 (28.6-33.7)	1846	10.3 (8.3-12.7)	14.2 (12.7-16.0)	24.6 (21.9-27.4)	2501
Poorer	N.A	N.A	N.A	N.A	13.0 (11.0-15.2)	14.5 (12.5-16.6)	27.5 (25.1-30.0)	1894	10.1 (8.4-12.1)	13.3 (11.6-15.2)	23.3 (21.1-25.7)	2524
Middle	N.A	N.A	N.A	N.A	11.7 (10.2-13.3)	14.9 (13.2-16.8)	26.6 (24.4-28.9)	1844	8.2 (6.9-9.7)	10.8 (9.2-12.6)	19.0 (16.9-21.2)	2549
Richer	N.A	N.A	N.A	N.A	7.7 (6.5-9.3)	12.2 (10.5-14.0)	19.9 (17.8-22.2)	1957	9.0 (6.9-11.8)	9.8 (8.5-11.2)	18.8 (16.2-21.7)	2675
Richest	N.A	N.A	N.A	N.A	9.1 (7.8-10.6)	11.1 (9.6-12.8)	20.2 (18.1-22.5)	2008	6.7 (5.6-8.0)	8.6 (7.2-10.3)	15.3 (13.4-17.4)	2668
TOTAL				N.A				9551				12917
	16.5 (15.1-17.9)	15.6 (14.5-16.8)	31.8 (30.1-33.4)	6364	10.9 (10.2-11.6)	14.0 (13.2-14.9)	24.9 (23.9-26.0)	9551	8.8 (8.0-9.7)	11.3 (10.5-12.1)	20.1 (19.0-21.3)	12917

N.A: Not Available

Figure 4.3.2 presents the distribution of currently married women according to whether they had a met need, unmet need or no need for family planning. The concept of ‘unmet need’, ‘met need’ and ‘no need’ are per prior explanation in the methodology (Look figure 2.1).

Figure illustrates that the proportion of women with ‘no need’ were higher in all three DHS surveys in Pakistan. In the view of persistently increasing desire for larger family size among women in Pakistan, higher proportion of respondents were found pregnant or postpartum amenorrheic or wanting to become pregnant at the time of surveys. In alignment with this, it also exhibits in the figure that the total demand for family planning (the sum of unmet need and total contraceptive use) in Pakistan is almost stagnant around 55% since 2006-07.

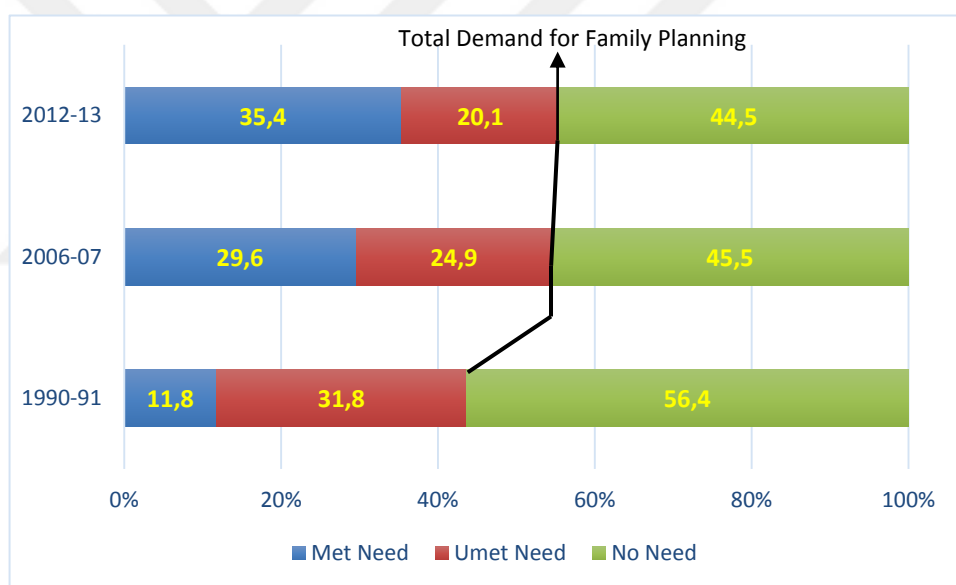


Figure 4.3.2. Percent distribution of currently married women aged 15- 49 on the basis of having met need, unmet need or no need for family planning in three Pakistan Demographic and Health Surveys (Pakistan, DHS 1990-91, 2006-07, 2012-13).

4.4. Part IV- Trends in Fertility Preferences and Intention for Future Use of Contraception

Fertility preference and contraceptive use intention of reproductive aged currently married women are major elements in population dynamics. These elements forecast the size and structure of the population as well anticipate the level of contraceptive use and unmet need in Pakistan

4.4.1. Trends in Fertility Preferences

Considering lower contraceptive use for spacing the birth and greater use for limiting the birth in Pakistan, the fertility preferences of currently married women become an important component to reflect motivation of women for contraceptive use. Generally, the contraceptive use as well as unmet need of Pakistani women is not only influenced by the number of children they already have but also by their fertility preference, and thus fertility preference is an important aspect of level and trend in contraceptive use as well as unmet need for family planning.

There are several ways by which fertility preferences of currently married women can be estimated by using DHS data. These are: asking about desired ideal number of children, wantedness of current pregnancy or last birth, and whether the respondent desires for additional children or not. Considering social taboo in accepting current pregnancy or last child as unwanted, the question regarding wantedness of a birth can be biased, and therefore this measure was not used in this analysis.

Taking this in to account, trend in desired ideal number of children and future fertility intention is also examined in PDHS datasets. These observations can assist in the interpretation of trends in contraceptive prevalence and need for family planning during past two decades. Additionally, this information is essential for understanding future reproductive behavior of Pakistani women and it also explicates forthcoming trend in contraceptive use and demand for family planning in Pakistan.

Trend in Ideal Family Size

Women's ideal family size is an important indicator of changing childbearing attitudes during fertility and contraceptive use transition. This information shows the hypothetical number of children a woman would desire to have if she could start childbearing afresh.

It is important to know that, Pakistan Family Planning Program promotes a two-child family norm since 1950s with a message that two children are enough for a couple. However, results show that overall, the average ideal family size for currently married women remained stable at 4 children per woman, and as shown in Figure 4.4.1, preference for larger family has not declined between 1990-91 and 2012-13 in Pakistan.

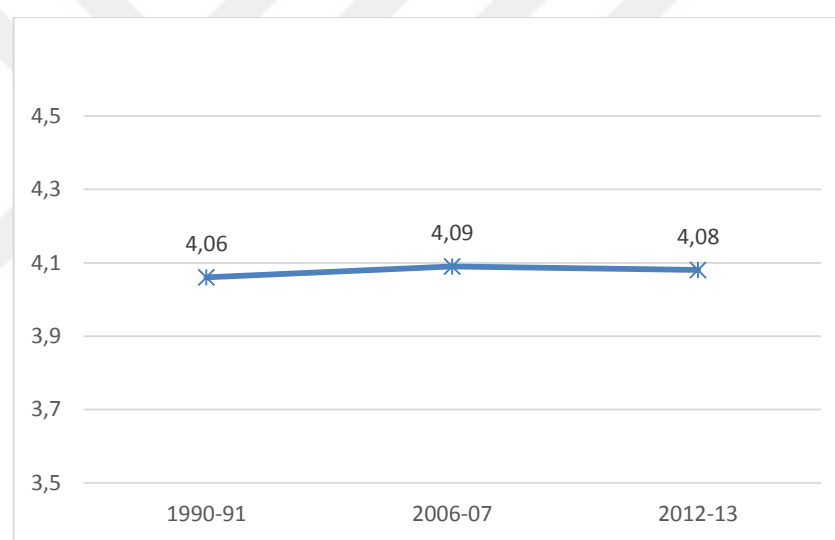


Figure 4.4.1. Trend in mean ideal family size* among currently married women aged 15-49 (PDHS; 1990-91, 2006-07, 2012-13).

* For this calculation nonnumeric responses such as 'It is up to God' or 'don't know' were excluded.

Desire for More Children

The measure of the intention not to have any additional children is an important indicator of reproductive preferences and contraceptive use behavior. In all three PDHSs, currently married women were questioned "Would you like to have another child, or would you prefer not to have any more children?" If the answer was

positive, they were further inquired “How long would you like to wait from now before the birth of another child?”

The proportion of respondents who desire no more children is a simple and meaningful measure of fertility preference. The trends, depicted in Figure 4.4.2, show that proportion of currently married women who wants no further children, increased from 40.0% in 1990-91 to 51.5% in 2006-07. However, there has been no change in this proportion after 2006-07. This trend is also marked by notable decline in the proportion of undecided response about future childbearing between 1990-91 and 2012-13.

Figure shows that, generally the trend in wantedness of another child remained stable during past two decades. In the latest survey PDHS 2012-13, overall, 23.0% of women wanted to have another child with in two year of survey, while 19.1% of respondent desired to have another child two or more years later.

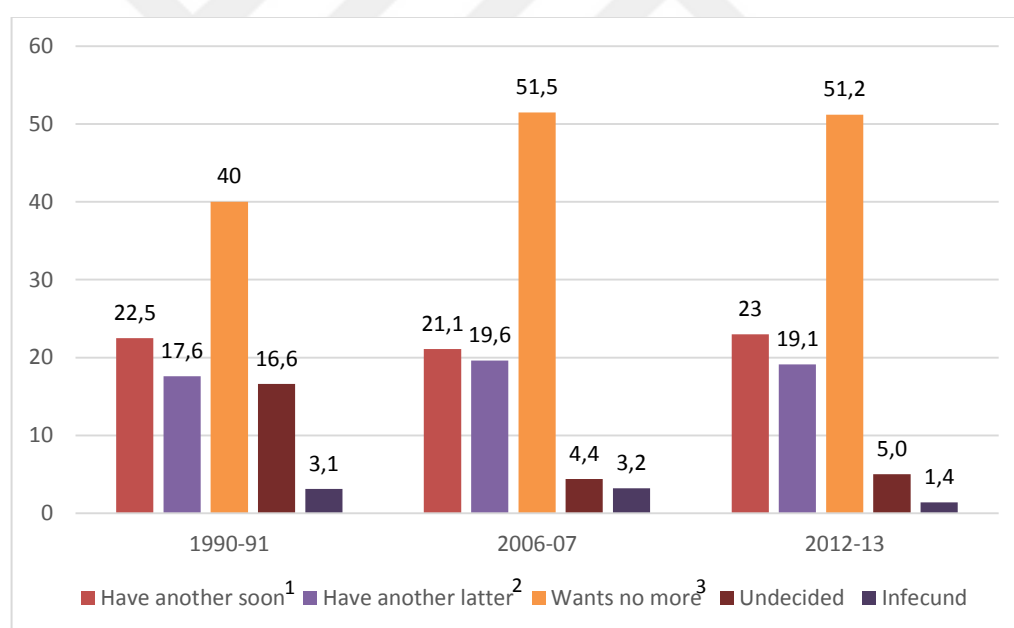


Figure 4.4.2. Trend in reproductive intention of currently married women aged 15-19 (PDHS; 1990-91, 2006-07, 2012-13).

1. Wants next birth within 2 years.
2. Wants to delay next birth for 2 or more years.
3. Includes both female and male sterilization.

4.4.2. Trends in Intention for Future Use of Contraception

Extent to which non-users of family planning intent to use contraceptive methods in the future is an important indicator of the changing demand for family planning. '*Intention to use*' contraceptive or put it another way '*up to what level contraceptive non-users aim to use family planning in the future*', is a valuable measure of the changing demand for family planning in a country or in a region. In Demographic and Health Surveys, women's "intention to use contraceptive method" is estimated by asking currently married non-users a simple question "Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?". The answers are categorized in to three groups as 'yes', 'no' or 'don't know', the later indicate unsure about future use.

The trend in intention to use family planning method in three PDHS has shown in Table 4.4.1. In 1990-91, only 16% of non-user respondents reported intending to use a method to delay or avoid pregnancy while almost three-fourth of them (71%) declared that they had no intention to use a method in future. Subsequently in 2006-07, currently married women's intention to use a contraceptive method increased and almost half of the respondents admitted that they will use a method in future to delay or avoid pregnancy; together with this, proportion of women who were not intended to use contraception dropped to 43%.

However, contrary to the expectation, latest data shows that the proportion of non-users intending to use family planning in the future has once again decreased by 11 percentage points, and in 2012-13 only 39% of non-user respondents showed up intention for future use. Besides this, the proportion of women with indecisive attitudes becomes more than doubled from 7% in 2006-07 to 16.5% in 2012-13. Yet, the proportion of respondents who do not intend to use contraceptives has not been changed since 2006-07.

Overall, the latest 2012-13 data indicated a decreasing trend of future intention to use family planning by the non-users, compared to the earlier survey in 2006-07.

Table 4.4.1. Trend in intention to use a contraceptive method by currently married non-user women aged 15-49 (PDHS; 1990-91, 2006-07, 2012-13).

Contraceptive Use Intention	PDHS 1990-91	PDHS 2006-07	PDHS 2012-13
	% (CI)	% (CI)	% (CI)
Intends to use later	15.7 (14.4-17.0)	50.1 (48.6-51.7)	39.3 (37.3-41.3)
Unsure about use	12.9 (11.4-14.7)	7.0 (6.2-7.8)	16.5 (15.2-17.9)
Does not intend	71.4 (69.7-73.1)	42.9 (41.3-44.5)	44.2 (42.2-46.2)
Total weight number of women	5,607 ¹	6,704 ²	8,331 ³

1. Missing n 03 (0.05%).

2. Missing n 23 (0.3%).

3. Missing n 26 (0.3%).

4.5. Part V- Bivariate and Multilevel Analysis of Predictors of Women's Current Use of Contraceptive

This section presents the bivariate and multivariate analyses of predictors, which have potential influence on the current use of contraception among currently married women, aged 15-49 in Pakistan. The bivariate analysis was done through cross tabulations and the degree of association for background characteristics were tested using X^2 tests. Multivariate analysis was carried out using binary logistic regression.

4.5.1. Result of Bivariate Analysis of Predictors of Women's Current Use of Contraceptive.

In bivariate analysis, all of the determinants identified through operational framework were found to be statistically significant and were associated with the current use of contraceptives at $p \leq 0.001$. The result of bivariate analysis is presented in Table 4.5.1.

Findings show that age and education of the woman as well as her spouse were significantly associated with the use of contraceptive methods and contraceptive prevalence increases with the increase in age and level of education. It was found that being Urdu speaking, being in a higher category of job and having more than 10 years in cohabitation were all significantly associated with current use of contraception. The prevalence of contraceptive use increased with having three to four children compared with women having one or two children; furthermore, use of contraception was significantly associated with 'more number of sons than daughters'. It was also revealed that women who had achieved their desired fertility level were more likely to use contraceptive than those who had not yet achieved their fertility goal.

Moreover, the level of convergence about desire for children between couples was significantly related with contraceptive use. It was found that use of contraception was higher if husband wanted fewer children than wife, or if both husband and wife wanted the equal number of children. Women having correct

knowledge about ovulatory cycle were twice likely to use contraceptive methods compared with women without such knowledge.

The exposure to family planning messages from any of the three types of media sources, likewise visit by LHW, were all significantly associated with the use of contraceptive methods. Also the current use of contraceptives was higher in communities with higher gender equality index. It was interesting to find that consanguinity in marriage was inversely associated with contraceptive use and increase use of contraception was noticed among couples who were no first and second degree relation compared with couple who were first cousin.

The bivariate results show that in urban residence, the level of contraceptive use, was more than twice as high as in rural area. It was also found that women living in Punjab province were more likely to use contraceptive methods compared with women in Baluchistan. Additionally, women in the highest wealth quintile were three times more likely to use contraceptives compared with women in the lowest wealth quintile.

Table 4.5.1. Bivariate Analysis of Current Use of Contraception among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Current Use of Contraception		OR	Chi-Square (p-value)
	No method n (Row %)	Any method n (Row %)		
Age				604.11 (<0.001)
15-19	533 (89.7)	61 (10.3)	Ref	
20-24	1615 (78.7)	438 (21.3)	2.36 (1.57-3.54)	
25-29	1831 (68.8)	832 (31.2)	3.94 (2.70-5.75)	
30-34	1431 (58.3)	1023 (41.7)	6.20 (4.25-9.07)	
35-39	1114 (52.1)	1023 (47.9)	7.97(5.39-11.81)	
40-44	903 (55.8)	714 (44.2)	6.87(4.66-10.13)	
45-49	929 (65.5)	490 (34.5)	4.58 (3.05-6.87)	
Total	8356 (64.6)	4581 (35.4)		
Education				202.74(<0.001)
None	5126 (69.8)	2221 (30.2)	Ref	
Primary	1217 (59.2)	840 (40.8)	1.59 (1.35-1.86)	
Secondary	1325 (57.4)	983 (42.6)	1.17 (1.47-1.99)	
Higher	688 (56.2)	537 (43.8)	1.80 (1.53-2.11)	
Total	8356 (64.6)	4581 (35.4)		
Mother tongue				344.07 (<0.001)
Urdu	682 (54.7)	565 (45.3)	5.68 (3.72-8.67)	
Punjabi	2865 (58.3)	2047 (41.7)	4.90 (3.26-7.37)	
Sindhi	893 (77.4)	261 (22.6)	2.00 (1.28-3.14)	
Pushto	1252 (71.4)	502 (28.6)	2.75 (1.78-4.24)	
Balochi	396 (74.6)	135 (25.4)	2.34 (1.18-4.64)	
Barauhi	213 (87.3)	31 (12.7)	Ref	
Siraiki	1298 (65.9)	673 (34.1)	3.56 (2.33-5.45)	
Hindko	293 (71.6)	116 (28.4)	2.70 (1.69-4.32)	
Others ¹	465 (64.9)	251 (35.1)	3.70 (2.31-5.93)	
Total	8356 (64.6)	4581 (35.4)		
Occupation				19.07 (0.001)
Unemployed	6044 (65.2)	3221 (34.8)	Ref	
Agricultural/ Domestic/Unskilled	1442 (65.3)	766 (34.7)	0.98 (0.84-1.17)	
Professional/ Technical/ Services/ Sale.	871 (59.5)	594 (40.5)	1.28 (1.08-1.51)	
Total	8357 (64.6)	4581 (35.4)		
Age at marriage				23.10 (0.001)
15 and less	1253 (60.7)	810 (39.3)	1.27 (1.02-1.58)	
16-17	2121 (66.3)	1079 (33.7)	0.99 (0.87-1.14)	
18-19	1845 (66.2)	940 (33.8)	Ref	
20-21	1271 (63.0)	746 (37.0)	1.15 (0.98-1.35)	
22 and more	1867 (65.0)	1007 (35.0)	1.06 (0.91-1.23)	
Total	8357 (64.6)	4582 (35.4)		

Continued.....

Table 4.5.1. (Continued) Bivariate Analysis of Current Use of Contraception among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics. (Pakistan, DHS 2012-13).

Characteristics	Current Use of Contraception		OR	Chi-Square (p-value)
	No Method n (Row %)	Any Method n (Row %)		
Duration of Marriage (years)				627.87 (<0.001)
Less Than 5	2393 (81.7)	536 (18.3)	Ref	
5-9	1718 (68.0)	810 (32.0)	2.10 (1.74-2.54)	
10-14	1272 (57.9)	924 (42.1)	3.24 (2.74-3.83)	
15-19	975 (50.9)	940 (49.1)	4.30 (3.59-5.17)	
20 And More	1998 (59.3)	1371 (40.7)	3.07 (2.60-3.61)	
Total	8356 (64.6)	4581 (35.4)		
Actual-Ideal Gap				1484.18 (<0.001)
Ideal=Actual	1236 (45.8)	1463 (54.2)	4.39 (3.89-4.95)	
Ideal>Actual	5508 (78.8)	1484 (21.2)	Ref	
Ideal<Actual	1242 (45.4)	1492 (54.6)	4.46 (3.95-5.02)	
Non Numeric Response	370 (72.3)	142 (27.7)	1.43 (1.02-1.99)	
Total	8356 (64.6)	4581 (35.4)		
Number of Living Children				1402.35 (<0.001)
No Child	1712 (99.1)	16 (0.9)	0.02 (0.01-0.04)	
1-2	2745 (71.2)	1111 (28.8)	Ref	
3-4	2022 (53.6)	1750 (46.4)	2.13 (1.89-2.40)	
5 And More	1877 (52.4)	1703 (47.6)	2.24 (1.95-2.57)	
Total	8356 (64.6)	4580 (35.4)		
Sex of Living Children				1128.30 (<0.001)
Equal Number Of Both Sex	1242 (55.4)	1000 (44.6)	1.49 (1.28-1.73)	
More Son	2731 (56.3)	2122 (43.7)	1.43 (1.24-1.65)	
More Daughter	2671 (64.9)	1442 (35.1)	Ref	
No Living Child	1712 (99.1)	16 (0.9)	0.02 (0.01-0.03)	
Total	8356 (64.6)	4580 (35.4)		
Number of Deceased Children				24.52 (<0.001)
None	6341 (65.5)	3334 (34.5)	Ref	
1	1327 (63.6)	761 (36.4)	1.09 (0.94-1.25)	
2	429 (59.7)	290 (40.3)	1.28 (1.01-1.63)	
3 and More	259 (56.8)	197 (43.2)	1.45 (1.15-1.82)	
Total	8356 (64.6)	4582 (35.4)		

Continued.....

Table 4.5.1. (Continued) Bivariate Analysis of Current Use of Contraception among Currently Married Women age 15-49 by Individual, Spousal, Community, and Household Level Characteristics. (Pakistan, DHS 2012-13).

Characteristics	Current Use of Contraception		OR	Chi-Square (p-value)
	No method n (Row %)	Any method n (Row %)		
Abortion History				15.74 (<0.001)
None	5550 (65.8)	2883 (34.2)	Ref	
1	1693 (62.2)	1028 (37.8)	1.17 (1.03-1.31)	
2 or More	1113 (62.5)	669 (37.5)	1.15 (1.01-1.33)	
Total	8356 (64.6)	4580 (35.4)		
Knowledge of Ovulatory Cycle				120.26 (<0.001)
Correct Answer	283 (53.5)	246 (46.5)	2.28 (1.80-2.91)	
Wrong Answer	5957 (62.8)	3525 (37.2)	1.55 (1.34-1.80)	
Don't Know	2097 (72.5)	796 (27.5)	Ref	
Total	8337 (64.6)	4567 (35.4)		
Husband's Age				556.73 (<0.001)
Lowest through 24	872 (86.3)	138 (13.7)	Ref	
25-29	1466 (76.6)	447 (23.4)	1.93 (1.42-2.61)	
30-34	1594 (67.8)	758 (32.2)	3.02 (2.20-4.13)	
35-39	1330 (60.2)	879 (39.8)	4.19 (3.16-5.56)	
40-44	1044 (52.0)	965 (48.0)	5.86 (4.34-7.90)	
45-49	981 (56.1)	769 (43.9)	4.97 (3.66-6.76)	
50 and more	1044 (62.9)	616 (37.1)	3.74 (2.84-4.93)	
Total	83331 (64.6)	4572 (35.4)		
Husband's Education				96.11 (<0.001)
None	2932 (69.7)	1272 (30.3)	Ref	
Primary	1376 (65.0)	742 (35.0)	1.24 (1.10-1.47)	
Secondary	2743 (62.4)	1650 (37.6)	1.38 (1.18-1.62)	
Higher	1274 (58.3)	913 (41.7)	1.65 (1.41-1.93)	
Total	8325 (64.5)	4577 (35.5)		
Husband's Occupation				71.83 (<0.001)
Unemployed	232 (70.1)	99 (29.9)	Ref	
Agricultural/ Domestic/Unskilled	4131 (68.1)	1938 (31.9)	1.10(0.80-1.51)	
Professional/ Technical/ Services/ Sale.	3991 (61.1)	2544 (38.9)	1.50 (1.11-2.02)	
Total	8354 (64.6)	4581 (35.4)		
Husband's Desire For Children				155.24 (<0.001)
Both want same	4562 (67.1)	2239 (32.9)	1.45 (1.25-1.69)	
Husband wants more	2321 (74.8)	783 (25.2)	Ref	
Husband wants fewer	370 (68.9)	167 (31.1)	1.34 (1.01-1.77)	
Don't know	1092 (82.3)	235 (17.7)	0.64 (0.51-0.78)	
Total	8345 (70.9)	3424 (29.1)		

Continued.....

Table 4.5.1. (Continued) Bivariate Analysis of Current Use of Contraception among Currently Married Women age 15-49 by Individual, Spousal, Community, and Household Level Characteristics (Pakistan, DHS 2012 13).

Characteristics	Current Use of Contraception		OR	Chi-Square (p-value)
	No method n (Row %)	Any method n (Row %)		
Knowledge About Family Planning from Media				152.0 (<0.001)
No	6465 (67.7)	3091 (32.3)	Ref	
Yes	1880 (55.8)	1487 (44.2)	1.65 (1.43-1.90)	
Total	8345 (64.6)	4578 (35.4)		
Visited by LHW				159.94 (<0.001)
LHW is not present or women don't know	2895 (70.7)	1200 (29.3)	Ref	
LHW is present but not visited	2953 (65.7)	1541 (34.3)	1.26 (1.09-1.45)	
LHW is present and visited	2508 (57.7)	1840 (42.3)	1.77 (1.51-2.07)	
Total	8356 (64.6)	4581 (35.4)		
Consanguinity in Marriage				27.50 (0.001)
No Relation	2774 (62.2)	1689 (37.8)	1.22 (1.09-1.38)	
2nd Degree And Other	1366 (63.1)	798 (36.9)	1.17 (1.03-1.34)	
First Cousin	4214 (66.8)	2091 (33.2)	Ref	
Total	8354 (64.6)	4578 (35.4)		
Gender Equality Index				413.66 (<0.001)
No	3709 (74.7)	1258 (25.3)	Ref	
Low	1048 (65.9)	542 (34.1)	1.52 (1.27-1.82)	
Moderate	830 (58.2)	596 (41.8)	2.11 (1.74-2.57)	
High	2756 (55.8)	2182 (44.2)	2.33 (2.05-2.65)	
Total	8343 (64.6)	4578 (35.4)		
Residence				249.63 (<0.001)
Urban	2375 (55.2)	1929 (44.8)	1.83 (1.57-2.13)	
Rural	5981 (69.3)	2652 (30.7)	Ref	
Total	8356 (64.6)	4582 (35.4)		
Region				254.88 (<0.001)
Punjab	4399 (59.2)	3037 (40.8)	2.85 (2.17-3.76)	
Sindh	2117 (50.5)	885 (29.5)	1.73 (1.30-2.29)	
Khyber Pakhtunkhwa	1395 (71.7)	551 (28.3)	1.63 (1.19-2.25)	
Baluchistan	445 (80.5)	108 (19.5)	Ref	
Total	8356 (64.6)	4582 (35.4)		
Wealth Index				447.70 (<0.001)
Poorest	1981 (79.2)	521 (20.8)	Ref	
Poorer	1782 (70.4)	751 (29.6)	1.60 (1.21-2.11)	
Middle	1577 (61.8)	973 (38.2)	2.35 (1.79-3.07)	
Richer	1566 (58.5)	1110 (41.5)	2.68 (2.06-3.53)	
Richest	1450 (54.2)	1226 (45.8)	3.21 (2.46-4.20)	
Total	8356 (64.6)	4582 (35.4)		
Total	8356 (64.6)	4581 (35.4)		

1 Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko, Potowari, Marwari, Farsi and English.

Ref: Reference group.

4.5.2. Results of Multivariate Analysis of Predictors of Women's Current Use of Contraceptives

The results of the multilevel analyses were given in **Table 4.5.2** . With the focus on determining the contribution of each set of variables in accounting for current use of contraception, the results are presented under five headings corresponding to five models.

Model 1

Model 1 assesses the adjusted affects of the socio-demographic variables on contraceptive use in PDHS 12-2013. Results revealed that in this model, the most influential independent factor was age, education, mother tongue, and duration of marriage.

The results indicate that women aged 30–40 years were greater than 2.5 times more likely to use contraception than the women aged 15–19 years. Following age; the Urdu, Punjabi and Siraiki speaking women were around four times ($OR > 4.0$) more likely to use any method of contraception than Barauhi women. It was also found that use of contraception was significantly higher among women who were younger than 17 years of age at the time of marriage compared to those aged 18 to 19. With regards to education, women who had primary, secondary and higher levels of education were more likely to use contraceptives than women without formal education.

The likelihood of using contraception among women with higher occupational category is 15% more than non-working women ($OR = 1.15$, 95% CI= (1.02-1.30). The duration of marriage was one of the most influential factors in this model and results shows that those who had spent greater than five years in marriage were more likely to use contraceptives compared to the women within their first five years of marriage. The explanatory power of this model (pseudo R square was 0.114) revealed that this model explains only 11 percent variability for current use of contraception.

Model 2

Additional variables related to reproduction were included in the model in order to measure their affect on contraceptive use. These variables substantially raised the pseudo R square of the model from 0.114 to 0.298. Except for the duration of marriage, the significant variables in the previous model remained unchanged, however the significant importance of different age groups was changed; women aged more than 40 were found to have significantly lesser use contraception than women aged 15-19, all other age groups had lost their importance. Compared with the previous model, women who were aged 20 and above at first marriage were also found to have significantly higher use of contraception than women who were 18-19 years of ages at first marriage.

Among the reproduction related factors, contraceptive use varied significantly according to number of living children, sex of living children, knowledge of ovulatory cycle and the gap between actual and ideal number of children.

Discrepancy between the actual and ideal number of children was found as a strong decisive factor for contraceptive use in this model and it was revealed that the contraceptive use was more than twice (OR= 2.32, 95% CI= 2.02-2.67) among women who had greater than desired number of children compared to the women who had not yet attained their desired level of fertility. It was also evident that likelihood of contraceptive use increase significantly when the ideal number is attained. When number of living children was taken into consideration, it was found that contraceptive use was significantly highest among women having five and more children than those having one or two children. Likewise, contraceptive use was found to be positively associated with having more male children. It was also noticed that knowing reproductive physiology increases the likelihood of contraceptive use (OR= 1.50, 95% CI= 1.20-1.86). History of abortion and number of deceased children did not display significant association with current use of contraception.

Model 3

At this level, variables related to husband's socio-demographic characteristics were taken into account as independent variables while controlling the variables used in previous model. Except for the employment of women which became non-

significant, the significance level of all previously added variables remained unchanged. However, the pattern of significance for the age of respondent was changed and model showed that women aged 25 and above were less likely to use contraception compared to women younger than 24 years of age. Husband's age did not exhibit any significant variation in the current use of contraception; however, education attainment of husband and occupation showed similar pattern of significance as that for the women. Results revealed that use of contraception is approximately 50% higher when husband wanted fewer children than wife or if couple had agreement on equal number of children. The effect of the husband level factors on this model negligibly increases pseudo R square (0.299).

Model 4

In this model, the effect of community characteristics was analyzed along with the other explanatory variables in previous models. The pattern of significance of variables included in Model 3 remained unchanged. Except for the consanguinity in marriage, all variables included in this model were found to be significantly associated with contraceptive use. The use of contraception was 31% (OR= 1.31, 95% CI= 1.18-1.46) higher among women who were exposed to family planning media messages than those who were not exposed. Besides media exposure, visit by LHW was also found as an important factor for the women's current use of contraception, contraceptive use increases more than fifty percent (OR= 1.53, 95% CI=1.36-1.77) for women who were visited by LHW compared to women who were not. The results showed that women having higher gender role were 18% (OR= 1.18, 95% CI=1.05-1.32) more likely to use contraceptives than women with no gender role, however having low and moderate gender role was not found to be significantly associated with contraceptive use. The explanatory power of this model was 0.308.

Model 5 (Final Model)

The Model 5 was final model and at the end, along with other variables, place of residence, region and household wealth status were included in the model and these household level variables shows strong association with current use of contraception ($p < 0.001$). Except for duration of marriage, history of abortion,

number of deceased children, husband's age, husband's level of education, consanguinity in marriage and gender role were found significant. The final model shows that none-use of contraception was significantly higher among women aged 25 and above than women aged 15-19. Educational attainment of any level was positively associated with contraceptive use; it was observed that use of contraception was 37%, 47% and 67% higher among women with primary, secondary and higher education respectively than women with no formal education. It was documented before that the lowest contraceptive prevalence was noticed among Barauhi speaking women in Pakistan. The result of regression model revealed that after controlling all other variables, the current use of contraception is neither significantly more nor less among Sindhi and Hindko women compared with Barauhi women, albeit the use of contraception is significantly higher among all other ethnic groups; moreover, current use of any method was found to be highest for Urdu speaking women (OR= 3.13, 95% CI= 1.77-5.51). Contrary to the first model, women who were working in agriculture/household domestic/unskilled manual categories were found to be 25% (OR = 1.25, 95% CI = 1.08-1.44) more likely to use contraceptive method than non-working women. It was also found that women who were aged 20 and more at the time of first marriage are more likely to use contraception than women who were ages 18-19 at the time of first marriage.

With regards to actual and ideal gap, the women who thought that they have had achieved their fertility goal were twice more likely to use any contraception than women who had not yet achieved their desired fertility level. Results also showed that the number of living children had strong impact on the current use of contraceptives in the final model. Contraceptive use increases as the number of living children increases. Contraceptive use was more influenced by having 5 and more children, and this association was highly significant. The result of regression model reveals relationship between contraceptive use and sex preference of children; it was found that after controlling all other factors, the use of contraception was 40% higher among those who have had more sons than those who have more daughters. Contrary to expectation, no relationship was noticed between number of deceased children and contraceptive use. Model also shows that women's knowledge of reproductive cycle

physiology increases the likelihood of contraceptive use by 48% (OR= 1.48, 95% CI= 1.16-1.87).

Considering spousal level factors, the model failed to show any statistical significant relationship between the use of contraceptives and husband's age, educational attainment and occupation. However similar to earlier models, women whose husbands desire lesser number of children as well as those who desire same number of children have greater use of any contraceptive method than women whose husbands wanted to have more child.

In the final model, it was found that after controlling all variables, women who were exposed to family planning messages through media or by LHW were 24% (OR= 1.24, 95% CI= 1.12-1.38) and 52 % (OR= 1.52, 95% CI= 1.35-1.72) respectively more likely to use contraceptive method compared to the women not exposed to family planning messages by any of the three media or by the LHW. Except for the highest category, no significant association is found between contraceptive use and gender equality index; likewise consanguinity in marriage was also not found associated with contraceptive use.

Final model shows significant influence of residence on the use of any contraceptive method; the urban women were 39% (OR= 1.39, 95% CI= 1.23-1.58) more likely to prefer contraceptives than their rural counterparts. It was also observed that the women from Sindh were 30% (OR= 0.70, 95% CI= 0.50, 0.98) less likely to prefer contraceptives than women from Baluchistan Province. Furthermore, no significant association between contraceptive use and residing at the other regions of the country is noticed. In regard to wealth index, the results showed the household possession had a positive impact on contraceptive use and women in any wealth category are more likely to use contraceptives than women in the poorest households. The independent variables in this final model explained 32% of the variability in current use of contraception by currently married women aged 15-49 in Pakistan.

Table 4.5.2. Regression Analysis Results Assessing the Affect of Individual, Spousal, Community, and Household Level Characteristics on The Current Use Of Contraceptives Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
15-19	Ref	Ref	Ref	Ref	Ref
20-24	1.84*** (1.36-2.48)	0.84 (0.60-1.17)	0.80 (0.57-1.13)	0.75 (0.53-1.07)	0.73 (0.51-1.04)
25-29	2.14*** (1.55-2.93)	0.75 (0.52-1.07)	0.66* (0.45-0.97)	0.61* (0.41-0.90)	0.58** (0.40-0.86)
30-34	2.53*** (1.78-3.59)	0.75 (0.51-1.12)	0.59** (0.38-0.91)	0.55** (0.36-0.85)	0.52** (0.33-0.80)
35-39	2.67*** (1.78-3.95)	0.80 (0.52-1.25)	0.52** (0.32-0.85)	0.48** (0.29-0.78)	0.44** (0.27-0.73)
40-44	2.12** (1.38-3.28)	0.60* (0.37-0.98)	0.34*** (0.20-0.59)	0.32*** (0.18-0.55)	0.28*** (0.16-0.49)
45-49	1.45 (0.93-2.27)	0.39*** (0.24-0.66)	0.17*** (0.10-0.31)	0.17(0.09-0.30)	0.15*** (0.08-0.27)
Education	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
None	Ref	Ref	Ref	Ref	Ref
Primary	1.76*** (1.58-1.97)	1.73*** (1.54-1.95)	1.62*** (1.42-1.86)	1.56*** (1.36-1.79)	1.37*** (1.19-1.57)
Secondary	2.08*** (1.85-2.34)	2.08*** (1.84-2.36)	1.88*** (1.63-2.16)	1.77*** (1.55-2.06)	1.47*** (1.26-1.71)
Higher	2.40*** (2.06-2.78)	2.61*** (2.21-3.09)	2.16*** (1.77-2.63)	2.03*** (1.66-2.48)	1.67*** (1.35-2.07)

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives among Currently married women age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Mother Tongue	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
Urdu	4.48*** (2.95-6.66)	4.10*** (2.69-6.24)	4.57*** (2.77-7.56)	4.11*** (2.47-6.83)	3.13*** (1.77-5.51)
Punjabi	4.47*** (3.03-6.61)	3.92*** (2.62-5.86)	3.80*** (2.34-6.19)	3.09*** (1.89-5.07)	2.07* (1.18-3.61)
Sindhi	1.96** (1.32-3.01)	1.98** (1.30-3.01)	1.40 (0.84-2.35)	1.24 (0.74-2.10)	1.45 (0.82-2.58)
Pushto	2.90*** (1.94-4.32)	2.57*** (1.70-3.88)	3.69*** (2.26-6.05)	3.39*** (2.07-5.58)	2.54** (1.46-4.42)
Balochi	2.26*** (1.47-3.49)	2.38*** (1.52-3.73)	2.29** (1.33-3.93)	1.97* (1.14-3.41)	2.08* (1.16-3.71)
Barauhi	Ref	Ref	Ref	Ref	Ref
Siraiki	3.65*** (2.46-5.43)	3.45*** (2.29-5.19)	3.61*** (2.21-5.90)	2.95*** (1.79-4.86)	2.55** (1.46-4.45)
Hindko	2.37*** (1.52-3.71)	2.12*** (1.34-3.37)	2.50** (1.45-4.30)	2.30** (1.33-3.98)	1.74 (0.95-3.18)
Others ¹	3.53*** (2.33-5.36)	3.19*** (2.07-4.90)	3.35*** (2.05-5.60)	2.95*** (1.75-4.97)	2.47** (1.40-4.36)
Employment	p=0.043	p=0.008	p=0.237	p=0.406	p=0.010
Unemployed	Ref	Ref	Ref	Ref	Ref
Agricultural/ Domestic/Unskilled	1.10 (0.98-1.23)	1.10 (0.97-1.24)	1.08 (0.94-1.24)	1.08 (0.94-1.25)	1.25** (1.08-1.44)
Professional/ Technical/ Services/ Sale.	1.15* (1.02-1.30)	1.22** (1.07-1.39)	1.12 (0.97-1.30)	1.07 (0.92-1.24)	1.09 (0.94-1.27)
Age at first marriage	p=0.008	p=0.025	p=0.004	p=0.006	p=0.006
15 and less	1.25*** (1.10-1.43)	1.15 (1.00-1.33)	1.05 (0.90-1.24)	1.07 (0.91-1.27)	1.10 (0.93-1.30)
16-17	1.13* (1.01-1.28)	1.02 (0.90-1.15)	1.00 (0.87-1.15)	0.99 (0.86-1.14)	1.01 (0.88-1.17)
18-19	Ref	Ref	Ref	Ref	Ref
20-21	1.12 (0.98-1.27)	1.18* (1.02-1.35)	1.23** (1.05-1.43)	1.21* (1.04-1.41)	1.22* (1.05-1.43)
22 or more	0.096 (0.83-1.11)	1.20* (1.02-1.40)	1.36*** (1.14-1.61)	1.34** (1.12-1.59)	1.34** (1.13-1.60)

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Duration of Marriage (years)	p<0.001	p=0.012	p=0.132	p=0.083	p=0.088
Less than 5	Ref	Ref	Ref	Ref	Ref
5-9	2.00*** (1.72-2.33)	0.83* (0.70-0.98)	0.87 (0.73-1.04)	0.88 (0.73-1.05)	0.89 (0.74-1.07)
10-14	2.91*** (2.39-3.56)	0.84 (0.67-1.06)	0.84 (0.65-1.07)	0.82 (0.64-1.05)	0.86 (0.66-1.10)
15-19	3.90*** (3.02-5.03)	1.03 (0.77-1.37)	0.94 (0.68-1.30)	0.95 (0.69-1.31)	0.99 (0.71-1.37)
20 or more	3.78*** (2.74-5.20)	0.94 (0.66-1.35)	0.78 (0.52-1.16)	0.77 (0.51-1.16)	0.79 (0.52-1.18)
Actual-Ideal Gap		p<0.001	p<0.001	p<0.001	p<0.001
ideal=actual		2.16*** (1.92-2.42)	2.21*** (1.94-2.51)	2.18*** (1.91-2.48)	2.10*** (1.84-2.40)
ideal>actual		Ref	Ref	Ref	Ref
ideal<actual		2.32*** (2.02-2.67)	2.54*** (2.17-2.98)	2.47*** (2.10-2.90)	2.32*** (1.98-2.74)
non numeric response		0.96 (0.76-1.20)	1.15 (0.88-1.50)	1.14 (0.88-1.49)	1.04 (0.80-1.36)
Number of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
No child		0.03*** (0.02-0.05)	0.03*** (0.02-0.05)	0.03*** (0.02-0.05)	0.03*** (0.02-0.05)
1-2		Ref	Ref	Ref	Ref
3-4		2.04*** (1.78-2.33)	1.81*** (1.57-2.10)	1.83*** (1.58-2.12)	1.85*** (1.59-2.15)
5 and more		2.44*** (2.04-2.92)	2.28*** (1.87-2.79)	2.27*** (1.86-2.78)	2.40*** (1.95-2.94)
Sex of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
Equal Number Of Both Sex		1.68*** (1.49-1.90)	1.75*** (1.54-2.00)	1.72*** (1.51-1.97)	1.71*** (1.50-1.96)
More Son		1.48*** (1.35-1.63)	1.39*** (1.25-1.54)	1.40*** (1.26-1.55)	1.40*** (1.26-1.55)
More Daughter		Ref	Ref	Ref	Ref

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Deceased Children		p=0.223	p=0.222	p=0.287	p=0.228
No		Ref	Ref	Ref	Ref
Yes		1.06 (0.96-1.17)	1.07 (0.96-1.20)	1.06 (0.95-1.19)	1.07 (0.96-1.20)
Abortion History		p=0.126	p=0.438	p=0.307	p=0.272
No		Ref	Ref	Ref	Ref
Yes		0.94 (0.86-1.02)	0.96 (0.87-1.06)	0.95 (0.86-1.05)	0.94 (0.86-1.04)
Knowledge of Ovulatory Cycle		p<0.001	p<0.001	p<0.001	p<0.001
correct answer		1.50*** (1.20-1.86)	1.55*** (1.23-1.96)	1.50** (1.19-1.90)	1.48** (1.16-1.87)
wrong answer		1.23*** (1.11-1.36)	1.25*** (1.12-1.40)	1.21** (1.08-1.36)	1.23** (1.09-1.38)
don't know		Ref	Ref	Ref	Ref
Age of Husband			p=0.152	p=0.145	p=0.190
Lowest through 24			Ref	Ref	Ref
25-29			0.97 (0.75-1.24)	0.96 (0.75-1.24)	0.96 (0.75-1.24)
30-34			0.97 (0.74-1.25)	0.94 (0.72-1.22)	0.93 (0.71-1.21)
35-39			0.99 (0.76-1.31)	0.97 (0.74-1.28)	0.97 (0.73-1.28)
40-44			1.16 (0.87-1.55)	1.13 (0.84-1.52)	1.09 (0.81-1.47)
45-49			1.24 (0.91-1.69)	1.22 (0.89-1.67)	1.22 (0.89-1.68)
50 or more			1.03 (0.74-1.44)	1.01 (0.72-1.42)	1.02 (0.72-1.43)

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Education of Husband			p=0.011	p=0.049	p=0.376
None			Ref	Ref	Ref
Primary			1.17* (1.01-1.35)	1.13 (0.98-1.31)	1.07 (0.92-1.24)
Secondary			1.16* (1.02-1.31)	1.11 (0.98-1.26)	1.01 (0.89-1.15)
Higher			1.29** (1.10-1.52)	1.25** (1.06-1.48)	1.13 (0.95-1.34)
Husband's Occupation			p<0.001	p<0.001	p=0.002
Unemployed			Ref	Ref	Ref
Agricultural/ Domestic/Unskilled			1.09 (0.79-1.50)	1.10 (0.80-1.51)	1.13 (0.82-1.56)
Professional/ Technical/ Services/ Sale.			1.40* (1.01-1.93)	1.43* (1.03-1.97)	1.34 (0.97-1.86)
Husband's Desire For Children			p<0.001	p<0.001	p<0.001
Both want same			1.47*** (1.32-1.65)	1.43*** (1.28-1.60)	1.40*** (1.25-1.56)
Husband wants more			Ref	Ref	Ref
Husband wants fewer			1.50*** (1.20-1.88)	1.48** (1.18-1.85)	1.47** (1.17-1.85)
Don't know			1.06 (0.88-1.27)	1.05 (0.87-1.27)	1.03 (0.86-1.24)
Knowledge About Family Planning from Media				p<0.001	p<0.001
No				Ref	Ref
Yes				1.31*** (1.18-1.46)	1.24*** (1.12-1.38)

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Visited by LHW				p<0.001	p<0.001
LHW is not present or women don't know				Ref	Ref
LHW is present but not visited				1.14* (1.01-1.28)	1.11 (0.98-1.25)
LHW is present and visited				1.53*** (1.36-1.77)	1.52*** (1.35-1.72)
Consanguinity in Marriage				p=0.726	p=0.566
No relation				1.01 (0.91-1.12)	0.97 (0.87-1.08)
2 nd degree and other				0.96 (0.84-1.09)	0.93 (0.82-1.06)
First cousin				Ref	Ref
Gender Equality Index				p=0.031	p=0.052
No				Ref	Ref
Low				1.08 (0.93-1.25)	1.07 (0.92-1.25)
Moderate				1.04 (0.89-1.22)	1.04 (0.88-1.22)
High				1.18** (1.05-1.32)	1.17** (1.04-1.31)
Residence					p<0.001
Urban					1.39 (1.23-1.58)
Rural					1.00
Region					p<0.001
Punjab					1.12 (0.80-1.56)
Sindh					0.70* (0.50-0.98)
Khyber Pakhtunkhwa					1.12 (0.80-1.55)
Baluchistan					Ref

Continued.....

Table 4.5.2. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Current Use of Contraceptives among Currently married women age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Wealth index					p<0.001
Poorest					Ref
Poorer					1.45*** (1.22-1.72)
Middle					1.80*** (1.50-2.16)
Richer					2.01*** (1.64-2.47)
Richest					2.05*** (1.62-2.60)
Nagelkerke R Square	0.144	0.298	0.299	0.308	0.322
Cox & Snell R Square	0.105	0.217	0.209	0.216	0.225

Ref: Reference group; **Statistical significance:** * p < 0.05, ** p < 0.01, *** p < 0.001.

1-Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko Potowari, Marwari, Farsi and English.

4.6. Part VI- Bivariate and Multilevel Analysis of Predictors of Women's Unmet Need for Family Planning

The findings of bivariate and multivariate analysis regarding determinants of unmet need for family planning by currently married women aged 15-49 in Pakistan is presented below.

4.6.1. Results of Bivariate Analysis of Predictors of Women's Unmet Need for Family Planning

Bivariate analysis results of unmet need for spacing, unmet need for limiting and total unmet need for family planning described in Table 4.6.1, Table 4.6.2 and Table 4.6.3, respectively.

These results show that there was wide variability in all components of unmet need (spacing, limiting, and total) by contextual variables and most of the differences were statistically significant with p-value of < 0.2 .

Among the variables that were significant at conventional level of p-value < 0.05 , it was found that the young women had relatively higher unmet need for spacing while older women had greater need for limiting the birth. Differential due to ethnicity revealed that the unmet need was the highest for women whose mother tongue was Barauhi. Results also revealed that being without formal education, and being not working increased the odd of unmet need for family planning.

Within reproductive variables, unmet need was the highest among women who had more girls than boys or who had no children. It was also found that unmet need for limiting was significantly lower among women with less than four children; however unmet need for spacing was significantly highest for these women. Findings indicated that women's knowledge of ovulatory cycle was significantly associated with unmet need for family planning and unmet need is highest among women who were ignorant of this. With regard to spousal factors; husbands' education and husbands' desire for children were most significantly associated with women's unmet need for family planning. Women whose husbands were uneducated and also women whose husbands desire greater number of children had higher unmet need.

Results showed that having exposure to media messages and LHW about family planning were negatively and significantly associated to all components of unmet need. The bivariate findings indicated women from Baluchistan and Khyber-Pakhtunkhwa had significantly higher unmet need for spacing and limiting respectively. Moreover, the unmet need for spacing and limiting was significantly higher in rural areas. In addition, women from poor households showed significantly higher unmet need for spacing and limiting.



Table 4.6.1. Bivariate Analysis of Unmet Need for Spacing among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Spacing		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Age				960.39(<0.001)
15-19	61 (41.5)	86 (58.5)	59,96 (14,30-251,39)	
20-24	438 (54.0)	374 (46.0)	36,21 (8,36-156,81)	
25-29	832 (69.8)	359 (30.2)	18,35 (4,78-70,50)	
30-34	1023 (82.4)	218 (17.6)	9,06 (2,32-35,36)	
35-39	1023 (93.3)	73 (6.7)	3,04 (0,73-12,73)	
40-44	714 (97.5)	18 (2.5)	1,097 (0,25-4,71)	
45-49	490 (97.7)	11 (2.3)	Ref.	
Total	4581	1141		
Education				12.40 (0.182)
None	2221 (78.8)	600 (21.2)	1.46 (1.08-1.96)	
Primary	840 (79.3)	219 (20.7)	1.41 (0.95-2.12)	
Secondary	983 (81.3)	227 (18.7)	1.25 (0.92-1.72)	
Higher	537 (84.5)	99 (15.5)	Ref.	
Total	4581	1141		
Mother tongue				265.25 (<0.001)
Urdu	565 (90.4)	60 (9.6)	Ref.	
Punjabi	2047 (83.6)	402 (16.4)	1.84 (1.28-2.67)	
Sindhi	261 (67.4)	126 (32.6)	4.54 (3.01-6.85)	
Pushto	502 (75.7)	161 (24.3)	3.01 (2.13-4.27)	
Balochi	135 (64.0)	76 (36.0)	5.29 (2.40-11.70)	
Barauhi	31(35.0)	57 (65.0)	17.49 (9.19-33.31)	
Siraiki	673 (80.4)	164 (19.6)	2.29 (1.54-3.42)	
Hindko	115 (82.1)	25 (17.9)	2.05 (1.20-3.50)	
Others ¹	251 (78.3)	69 (21.7)	2.60 (1.58-4.29)	
Total	4581	1141		
Occupation				42.55 (<0.001)
Unemployed	3221 (78.0)	910 (22.0)	1.62 (1.18-2.22)	
Agricultural/ Domestic/Unskilled	766 (85.8)	127 (14.2)	0.94 (0.63-1.43)	
Professional/ Technical/Service/ Sale	594 (85.1)	104 (14.9)	Ref.	
Total	4581	1141		
Age at first marriage				27.91 (0.010)
15 and less	810 (84.7)	147 (15.3)	0.79 (0.57-1.10)	
16-17	1079 (77.8)	307 (22.2)	1.24 (0.95-1.62)	
18-19	940 (76.9)	283 (23.1)	1.31 (1.01-1.71)	
20-21	746 (81.2)	173 (18.8)	1.01 (0.77-1.33)	
22 or more	1007 (81.4)	231 (18.6)	Ref.	
Total	4581	1141		

Continued.....

Table 4.6.1. (Continued) Bivariate Analysis of Unmet Need for Spacing among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Spacing		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Duration of Marriage (years)				908.74 (<0.001)
Less Than 5	535 (53.7)	462 (46.3)	27.81 (16.85-45.92)	
5-9	810 (68.9)	366 (31.1)	14.55 (9.40-22.52)	
10-14	924 (83.4)	184 (16.6)	6.42 (3.91-10.56)	
15-19	940 (91.6)	86 (8.4)	2.95 (1.95-4.48)	
20 or More	1371 (97.0)	42 (3.0)	Ref.	
Total	4581	1141		
Actual-Ideal Gap				931.97 (<0.001)
Ideal=Actual	1463 (92.9)	111(7.1)	Ref.	
Ideal>Actual	1483 (62.0)	909 (38.0)	8.05 (6.11-10.62)	
Ideal<Actual	1492 (95.7)	68 (4.3)	0.59 (0.40-0.89)	
Non Numeric Response	142(73.0)	53 (27.0)	4.86 (2.72-8.70)	
Total	4581	1141		
Number of Living Children				705.45 (<0.001)
No Child	16 (19.5)	67 (80.5)	56.27 (27.00-117.16)	
1-2	1111 (64.3)	618 (35.7)	7.55 (5.39-10.59)	
3-4	1750 (84.1)	331 (15.9)	2.57 (1.96-3.38)	
5 And More	1703 (93.1)	125 (6.9)	Ref.	
Total	4581	1141		
Sex of Living Children				290.50 (<0.001)
Equal Number Of Both Sex	1000 (84.6)	182 (15.4)	1.01 (0.79-1.29)	
More Son	2122 (84.5)	390 (15.5)	Ref.	
More Daughter	1442 (74.2)	502 (25.8)	1.91 (1.46-2.52)	
No Living Child	16 (19.5)	67 (80.5)	22.77 (10.78-48.13)	
Total	4581	1141		
Number of Deceased Children				55.63 (<0.001)
No	3334 (78.2)	930 (21.8)	Ref.	
1	760 (82.5)	161 (17.5)	0.75 (0.60-0.96)	
2	290 (92.9)	22 (7.1)	0.27 (0.16-0.47)	
3 And More	197 (87.7)	27 (12.3)	0.50 (0.25-1.02)	
Total	4581	1141		
Abortion History				38.76 (<0.001)
None	2883 (77.8)	822 (22.2)	Ref.	
1	1028 (82.8)	214 (17.2)	0.72 (0.58-0.91)	
2 or More	669 (86.4)	105 (13.6)	0.55 (0.42-0.72)	
Total	4581	1141		
Knowledge of Ovulatory Cycle				75.19 (<0.001)
Correct Answer	246 (87.0)	37(13.0)	Ref.	
Wrong Answer	3524 (81.9)	781 (18.1)	1.48 (0.82-2.71)	
Don't Know	796 (71.2)	322(28.8)	2.71 (1.50-4.93)	
Total	4567	1140		

Continued.....

Table 4.6.1. (Continued) Bivariate Analysis of Unmet Need for Spacing among Currently Married Women age 15-49 Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Spacing		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Husband's Age				939.25 (<0.001)
Lowest through 24	137 (42.3)	188 (57.7)	72.57(35.36-148.94)	
25-29	447 (58.1)	323 (41.9)	38.4 (20.14-73.27)	
30-34	757 (70.9)	311 (29.1)	21.84 (11.28-42.26)	
35-39	879 (84.0)	168 (16.0)	10.14 (5.09-20.19)	
40-44	964 (91.6)	89 (8.4)	4.90 (2.34-10.28)	
45-49	769 (94.0)	49 (6.0)	3.41 (1.54-7.57)	
50 or more	616 (98.2)	11 (1.8)	Ref.	
Total	4571	1139		
Husband's Education				6.91 (0.378)
None	1272 (78.7)	345 (21.3)	1.29 (0.97-1.72)	
Primary	742 (79.9)	187 (20.1)	1.20 (0.86-1.68)	
Secondary	1650 (79.9)	416 (20.1)	1.20 (0.92-1.58)	
Higher	913 (82.7)	191 (17.3)	Ref.	
Total	4578	1139		
Husband Occupation				9.26 (0.085)
Unemployed	99 (80.5)	24 (19.5)	1.06 (0.61-1.86)	
Agricultural/ Domestic/Unskilled	1938 (78.3)	538 (21.7)	1.22 (1.01-1.48)	
Professional/ Technical/Service/ Sale	2544 (81.5)	579 (18.5)	Ref.	
Total	4581	1141		
Husband's Desire For Children				87.79 (<0.001)
Both want same	2239 (78.9)	598 (21.1)	Ref.	
Husband wants more	783 (70.4)	330 (29.6)	1.57 (1.23-2.03)	
Husband wants fewer	167 (74.2)	58 (25.8)	1.30 (0.80-2.13)	
Don't know	235 (60.3)	155 (39.7)	2.46 (1.82-3.34)	
Total	3424	1141		
Knowledge About Family Planning from Media				35.89 (0.001)
No	3091 (78.0)	872 (22.0)	1.56 (1.20-2.03)	
Yes	1487(84.7)	268 (15.3)	Ref.	
Total	4587	1140		
Visited by LHW				39.54 (<0.001)
LHW is not present or women don't know	1200 (75.2)	396 (24.8)	1.63 (1.26-2.13)	
LHW is present but not visited	1541 (80.5)	374 (19.5)	1.20 (0.98-1.48)	
LHW is present and visited	1840 (83.2)	371 (16.8)	Ref.	
Total	4581	1141		

Continued.....

Table 4.6.1. (Continued) Bivariate Analysis of Unmet Need for Spacing among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics . (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Spacing		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Consanguinity in Marriage				6.28 (0.150)
No Relation	1689 (81.7)	377 (18.3)	Ref.	
2 nd Degree And Other	798 (79.5)	205 (20.5)	1.15 (0.93-1.43)	
First Cousin	2090 (78.9)	559 (21.1)	1.19 (0.98-1.47)	
Total	4578	1141		
Gender Equality Index				377.72 (<0.001)
None	1258 (66.6)	631 (33.4)	4.34 (3.51-5.40)	
Low	542 (79.1)	143 (20.9)	2.29 (1.72-3.07)	
Moderate	595 (84.2)	111 (15.8)	1.62 (1.13-2.24)	
High	2182 (89.7)	252 (10.3)	Ref.	
Total	4577	1138		
Residence				72.31 (<0.001)
Urban	1929 (85.5)	327 (14.5)	Ref	
Rural	2652 (76.5)	814 (23.5)	1.81 (1.33-2.48)	
Total	4581	1141		
Region				229.37 (<0.001)
Punjab	3037 (84.8)	546 (15.2)	Ref	
Sindh	885 (74.4)	304 (25.6)	1.91 (1.44-2.55)	
Khyber Pakhtunkhwa	551 (75.8)	176 (24.2)	1.77 (1.31-2.42)	
Baluchistan	107 (48.5)	114 (51.5)	5.92 (3.96-8.83)	
Total	4581	1141		
Wealth Index				162.25 (<0.001)
Poorest	520 (66.9)	258 (33.1)	3.40 (2.24-5.16)	
Poorer	751 (74.7)	254 (25.3)	2.32 (1.70-3.17)	
Middle	973 (82.3)	209 (17.7)	1.47 (1.11-1.96)	
Richer	1110 (82.1)	242 (17.9)	1.49 (1.06-2.10)	
Richest	1226 (87.3)	179 (12.7)	Ref.	
Total	4581	1141		
Total	4581	1141		

1- Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko, Potowari, Marwari, Farsi and English.

Ref: Reference group

Table 4.6.2. Bivariate Analysis of Unmet Need for Limiting among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Limiting		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Age				102.65 (<0.001)
15-19	61 (97.1)	2 (2.9)	Ref.	
20-24	438 (89.9)	49 (10.1)	3.74 (0.80-17.55)	
25-29	832 (78.4)	230 (21.6)	9.22 (2.02-42.16)	
30-34	1023 (77.0)	306 (23.0)	9.99 (2.19-45.50)	
35-39	1023 (73.0)	379 (27.0)	12.36 (2.70-56.65)	
40-44	714 (70.4)	300 (29.6)	14.01 (3.09-63.56)	
45-49	490 (71.9)	191 (28.1)	13.07 (2.79-61.09)	
Total	4581	1457		
Education				199.08 (<0.001)
None	2221 (68.7)	1010 (31.3)	3.03 (2.21-4.17)	
Primary	840 (82.8)	174 (17.2)	1.38 (0.95-2.01)	
Secondary	983 (83.6)	193 (16.4)	1.31 (0.91-1.88)	
Higher	537 (87.0)	80 (13.0)	Ref.	
Total	4581	1457		
Mother Tongue				191.01 (<0.001)
Urdu	565 (83.8)	109 (16.2)	Ref.	
Punjabi	2047 (80.6)	493 (19.4)	1.24 (0.92-1.69)	
Sindhi	261 (65.4)	138 (34.6)	2.73 (1.89-3.97)	
Pushto	502 (65.2)	268 (34.8)	2.75 (2.00-3.81)	
Balochi	135 (69.9)	58 (30.1)	2.23 (1.51-3.30)	
Barauhi	31 (45.1)	38 (54.9)	6.29 (3.81-10.42)	
Siraiki	673 (75.1)	223 (24.9)	1.71 (1.25-2.36)	
Hindko	115 (62.1)	71 (37.9)	3.16 (2.17-4.61)	
Others ¹	251 (80.9)	59 (19.1)	1.22 (0.85-1.78)	
Total	4581	1457		
Employment				31.67 (0.001)
Unemployed	3221 (76.2)	1007 (23.8)	1.42 (1.08-1.87)	
Agricultural/ Domestic/Unskilled	766 (70.6)	319 (29.4)	1.89 (1.39-2.58)	
Professional/ Technical/Service/ Sale	594 (81.9)	131 (18.1)	Ref.	
Total	4581	1457		
Age at first marriage				45.36 (<0.001)
15 or less	810 (73.9)	286 (26.1)	1.59 (1.25-2.03)	
16-17	1079 (71.3)	435 (28.7)	1.81 (1.43-2.31)	
18-19	940 (76.3)	292 (23.7)	1.39 (1.08-1.81)	
20-21	746 (77.1)	221 (22.9)	1.33 (1.02-1.76)	
22 or more	1007 (81.8)	223 (18.2)	Ref.	
Total	4581	1457		

Continued.....

Table 4.6.2. (Continued) Bivariate Analysis of Unmet Need for Limiting among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Limiting Number (Row %)		OR	Chi-Square (p-value)
	Met Need n (%)	Unmet Need n (%)		
Duration of Marriage (years)				161.44 (<0.001)
Less Than 5	535 (93.7)	36 (6.3)	Ref.	
5-9	810 (81.4)	185 (18.6)	3.41 (2.07-5.63)	
10-14	924 (73.5)	332 (26.5)	5.39 (3.30-8.78)	
15-19	940 (75.1)	312 (24.9)	4.97 (3.08-8.01)	
20 or More	1371 (69.9)	592 (30.1)	6.46 (4.08-10.22)	
Total	4581	1457		
Actual-Ideal Gap				121.86 (<0.001)
Ideal=Actual	1463 (74.5)	501 (25.5)	Ref.	
Ideal>Actual	1483 (84.8)	266 (15.2)	0.52 (0.42-0.66)	
Ideal<Actual	1492 (70.8)	614 (29.2)	1.20 (1.00-1.43)	
Non Numeric Response	142 (65.4)	75 (34.6)	1.54 (1.03-2.33)	
Total	4581	1457		
Number of Living Children				230.28 (<0.001)
No Child	16 (78.9)	4 (21.1)	0.56 (0.16-1.98)	
1-2	1111 (90.3)	110 (9.7)	0.22 (0.17-0.30)	
3-4	1750 (76.8)	528 (23.2)	0.63 (0.54-0.76)	
5 or More	1703 (67.9)	805 (32.1)	Ref.	
Total	4581	1457		
Sex of Living Children				11.42 (0.097)
Equal Number Of Both Sex	1000 (79.2)	263(20.8)	1.22 (1.00-1.50)	
More Son	2122 (75.6)	684 (24.4)	Ref.	
More Daughter	1442 (74.0)	506 (26.0)	1.33 (1.05-1.69)	
No Living Child	16 (78.9)	4 (21.1)	1.01 (0.29-3.59)	
Total	4581	1457		
Number of Deceased Children				
None	3334 (77.5)	969 (22.5)	Ref.	22.84 (0.004)
1	760 (72.5)	288 (27.5)	1.30 (1.06-1.61)	
2	290 (69.9)	125 (30.1)	1.48 (1.11-1.99)	
3 And More	197 (72.4)	75 (27.6)	1.31 (0.93-1.84)	
Total	4581	1457		
Abortion History				22.90 (0.001)
None	2883 (77.4)	841 (22.6)	Ref.	
1	1028 (75.7)	329 (24.3)	1.09 (0.91-1.32)	
2 or More	669 (70.0)	286 (30.0)	1.46 (1.20-1.79)	
Total	4581	1457		
Knowledge of Ovulatory Cycle				29.83 (0.001)
Correct Answer	246 (86.1)	40 (13.9)	Ref.	
Wrong Answer	3524 (76.3)	1094 (23.7)	1.91 (1.23-2.98)	
Don't Know	796 (71.3)	320 (28.7)	2.48 (1.53-4.03)	
Total	4567	1454		

Continued.....

Table 4.6.2. (Continued) Bivariate Analysis of Unmet Need for Limiting among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics. (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Limiting		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Husband's Age				112.13 (<0.001)
Lowest through 24	137 (91.2)	13(8.8)	Ref.	
25-29	447 (89.3)	54(10.7)	1.25 (0.57-2.74)	
30-34	757 (80.9)	179(19.1)	2.45 (1.19-5.04)	
35-39	879 (73.5)	316(26.5)	3.74 (1.87-7.47)	
40-44	964 (74.7)	327(25.3)	3.52 (1.69-7.32)	
45-49	769 (71.5)	306(28.5)	4.14 (2.06-8.32)	
50 or more	616 (70.5)	257(29.5)	4.34 (2.21-8.53)	
Total	4571	1453		
Husband's Education				94.45 (<0.001)
No education	1272 (68.4)	588(31.6)	2.19 (1.73-2.79)	
Primary	742 (77.0)	221(23.0)	1.42 (1.08-1.87)	
Secondary	1650 (78.6)	450(21.4)	1.29 (1.05-1.60)	
Higher	913 (82.6)	192(17.4)	Ref.	
Total	4572	1452		
Husband's Occupation				38.47 (<0.001)
Unemployed	99 (73.5)	35(26.5)	1.35 (0.87-2.12)	
Agricultural/ Domestic/Unskilled	1938 (772.2)	747(27.8)	1.45 (1.24-1.70)	
Professional/ Technical/Service/ Sale	2544 (79.0)	674(21.0)	Ref.	
Total	4580	1457		
Husband's Desire For Children				72.74 (<0.001)
Both want same	2239 (74.4)	770(25.6)	Ref.	
Husband wants more	783 (62.9)	462(37.1)	1.71 (1.36-2.16)	
Husband wants fewer	167 (68.1)	78(31.9)	1.36 (0.91-2.05)	
Don't know	235 (62.1)	143(37.9)	1.77 (1.29-2.43)	
Total	3424	1454		
Knowledge About Family Planning from Media				60.80 (<0.001)
No	3091 (73.1)	1137(26.9)	1.72 (1.40-2.12)	
Yes	1487(82.4)	317(17.6)	Ref.	
Total	4578	1454		
Visited by LHW				10.50 (0.113)
LHW is not present or women don't know	1200 (73.4)	434(26.6)	1.27 (1.00-1.62)	
LHW is present but not visited	1541 (75.6)	498(24.4)	1.13 (0.93-1.39)	
LHW is present and visited	1840 (77.8)	524(22.2)	Ref.	
Total	4581	1454		

Continued.....

Table 4.6.2. (Continued) Bivariate Analysis of Unmet Need for Limiting among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics . (Pakistan, DHS 2012-13).

Characteristics	Unmet Need for Limiting		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Consanguinity in Marriage				3.17 (0.336)
No Relation	1689 (77.1)	501(22.9)	Ref.	
2 nd Degree And Other	798 (74.7)	270(25.3)	1.14 (0.94-1.39)	
First Cousin	2090 (75.3)	686(24.7)	1.10 (0.94-1.30)	
Total	4577	1457		
Gender Equality Index				18.50 (0.050)
None	1258 (72.4)	480(27.6)	1.29 (1.05-1.60)	
Low	542(76.0)	171(24.0)	1.07 (0.81-1.41)	
Moderate	595(78.9)	159(21.1)	0.90 (0.68-1.21)	
High	2182 (77.2)	643(22.8)	Ref.	
Total	4577	1454		
Residence				92.02 (<0.001)
Urban	1929 (82.5)	410(17.5)	Ref	
Rural	2652 (71.7)	1047(28.3)	1.85 (1.52-2.27)	
Total	4581	1457		
Region				121.37 (<0.001)
Punjab	3037 (79.9)	763 (20.1)	Ref	
Sindh	885 (73.4)	320 (26.6)	1.43 (1.15-1.79)	
Khyber Pakhtunkhwa	551 (63.6)	316 (36.4)	2.27 (1.75-2.96)	
Baluchistan	107 (65.0)	58 (35.0)	2.14 (1.42-3.25)	
Total	4581	1457		
Wealth Index				237.11 (<0.001)
Poorest	520 (59.4)	356 (40.6)	3.64 (2.66-4.99)	
Poorer	751 (69.2)	335 (30.8)	2.37 (1.78-3.16)	
Middle	973 (78.0)	275 (22.0)	1.50 (1.14-1.99)	
Richer	1110 (80.9)	261 (19.1)	1.25 (0.99-1.59)	
Richest	1226 (84.2)	230 (15.8)	Ref.	
Total	4581	1457		
Total	4581	1457		

1- Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko, Potowari, Marwari, Farsi and English.

Ref: Reference group

Table 4.6.3: Bivariate Analysis of Total Unmet Need for Family Planning among Currently Married Women age 15-49 by Individual, Spousal, Community I and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Total Unmet Need for FP		OR	Chi-Square (p-value)
	Met Need n (Row %)	Unmet Need n (Row %)		
Age				168.511 (<0.001)
15-19	61 (41.0)	88 (59.0)	3.47 (2.05-5.88)	
20-24	438 (50.9)	423 (49.1)	2.32 (1.62-3.33)	
25-29	832 (58.5)	589 (41.5)	1.70 (1.27-2.29)	
30-34	1023 (66.1)	524 (33.9)	1.23 (0.89-1.70)	
35-39	1023 (69.3)	552 (30.7)	1.06 (0.79-1.43)	
40-44	714 (69.2)	318 (30.8)	1.07 (0.77-1.49)	
45-49	490 (70.7)	203 (29.3)	Ref.	
Total	4581	2598		
Education				132.39 (<0.001)
None	2221 (58.0)	1607 (42.0)	2.17 (1.70-2.76)	
Primary	840 (68.1)	393 (31.9)	1.40 (1.03-1.90)	
Secondary	983 (70.1)	419 (29.9)	1.28 (0.99-1.65)	
Higher	537 (75.0)	179 (25.0)	Ref.	
Total	4581	2598		
Mother tongue				305.67 (<0.001)
Urdu	565 (77.0)	169 (23.0)	Ref.	
Punjabi	2047 (69.6)	895 (30.4)	1.46 (1.10-1.92)	
Sindhi	261 (49.7)	264 (50.3)	3.37 (2.45-4.64)	
Pushto	502 (54.0)	428 (46.0)	2.84 (2.15-3.77)	
Balochi	135 (50.2)	134 (49.8)	3.32 (1.88-5.84)	
Barauhi	31 (24.6)	95 (75.4)	10.27 (6.04-17.45)	
Siraiki	673 (63.4)	388 (36.6)	1.92 (1.46-2.51)	
Hindko	116 (54.7)	96 (45.3)	2.77 (1.95-3.92)	
Others ¹	251 (66.1)	129 (33.9)	1.71 (1.22-2.40)	
Total	4581	2598		
Employment				26.12 (0.006)
Unemployed	3221 (62.7)	1918 (37.3)	1.50 (1.19-1.90)	
Agricultural/ Domestic/Unskilled	766 (63.2)	446 (36.8)	1.47 (1.10-1.96)	
Professional/ Technical/Service/ Sale	594 (71.7)	235 (28.3)	Ref.	
Total	4581	2598		
Age at first marriage				38.45 (<0.001)
15 or less	810 (65.2)	433 (34.8)	1.18 (0.96-1.46)	
16-17	1079 (59.3)	742 (40.7)	1.52 (1.25-1.85)	
18-19	940 (62.0)	575 (38.0)	1.35 (1.12-1.63)	
20-21	746 (65.4)	394 (34.6)	1.17 (0.94-1.45)	
22 or more	1007 (68.9)	454 (31.1)	Ref.	
Total	4581	2598		

Continued.....

Table 4.6.3. (Continued) Bivariate Analysis of Total Unmet Need for Family Planning among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Total Unmet Need for FP		OR	Chi-Square (p-value)
	No Method n (Row %)	Any Method n (Row %)		
Duration of Marriage (years)				121.06 (<0.001)
Less Than 5	536 (51.8)	498 (48.2)	2.01 (1.60-2.51)	
5-9	810 (59.5)	551 (40.5)	1.46 (1.19-1.80)	
10-14	924 (64.1)	517 (35.9)	1.209 (0.99-1.47)	
15-19	940 (70.3)	398 (29.7)	0.916 (0.76-1.10)	
20 or More	1371 (68.4)	634 (31.6)	Ref.	
Total	4581	2598		
Actual-Ideal Gap				
Ideal=Actual	1463 (70.5)	613 (29.5)	Ref.	
Ideal>Actual	1484 (55.8)	1176 (44.2)	1.89 (1.58-2.25)	
Ideal<Actual	1492 (68.6)	682 (31.4)	1.09 (0.92-1.28)	
Non Numeric Response	142 (52.6)	128 (47.4)	2.148 (1.48-3.102)	
Total	4581	2598		
Number of Living Children				104.85 (<0.001)
No Child	16 (18.4)	71 (81.6)	8.07 (3.95-16.45)	
1-2	1111 (60.1)	737 (39.9)	1.21 (1.01-1.46)	
3-4	1750 (67.1)	859 (32.9)	0.89 (0.78-1.03)	
5 or More	1703 (64.7)	930 (35.3)	Ref.	
Total	4581	2598		
Sex of Living Children				54.58(<0.001)
Equal Number of Both Sex	1000 (69.2)	445 (30.8)	0.87 (0.74-1.03)	
More Son	2122 (66.4)	1074 (33.6)	Ref.	
More Daughter	1442 (58.9)	1008 (41.1)	1.38 (1.15-1.64)	
No Living Child	16 (18.4)	71 (81.6)	8.71 (4.28-17.71)	
Total	4581	2598		
Number of Deceased Children				2.283 (0.708)
None	3334 (63.7)	1899(36.3)	Ref.	
1	761 (62.8)	450(37.2)	1.03 (0.87-1.23)	
2	290 (66.4)	147(33.6)	0.89 (0.67-1.16)	
3 or More	197 (65.7)	103(34.3)	0.91 (0.68-1.22)	
Total	4581	2598		
Abortion History				2.42 (0.477)
None	2883 (63.4)	1664 (36.6)	Ref.	
1	1028 (65.4)	543 (34.6)	0.91 (0.78-1.06)	
2 or More	669 (63.1)	391 (36.9)	1.01 (0.85-1.20)	
Total	4581	2598		
Knowledge of Ovulatory Cycle				73.76 (<0.001)
Correct Answer	246 (76.2)	77 (23.8)	Ref.	
Wrong Answer	3525 (65.3)	1875 (34.7)	1.71 (1.17-2.48)	
Don't Know	796 (55.3)	643 (44.7)	2.59 (1.72-3.90)	
Total	4578	2594		

Continued.....

Table 4.6.3. (Continued) Bivariate Analysis of Total Unmet Need for Family Planning among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Total Unmet Need for FP		OR	Chi-Square (p-value)
	No method n (Row %)	Any method n (Row %)		
Husband's Age				166.40 (<0.001)
Lowest through 24	138 (40.7)	201 (59.3)	3.34 (2.28-4.88)	
25-29	447 (54.3)	376 (45.7)	1.92 (1.48-2.50)	
30-34	758 (60.7)	490 (39.3)	1.48 (1.12-1.94)	
35-39	879 (64.5)	484 (35.5)	1.26 (0.98-1.60)	
40-44	965 (69.9)	416 (30.1)	0.98 (0.76-1.28)	
45-49	769 (68.4)	356 (31.6)	1.05 (0.80-1.39)	
50 or more	616 (69.6)	269 (30.4)	Ref.	
Total	4572	2592		
Husband's Education				65.73 (<0.001)
None	1272 (57.7)	932 (42.3)	1.74 (1.42-2.14)	
Primary	742 (64.5)	408 (35.5)	1.31 (1.03-1.66)	
Secondary	1650 (65.6)	867 (34.4)	1.25 (1.03-1.50)	
Higher	913 (70.4)	384 (29.6)	Ref.	
Total	4577	2591		
Husband's Occupation				36.87 (<0.001)
Unemployed	99 (62.7)	59 (37.3)	1.22 (0.81-1.82)	
Agricultural/ Domestic/Unskilled	1938 (60.1)	1286 (39.9)	1.34 (1.17-1.54)	
Professional/ Technical/Service/ Sale	2544 (67.0)	1253 (33.0)	Ref.	
Total	4581	2598		
Husband's Desire For Children				115.38 (<0.001)
Both want same	2239 (62.1)	1369 (37.9)	Ref.	
Husband wants more	783 (49.7)	792 (50.3)	1.65 (1.35-2.01)	
Husband wants fewer	167 (55.1)	136 (44.9)	1.33 (0.92-1.92)	
Don't know	235 (44.1)	298 (55.9)	2.07(1.58-2.72)	
Total				
Knowledge About Family Planning from Media				82.04 (<0.001)
No	3091 (60.6)	2009 (39.4)	1.65 (1.37-1.98)	
Yes	1487 (71.8)	585 (28.2)	Ref.	
Total	3424	2598		
Visited by LHW				34.90 (0.002)
LHW is not present or women don't know	1200 (59.1)	831 (40.9)	1.42 (1.16-1.74)	
LHW is present but not visited	1541(63.9)	872 (36.1)	1.16 (0.99-1.35)	
LHW is present and visited	1840 (67.3)	895 (32.7)	Ref.	
Total	4581	2598		

Continued.....

Table 4.6.3. (Continued) Bivariate Analysis of Total Unmet Need for Family Planning among Currently Married Women age 15-49 by Individual, Spousal, Community and Household Level Characteristics (Pakistan, DHS 2012-13).

Characteristics	Total Unmet Need for FP		OR	Chi-Square (p-value)
	No method n (Row %)	Any method n (Row %)		
Consanguinity in Marriage				7.11 (0.103)
No Relation	1689 (65.8)	879 (34.2)	Ref.	
2nd Degree And Other	798 (62.7)	475 (37.3)	1.14 (0.97-1.35)	
First Cousin	2091 (62.7)	1244 (37.3)	1.14 (0.99-1.32)	
Total	4578	2598		
Gender Equality Index				200.58 (<0.001)
None	1258 (53.1)	1112 (46.9)	2.15 (1.81-2.55)	
Low	542 (63.3)	314 (36.7)	1.41 (1.12-1.78)	
Moderate	596 (68.7)	271 (31.3)	1.10 (0.87-1.41)	
High	2182 (70.9)	895 (29.1)	Ref.	
Total	4581	2592		
Residence				138.73 (<0.001)
Urban	1929 (72.4)	737 (27.6)	Ref	
Rural	2652 (58.8)	1862 (41.2)	1.83 (1.48-2.27)	
Total	4581	2598		
Region				226.31 (<0.001)
Punjab	3037 (69.9)	1309 (30.1)	Ref	
Sindh	885 (58.6)	624 (41.4)	1.63 (1.33-2.01)	
Khyber Pakhtunkhwa	551 (52.8)	492 (47.2)	2.06 (1.61-2.65)	
Baluchistan	108 (38.6)	172 (61.4)	3.71 (2.57-5.35)	
Total	4581	2598		
Wealth Index				314.30 (<0.001)
Poorest	521 (45.9)	614 (54.1)	3.53 (2.57-4.85)	
Poorer	751 (56.0)	589 (44.0)	2.35 (1.83-3.00)	
Middle	973 (66.8)	484 (33.2)	1.49 (1.19-1.85)	
Richer	1110 (68.8)	503 (31.2)	1.35 (1.10-1.67)	
Richest	1226 (75.0)	409 (25.0)	Ref.	
Total	4581	2598		
Total	4581	2598		

1- Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko, Potowari, Marwari, Farsi and English.

Ref: Reference group

4.6.2. Multivariate Analysis of Predictors of Unmet Need for Family Planning

Tables 4.6.4, 4.6.5 and 4.6.6 display the logistic regression odds ratios and their significance for unmet need for spacing, unmet need for limiting, and total unmet need, respectively. The sets of variable introduced in the regression model are in same order as described previously. Even some variables were statistically non significant in bivariate analysis, due to their potential impact on unmet need described in family planning literature, kept in multivariate analysis.

Model 1

In this model, the relationship between socio-demographic variables of currently married women and total unmet need for family planning is examined. With regard to the total unmet need for family planning, both the current age of respondent and age at first marriage were found to be not significant. Regarding unmet need for spacing and limiting, only age at first marriage was found to be insignificant; all other variables displayed a strong association with the both component of unmet need.

According to expectation, the model for spacing demonstrated that younger women had greater need for birth spacing than older women. The odds of unmet need for family planning is 12.83 (95% CI = 4.50-36.55) for women in 15-19 years of age group compared to the women aged 45-49 taken as reference. In addition, unmet need for spacing was found significant for women without any education or having primary education compared with women having higher education.

When comparing the women whose mother tongue is Urdu to those of other than Urdu, the likelihood of having unmet need for spacing is significantly higher for all other ethnic groups. Moreover, non working status of women showed a significant increase in the probability of being in the category of unmet need for spacing purposes (OR = 1.35, 95% CI = 1.05-1.74).

The duration of marriage was also one of the most influential determinants of spacing component of unmet need. Relative to women who had spent more than 20 years within their marriage, women were 7 times (OR= 6.85, 95% CI= 3.25-14.42)

and 4 times (OR= 4.33, 95% CI= 2.25, 8.36) more likely to be confronted with spacing needs during the first and second five years of marriage, respectively.

Regarding the unmet need for limiting, it was found that women aged 35 or above were five times more likely to have family planning need for limiting purposes compared to the youngest women (15-19 years of age). Except for the Punjabi and Siraiki women, the model displayed similar pattern to spacing purposes with regard to mother tongue; these two groups became non-significant in limiting model. Furthermore, uneducated women were found to be significantly higher in demand for limiting than higher educated women. Another significant factor for limiting was the employment status of women. Relative to women who were employed in professional/technical/services, unemployed women and women employed in agriculture/domestic/unskilled manual were significantly more inclined to have unmet need for the termination of their fertility (OR=1.42 and OR= 1.55, respectively).

There was a close association between the unmet need for limiting and duration of marriage in this model, expressly as the time spent within the marriage increases, the likelihood of having unmet need for limiting also increases.

With reference to total unmet need, women's education working status and mother tongue maintained its similar pattern of significant effect on total unmet need as did on spacing component of unmet need. However for the variable duration of marriage, it is found that women who had spent less than 5 years in union have significantly greater total unmet need compared to the women who were in union for 20 and more years.

Model 2

Additional variables related to reproduction were included in the model in order to measure their affect on unmet need. These variables substantially raised the pseudo R square of each model for unmet need.

The significant variables in the previous model remained unchanged for total unmet need and its spacing component. On the other hand, current age of women lost its importance for limiting component for unmet need. Among the reproduction related variables, total unmet need along with unmet need for limiting and spacing

varied significantly according to number of living children, the gap between actual and ideal number of children, and knowledge of ovulatory cycle. Sex of living children was found to be a significant variable only for total and spacing component of unmet need, while number of deceased children and history of abortion was not significant across the any component of unmet need in Model 2.

The direction of relationship between actual-ideal gap and the components of unmet need mainly depended on the fulfillment of women's desires about fertility. For instance, the likelihood of having unmet need for spacing the births significantly increased and was relatively three times when the ideal number had not been attained yet. The unmet need for limiting, however, was inversely associated with this gap, that is, women were less likely to be in need of terminating the fertility. The scheme was twofold for the total unmet need. When the ideal number had not been attained yet, the likelihood of having unmet need decreased. On the other hand, when ideal is more than actual total unmet need increased by 29% (OR= 1.29, 95% CI= 1.12-1.50) compared to the women whose actual and ideal number were equal to each other. It is interesting to note that total unmet need along with unmet need for spacing increased significantly for women with non-numeric responses.

When sex of living children was taken into consideration, compared to women with more son(s), spacing needs were become prominent particularly for those having more daughter(s). A similar trend is also revealed for the total unmet need and this might be due to the reason that no association was observed between unmet need for limiting birth and sex of the living children.

The levels of having unmet need (spacing, limiting and total) significantly altered for knowledge of ovulatory cycle. Within all of the three components, not knowing the reproductive cycle physiology raised the likelihood of having unmet need for these women (for spacing OR= 1.69, for limiting OR= 1.95 and for the total OR= 1.78). With respect to the number of living children, it is interesting to note that unmet need for limiting the birth is significantly lower among women having less than four children compared with women having five or more children; additionally women with no children have greater unmet need limiting birth. This might be due to the fact that these women were younger and had lesser duration in cohabitation.

Model 3

In this model, the effect of husband's characteristics was analyzed together with the other explanatory variables in previous models. Husband's characteristics such as age and education did not indicate significant variation in the level of total unmet need. On the contrary, husband's age was found to be a significant predictor of unmet need for spacing and limiting. However, education of husband remained non-significant factor for both components of unmet need.

The model displayed association between unmet need and husband's occupation. It is observed that compared to those who are at higher order occupations (professional/ managerial/sale and services), those who are at lesser order of occupations has had significantly larger unmet need for spacing and total unmet need; however, odds ratio of limiting for the latter group (OR= 1.16, 95% CI= 1.00-1.36) was not significant (p=0.05).

Therein husband's desire for children was found the most significant predictor for all components of unmet need (total, spacing and limiting). Taking the agreement between husband and wife about fertility goal as a reference category in the model, it is evident that women have had greatest need for contraception. If husband wanted more children (OR for spacing= 1.86, OR for limiting= 1.40 and OR for the total= 1.45) or if woman have no idea about husband's desire for the number of children (OR for spacing= 1.82, OR for limiting= 1.44 and OR for the total= 1.57).

Model 4

At this phase, exposure to mass media family planning messages, affect of LHW visit, consanguinity in the formation of marriage and acceptance of gender roles were taken into consideration as independent variables besides controlling the socio demographic and reproductive variables. The first two variables, namely exposure to media messages and visit by LHW was found to be highly significant in all three components of unmet need (total, spacing and limiting). Conversely, gender role was found to be a significant predictor of total unmet need and unmet need for spacing, besides that consanguinity in the formation of marriage was significant just for unmet need for limiting.

It is evident that the women who were not exposed to family planning messages in the media were more likely to have unmet need for family planning (for spacing OR= 1.30, for limiting OR= 1.28 and for the total OR= 1.27) compared to women that were exposed to family planning messages in the media. With regard to LHW, women who were living in the area where LHW is not present, and again women living in the area where LHW is present but not visited were more likely to have unmet need (total, spacing and limiting) than women who were visited by LHW.

Result shows that compared to the women that have had higher level decision making authority, those with none (OR = 1.49, 95% CI = (1.21, 1.83)) or moderate level (OR = 1.56, 95% CI = (1.17, 2.09)) authority have significantly larger unmet need for spacing. Model revealed that women with no gender role have significantly larger total unmet need for family planning while all other categories of gender role have no significant association with total unmet need.

Model 5 (Final Model)

In the final step, in addition to the other variables, place of residence, region and household wealth status were included in the model. These household level variables had a strong significant affect on total unmet need including spacing and limiting components.

In the final model for spacing, significant predictors were mother tongue, women's employment, actual-ideal gap, number of living children, sex of living children, knowledge of ovulatory cycle, husband's age, husband's occupation, husband's desire for children, exposure to media messages, visit by LHW, consanguinity level in marriage, gender role, residence, region and wealth index.

With the exception of women's employment, sex of living children, husband's occupation and consanguinity level in marriage, all other predictors mentioned above remained also significant in deterring the unmet need for limiting. Yet, in addition to these variables, age of woman, education of woman, and duration of marriage were also found significant in this model.

Regarding total unmet need, the pattern of significance is similar to the unmet need for spacing but husband's age and occupation had lost their significance.

The final model demonstrated that after controlling other variables, age of women is an important predictor for unmet need for limiting; women aged 40 or above were six to seven times more likely in need for limiting birth than women younger than 19 years of age. Contrary to expectations, no association was observed between unmet need for family planning and women's educational attainment in the final model. Working status of women showed that with reference to women working in higher level jobs (professional/technical/services/sale), those who are working at lower level jobs (agricultural/ domestic/unskilled) have had 41% lesser unmet need for spacing (OR= 1.59, 95% CI= 0.40-0.86) and 38% greater unmet need for limiting (OR= 1.38, 95% CI = 1.04-1.83) . Furthermore, it is also observed that likelihood of having unmet need for limiting is 28% greater for non- working women (OR= 1.28, 95% CI= 1.01-1.62).

With regard to actual and ideal gap, final model for spacing and total unmet need revealed that the direction of association between actual-ideal gap is conditional to the fulfillment of women's desires about fertility. As for example, the odds ratio of having unmet need for spacing the births significantly increased more than three times (OR= 3.22, 95% CI= 2.50-4.14) when the ideal number had not been attained yet. It was also revealed that non-numeric responses to survey questions on fertility intentions increase likelihood of unmet need for spacing up to five times (OR= 5. 41, 95% CI= 3.34-8.75). The above pattern of significance is also true for total unmet need.

As would be expected by the fact that four-child family is ideal for currently married women in Pakistan, in general, women with two or lesser number of children did not have a tendency to limit their fertility and thus, the unmet need for limiting was negatively associated with these women (OR= 0.53, 95% CI = 0.38-0.74). Interestingly, it is also evident that unmet need for spacing was positively associated with childlessness (OR= 13.29, 95% CI= 6.13-28.81).

There was also a significant association between the sex of living children and unmet need. For total unmet need and its spacing component, it became one of the most important predictors and did not lose its importance while controlling the effect of other factors and it is observed that the unmet need for family planning methods was significantly and positively associated with excess of girls in all these

models. However, sex of living children had no significant effect on unmet need for limiting birth.

Besides sex of living children, knowledge about ovulatory cycle displayed a significant relationship with women's odds of having unmet need for family planning; however different from above, for this variable, total and limiting component of unmet need were found to be significant. As expected, women with no knowledge of ovulatory cycle have significantly higher unmet need (OR for spacing= 1.61, OR for limiting= 1.88 and OR for the total= 1.82) than do women with correct knowledge of ovulatory cycle.

Among spousal characteristics, concordance between the husband's and wife's fertility intentions have been found to be the most significant determinant of unmet need for family planning and continued its significant affect after controlling other variables in each model of unmet need. Across the three components of unmet need (spacing, limiting, total), women who did not know husbands' fertility desire (OR for spacing= 1.72, OR for limiting= 1.33 and OR for the total= 1.46) and women whose husbands wanted more children (OR for spacing= 1.71, OR for limiting= 1.32 and OR for the total= 1.35) had significantly higher unmet need compared with couples where both partners wanted same number of children

Among community level variables, exposure to media messages and visit by LHW were found to be important determinants of unmet need. It was found that, women who were not exposed to family planning media messages and also women who were not visited by LHW were more likely to have unmet need for family planning, than women who are exposed to these two sources of information. Regarding consanguinity in marriage, it was observed that first degree relation among couples significantly reduce unmet need for spacing (OR=0.79, 95% CI= 0.65-0.96), while no significant association is observed for limiting and total unmet need. With respect to gender equality index, results show that after controlling other variables, women with no gender role had significantly larger unmet need for spacing (OR=1.46, 95% CI= 1.18-1.81) and total unmet need (OR=1.25, 95% CI= 1.09-1.44), albeit, gender role appears to have no significant affect on unmet need for limiting the birth.

Holding socio-demographic, reproductive and community level explanatory variables constant, household factors appeared to have strong predication of unmet need. Results show that unmet need was significantly higher among women living in rural areas (OR for spacing= 1.43, OR for limiting= 1.24 and OR for the total= 1.34). It is also evident that women living in Sindh, Baluchistan and KPK regions had significantly higher unmet need for spacing compared to women living in Punjab Province. Besides this, unmet need for limiting was also found significant for women in Sindh Province. As expected, economic status (wealth index) and unmet need showed an inverse relationship. The richest women were less likely to have unmet need for contraception than the poorest and poor women in all three categories of unmet need.

The explanatory power of the final models (in terms of Nagelkerke R Square) for spacing, limiting and total unmet need are found as 0.425, 0.240 and 0.185, respectively.

Table 4.6.4. Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	p<0.001	p=0.001	p=0.168	p=0.167	p=0.088
15-19	12.83 *** (4.50-36.55)	4.43 ** (1.47-13.34)	0.94 (0.28-3.12)	0.80 (0.24-2.69)	0.76 (0.22-2.59)
20-24	8.69 *** (3.45-21.88)	5.39 ** (2.08-14.02)	1.27 (0.45-3.61)	1.21 (0.42-3.46)	1.22 (0.42-3.54)
25-29	6.38 *** (2.74-14.87)	4.5 ** (1.89-10.71)	1.23 (0.47-3.17)	1.18 (0.45-3.09)	1.19 (0.45-3.15)
30-34	4.57 *** (2.07-10.08)	3.74 ** (1.67-8.38)	1.24 (0.51-2.98)	1.18 (0.49-2.88)	1.18 (0.48-2.89)
35-39	2.24* (1.09-4.61)	1.99 (0.96-4.15)	0.85 (0.39-1.87)	0.88 (0.40-1.95)	0.85 (0.38-1.9)
40-44	1.15 (0.54-2.46)	1.12 (0.52-2.41)	0.56 (0.25-1.28)	0.58 (0.25-1.33)	0.54 (0.23-1.26)
45-49	1.00	1.00	1.00	1.00	1.00
Education	p<0.001	p<0.001	p<0.001	p=0.002	p=0.553
None	2.34*** (1.76-3.12)	2.21 *** (1.62-3.01)	1.83** (1.29-2.6)	1.67** (1.16-2.39)	1.25 (0.86-1.83)
Primary	1.60** (1.18-2.18)	1.66 ** (1.2-2.3)	1.47* (1.03-2.09)	1.36 (0.94-1.95)	1.24 (0.85-1.82)
Secondary	1.22 (0.91-1.63)	1.21 (0.89-1.64)	1.13 (0.81-1.56)	1.05 (0.76-1.46)	1.07 (0.76-1.5)
Higher	1.00	1.00	1.00	1.00	1.00

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Mother tongue	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
Urdu	1.00	1.00	1.00	1.00	1.00
Punjabi	1.85*** (1.35-2.52)	1.87*** (1.35-2.59)	1.96*** (1.41-2.72)	2.20*** (1.57-3.07)	3.13*** (2.15-4.57)
Sindhi	5.41*** (3.66-7.99)	4.73*** (3.15-7.1)	5.99*** (3.9-9.19)	6.20*** (4.0-9.6)	3.46*** (2.18-5.49)
Pushto	2.55*** (1.78-3.67)	2.18*** (1.49-3.18)	1.85** (1.26-2.72)	1.77** (1.19-2.62)	1.34 (0.79-2.27)
Balochi	7.23*** (4.58-11.43)	6.01*** (3.72-9.73)	4.84*** (2.95-7.96)	5.11*** (3.08-8.49)	3.55*** (2.07-6.1)
Barauhi	21.08*** (11.37-39.08)	14.27*** (7.47-27.27)	13.62*** (6.8-27.27)	11.08*** (5.45-22.54)	5.79*** (2.55-13.18)
Siraiki	1.97*** (1.38-2.82)	1.91** (1.32-2.77)	1.89** (1.30-2.76)	2.17*** (1.48-3.19)	2.05** (1.36-3.1)
Hindko	1.95* (1.12-3.4)	1.67 (0.91-3.05)	1.62 (0.88-2.97)	1.48 (0.8-2.74)	1.20 (0.60-2.37)
Others ¹	3.2*** (2.1-4.88)	3.01*** (1.94-4.67)	2.93*** (1.88-4.58)	2.93*** (1.87-4.61)	2.57*** (1.59-4.13)
Employment	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
Unemployed	1.35* (1.05-1.74)	1.36* (1.05-1.77)	1.26 (0.96-1.67)	1.14 (0.86-1.52)	1.16 (0.87-1.55)
Agricultural/ Domestic/Unskilled	0.73 (0.53-1.02)	0.68* (0.49-0.96)	0.67* (0.47-0.96)	0.60** (0.41-0.86)	0.59** (0.40-0.86)
Professional/ Technical/ Services/ Sale	1.00	1.00	1.00	1.00	1.00
Age at marriage	p=0.097	p=0.405	p=0.264	p=0.400	p=0.438
15 and less	0.72 (0.48-1.08)	1.04 (0.67-1.6)	1.17 (0.74-1.85)	1.20 (0.76-1.89)	1.11 (0.7-1.76)
16-17	0.81 (0.58-1.13)	1.07 (0.75-1.54)	1.09 (0.75-1.59)	1.12 (0.77-1.64)	1.06 (0.72-1.55)
18-19	1.03 (0.77-1.38)	1.23 (0.9-1.68)	1.32 (0.96-1.82)	1.31 (0.94-1.81)	1.27 (0.91-1.76)
20-21	0.84 (0.63-1.11)	0.98 (0.73-1.31)	1.01 (0.74-1.37)	1.04 (0.76-1.41)	1.03 (0.75-1.41)
22 and more	1.00	1.00	1.00	1.00	1.00

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Duration of marriage	p<0.001	p=0.013	p=0.356	p=0.331	p=0.368
Less than 5	6.85 *** (3.25-14.42)	3.61** (1.62-8.03)	2.13 (0.94-4.86)	2.04 (0.89-4.69)	2.11 (0.91-4.89)
5-9	4.33 *** (2.25-8.36)	3.34** (1.66-6.73)	2.1* (1.03-4.31)	2.08* (1.01-4.28)	2.12* (1.02-4.41)
10-14	2.37 ** (1.33-4.2)	2.4** (1.31-4.37)	1.84* (1.00-3.4)	1.90* (1.02-3.53)	1.77 (0.94-3.31)
15-19	1.58 (0.95-2.61)	1.66 (0.99-2.81)	1.49 (0.88-2.52)	1.52 (0.9-2.59)	1.54 (0.9-2.63)
20 and more	1.00	1.00	1.00	1.00	1.00
Actual-Ideal Gap		p<0.001	p<0.001	p<0.001	p<0.001
ideal=actual		1.00	1.00	1.00	1.00
ideal>actual		3.43*** (2.7-4.36)	3.36*** (2.62-4.3)	3.37*** (2.63-4.33)	3.22*** (2.50-4.14)
ideal<actual		0.89 (0.62-1.26)	0.8 (0.56-1.15)	0.79 (0.55-1.14)	0.88 (0.6-1.27)
non numeric response		5.57*** (3.6-8.62)	5.35*** (3.35-8.55)	5.16*** (3.2-8.31)	5.41*** (3.34-8.75)
Number of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
No child		10.58 *** (5.17-21.63)	10.34*** (4.9-21.83)	10.68*** (5.00-22.83)	13.29*** (6.13-28.81)
1-2		1.37 (0.94-2.00)	1.39 (0.93-2.06)	1.46 (0.97-2.18)	1.51* (1.00-2.27)
3-4		1.06 (0.78-1.44)	1.07 (0.77-1.48)	1.10 (0.79-1.53)	1.15 (0.82-1.61)
5 and more		1.00	1.00	1.00	1.00
Sex of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
Equal number of both sex		0.89 (0.71-1.12)	0.86 (0.68-1.09)	0.88 (0.69-1.12)	0.88 (0.69-1.13)
more son		1.00	1.00	1.00	1.00
more daughter		1.94 *** (1.62-2.31)	1.95*** (1.62-2.34)	1.96*** (1.63-2.36)	1.96*** (1.62-2.37)

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Deceased Children		p=0.973	p=0.975	p=0.893	p=0.645
None		1.00	1.00	1.00	1.00
Yes		1.00 (0.81-1.24)	1.00 (0.8-1.24)	1.02 (0.81-1.27)	1.06 (0.84-1.33)
Abortion History		p=0.847	p=0.679	p=0.585	p=0.366
None		1.00	1.00	1.00	1.00
Yes		1.02 (0.85-1.22)	1.04 (0.86-1.25)	1.05 (0.87-1.27)	1.09 (0.90-1.32)
Knowledge of Ovulatory Cycle		p=0.006	p=0.013	p=0.029	p=0.033
Correct answer		1.00	1.00	1.00	1.00
Wrong answer		1.31 (0.86-2.00)	1.32 (0.86-2.02)	1.33 (0.86-2.05)	1.27 (0.82-1.97)
Don't know		1.72* (1.1-2.69)	1.69* (1.08-2.66)	1.66* (1.05-2.62)	1.61* (1.01-2.56)
Age of Husband			p<0.001	p<0.001	p<0.001
lowest through 24			5.97*** (2.77-12.89)	6.02*** (2.75-13.17)	6.12*** (2.77-13.53)
25-29			4.70*** (2.25-9.80)	4.68*** (2.22-9.86)	4.57*** (2.14-9.74)
30-34			4.20*** (2.04-8.63)	4.18*** (2.01-8.68)	4.18*** (1.99-8.77)
35-39			2.88** (1.41-5.9)	2.90** (1.40-5.98)	2.89** (1.39-6.04)
40-44			2.75** (1.35-5.59)	2.74** (1.33-5.62)	2.95** (1.42-6.12)
45-49			2.69** (1.31-5.50)	2.56* (1.24-5.28)	2.75** (1.32-5.74)
50 and more			1.00	1.00	1.00

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Education of Husband			p=0.773	p=0.720	p=0.457
None			1.04 (0.78-1.4)	0.98 (0.73-1.32)	0.86 (0.64-1.17)
Primary			0.94 (0.69-1.28)	0.93 (0.68-1.28)	0.91 (0.66-1.25)
Secondary			1.06 (0.82-1.36)	1.07 (0.83-1.38)	1.04 (0.8-1.35)
Higher			1.00	1.00	1.00
Husband Occupation			p=0.003	p=0.001	p=0.035
Unemployed			1.08 (0.57-2.04)	1.11 (0.59-2.1)	1.04 (0.55-1.97)
Agricultural/ Domestic/Unskilled			1.38** (1.15-1.65)	1.42*** (1.18-1.7)	1.28* (1.06-1.55)
Professional/ Technical/ Services/ Sale			1.00	1.00	1.00
Husband's Desire For Children			p<0.001	p<0.001	p<0.001
Both want same			1.00	1.00	1.00
Husband wants more			1.86*** (1.52-2.27)	1.77*** (1.45-2.17)	1.71*** (1.39-2.1)
Husband wants fewer			0.99 (0.68-1.44)	0.94 (0.64-1.37)	0.87 (0.59-1.29)
Don't know			1.82*** (1.38-2.41)	1.73*** (1.31-2.3)	1.72*** (1.29-2.3)
Knowledge About Family Planning From Media				p=0.008	p=0.027
No				1.30** (1.07-1.58)	1.25* (1.03-1.52)
Yes				1.00	1.00

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Visited by LHW				p<0.001	p<0.001
LHW is not present or women don't know				1.70*** (1.38-2.09)	1.61*** (1.29-2)
LHW is present but not visited				1.36** (1.11-1.66)	1.34** (1.09-1.65)
LHW is present and visited				1.00	1.00
Consanguinity in Marriage				p=0.017	p=0.007
No relation				1.00	1.00
2nd degree and other				1.14 (0.9-1.46)	1.10 (0.86-1.41)
First cousin				0.83 (0.69-1.01)	0.79* (0.65-0.96)
Gender Equality Index				p=0.001	p=0.002
No				1.49*** (1.21-1.83)	1.46*** (1.18-1.81)
Low				1.16 (0.88-1.53)	1.14 (0.87-1.51)
Moderate				1.56** (1.17-2.09)	1.52*** (1.13-2.04)
High				1.00	1.00
Residence					p<0.001
Urban					1.00
Rural					1.43** (1.13-1.82)
Region					p<0.001
Punjab					1.00
Sindh					2.44*** (1.82-3.29)
Khyber Pakhtunkhwa					1.74* (1.12-2.71)
Balochistan					2.32** (1.37-3.93)

Continued.....

Table 4.6.4. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Spacing Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Wealth index					p=0.002
Poorest					2.19*** (1.44-3.34)
Poorer					1.71** (1.18-2.49)
Middle					1.28 (0.92-1.79)
Richer					1.15 (0.87-1.53)
Richest					1.00
Nagelkerke R Square	0.333	0.408	0.393	0.407	0.425
Cox & Snell R Square	0.210	0.258	0.265	0.275	0.287

Ref: Reference group; **Statistical significance:** * p < 0.05, ** p < 0.01, *** p < 0.001.

1- Others include: Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko Potowari, Marwari, Farsi and English.

Table 4.6.5. Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	p=0.017	p=0.079	p=0.019	p=0.013	p=0.010
15-19	1.00	1.00	1.00	1.00	1.00
20-24	2.60 (0.56-11.99)	2.72 (0.57-12.94)	2.43 (0.5-11.74)	2.70 (0.56-13.09)	2.70 (0.56-13.03)
25-29	4.70* (1.02-21.75)	4.17 (0.87-19.9)	3.71 (0.75-18.24)	4.24 (0.86-20.91)	4.22 (0.86-20.76)
30-34	4.47 (0.95-21.11)	3.60 (0.74-17.55)	3.42 (0.68-17.28)	3.89 (0.77-19.71)	3.79 (0.75-19.14)
35-39	5.27* (1.09-25.6)	4.14 (0.83-20.77)	4.36 (0.84-22.77)	5.03 (0.96-26.32)	4.94(0.95-25.84)
40-44	6.03* (1.21-30.03)	4.66 (0.90-24.00)	5.71* (1.06-30.83)	6.63* (1.22-35.92)	6.54*(1.21-35.43)
45-49	5.24* (1.04-26.32)	4.01 (0.77-20.84)	6.55* (1.19-36.04)	7.44* (1.35-41.1)	7.53*(1.36-41.59)
Education	p<0.001	p<0.001	p<0.001	p<0.001	p=0.017
None	2.10*** (1.59-2.77)	1.79*** (1.34-2.39)	1.52* (1.10-2.11)	1.43* (1.02-1.99)	1.27 (0.89-1.8)
Primary	1.18 (0.86-1.6)	1.03 (0.75-1.4)	0.91 (0.64-1.28)	0.90 (0.63-1.27)	0.89 (0.62-1.28)
Secondary	1.25 (0.94-1.68)	1.13 (0.84-1.52)	1.04 (0.76-1.43)	1.03 (0.75-1.42)	1.04 (0.76-1.44)
Higher	1.00	1.00	1.00	1.00	1.00

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Mother tongue	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
Urdu	1.00	1.00	1.00	1.00	1.00
Punjabi	0.96 (0.75-1.22)	0.92 (0.72-1.18)	1.04 (0.8-1.35)	1.12 (0.86-1.46)	1.33 (1.00-1.77)
Sindhi	1.74** (1.27-2.37)	1.79*** (1.3-2.45)	2.84*** (1.98-4.08)	2.87*** (1.99-4.15)	1.92** (1.29-2.86)
Pushto	1.86*** (1.41-2.45)	1.77*** (1.33-2.33)	1.28 (0.95-1.72)	1.27 (0.93-1.72)	1.16 (0.77-1.75)
Balochi	1.51* (1.01-2.25)	1.58* (1.05-2.37)	2.09** (1.33-3.31)	2.31*** (1.45-3.7)	1.81* (1.11-2.96)
Barauhi	3.64*** (2.12-6.25)	3.68*** (2.13-6.39)	4.10*** (2.15-7.8)	3.77*** (1.96-7.26)	3.43** (1.57-7.48)
Siraiki	1.17 (0.88-1.54)	1.16 (0.88-1.54)	1.12 (0.83-1.51)	1.17 (0.86-1.59)	1.11 (0.8-1.53)
Hindko	2.61*** (1.80-3.8)	2.44*** (1.67-3.58)	2.13*** (1.42-3.21)	2.12*** (1.41-3.2)	1.93** (1.20-3.101)
Others ¹	0.87 (0.61-1.26)	0.87 (0.60-1.25)	0.87 (0.59-1.29)	0.89 (0.6-1.31)	0.79 (0.52-1.18)
Employment	p=0.001	p=0.002	p=0.004	p=0.01	p=0.070
Unemployed	1.42** (1.15-1.76)	1.42** (1.14-1.76)	1.32* (1.05-1.67)	1.26 (1.00-1.60)	1.28* (1.01-1.62)
Agricultural/ Domestic/Unskilled	1.55*** (1.22-1.98)	1.55*** (1.21-1.98)	1.58** (1.21-2.08)	1.52** (1.16-2.01)	1.38* (1.04-1.83)
Professional/ Technical/ Services/ Sale	1.00	1.00	1.00	1.00	1.00
Age at marriage	p=0.098	p=0.187	p=0.189	p=0.148	p=0.188
15 and less	1.00 (0.75-1.35)	0.89 (0.66-1.2)	1.24 (0.89-1.72)	1.19 (0.85-1.66)	1.15 (0.82-1.61)
16-17	1.26 (0.97-1.63)	1.12 (0.86-1.47)	1.40* (1.05-1.87)	1.40* (1.05-1.87)	1.37* (1.02-1.83)
18-19	1.05 (0.82-1.35)	1.00 (0.78-1.28)	1.21 (0.93-1.58)	1.20 (0.92-1.56)	1.20 (0.92-1.57)
20-21	1.06 (0.83-1.34)	1.02 (0.80-1.29)	1.15 (0.89-1.48)	1.13 (0.88-1.46)	1.14 (0.88-1.47)
22 and more	1.00	1.00	1.00	1.00	1.00

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Duration of marriage	p<0.001	p=0.008	p=0.036	p=0.029	p=0.032
Less than 5	1.00	1.00	1.00	1.00	1.00
5-9	2.49 *** (1.66-3.73)	1.80 ** (1.17-2.76)	1.62* (1.05-2.51)	1.64* (1.06-2.54)	1.65* (1.06-2.55)
10-14	3.17 *** (2.02-4.98)	1.92 ** (1.18-3.12)	1.68* (1.02-2.77)	1.70* (1.03-2.82)	1.65* (1.01-2.74)
15-19	2.52 ** (1.49-4.24)	1.47 (0.84-2.56)	1.31 (0.74-2.35)	1.32 (0.73-2.36)	1.30 (0.72-2.33)
20 and more	2.67 ** (1.46-4.89)	1.53 (0.81-2.89)	1.53 (0.78-2.97)	1.53 (0.78-2.99)	1.55 (0.79-3.05)
Actual-Ideal Gap		p<0.001	p<0.001	p<0.001	p<0.001
ideal=actual		1.00	1.00	1.00	1.00
ideal>actual		0.61 *** (0.51-0.74)	0.60*** (0.49-0.74)	0.60 (0.49-0.73)	0.59 (0.48-0.72)
ideal<actual		0.90 (0.76-1.06)	0.84 (0.7-1.01)	0.85 (0.71-1.03)	0.87 (0.73-1.05)
non numeric response		1.09 (0.8-1.5)	0.91 (0.64-1.29)	0.93 (0.65-1.33)	0.96 (0.67-1.38)
Number of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
No child		1.74 (0.54-5.69)	1.76 (0.52-5.98)	1.84 (0.54-6.26)	2.03 (0.60-6.84)
1-2		0.51 *** (0.38-0.71)	0.53*** (0.38-0.73)	0.52*** (0.38-0.73)	0.53*** (0.38-0.74)
3-4		0.83* (0.70-0.99)	0.92 (0.76-1.11)	0.91 (0.75-1.1)	0.93 (0.76-1.13)
5 and more		1.00	1.00	1.00	1.00
Sex of Living Children		p=0.392	p=0.228	p=0.292	p=0.241
Equal number of both sex		0.96 (0.81-1.15)	0.86 (0.71-1.04)	0.87 (0.72-1.05)	0.86 (0.71-1.04)
More son		1.00	1.00	1.00	1.00
More daughter		1.09 (0.94-1.25)	1.01 (0.87-1.18)	1.02 (0.87-1.19)	1.02 (0.87-1.19)

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Deceased Children		p=0.935	p=0.481	p=0.534	p=0.417
None		1.00	1.00	1.00	
Yes		1.01 (0.87-1.16)	0.95 (0.81-1.11)	0.95 (0.81-1.11)	0.94 (0.80-1.10)
Abortion History		p=0.148	p=0.662	p=0.568	p=0.427
None		1.00	1.00	1.00	1.00
Yes		1.10 (0.97-1.25)	1.03 (0.9-1.19)	1.04 (0.91-1.2)	1.06 (0.92-1.22)
Knowledge of Ovulatory Cycle		p=0.006	p=0.002	p=0.005	p=0.006
Correct answer		1.00	1.00	1.00	1.00
Wrong answer		1.50* (1.05-2.14)	1.61* (1.11-2.33)	1.62* (1.12-2.36)	1.59* (1.09-2.3)
Don't know		1.77** (1.21-2.59)	1.95** (1.31-2.9)	1.91** (1.28-2.84)	1.88** (1.26-2.81)
Age of Husband			p=0.007	p=0.006	p=0.006
lowest through 24			1.00	1.00	1.00
25-29			1.07 (0.54-2.15)	1.07 (0.54-2.15)	1.05 (0.52-2.11)
30-34			1.27 (0.64-2.5)	1.27 (0.64-2.51)	1.25 (0.63-2.48)
35-39			1.94 (0.98-3.85)	1.97 (0.99-3.90)	1.94 (0.98-3.87)
40-44			1.59 (0.79-3.19)	1.61 (0.8-3.23)	1.63 (0.81-3.28)
45-49			1.65 (0.81-3.35)	1.64 (0.81-3.33)	1.61 (0.79-3.28)
50 and more			1.73 (0.84-3.56)	1.72 (0.84-3.55)	1.73 (0.84-3.58)

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Education of Husband			p=0.050	p=0.112	p=0.252
None			1.41 ** (1.11-1.8)	1.36* (1.06-1.73)	1.22 (0.95-1.58)
Primary			1.28 (0.98-1.67)	1.26 (0.96-1.65)	1.26 (0.95-1.66)
Secondary			1.22 (0.98-1.52)	1.22 (0.97-1.52)	1.26 (1.00-1.57)
Higher			1.00	1.00	1.00
Husband Occupation			p=0.050	p=0.126	
Unemployed			1.21 (0.75-1.94)	1.17 (0.73-1.89)	1.12 (0.69-1.8)
Agricultural/ Domestic/Unskilled			1.16 (1.00-1.36)	1.18* (1.01-1.37)	1.08 (0.92-1.26)
Professional/ Technical/ Services/ Sale			1.00	1.00	1.00
Husband's Desire For Children			p<0.001	p=0.001	p=0.004
Both want same			1.00	1.00	1.00
Husband wants more			1.40*** (1.19-1.65)	1.37*** (1.16-1.61)	1.32** (1.12-1.56)
Husband wants fewer			1.30 (0.95-1.78)	1.25 (0.91-1.71)	1.19 (0.87-1.64)
Don't know			1.44** (1.12-1.85)	1.37* (1.07-1.76)	1.33*(1.03-1.72)
Knowledge About Family Planning From Media				p=0.003	p=0.029
No				1.28 ** (1.09-1.51)	1.20* (1.02-1.42)
Yes				1.00	1.00

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Visited by LHW				p<0.001	p<0.001
LHW is not present or women don't know				1.35** (1.12-1.61)	1.35** (1.11-1.62)
LHW is present but not visited				1.37*** (1.16-1.61)	1.41*** (1.19-1.67)
LHW is present and visited				1.00	1.00
Consanguinity in Marriage				p=0.313	p=0.174
No relation				1.00	1.00
2nd degree and other				1.14 (0.93-1.39)	1.14 (0.93-1.4)
First cousin				0.98 (0.84-1.15)	0.95 (0.81-1.12)
Gender Equality Index				p=0.300	p=0.499
No				1.13 (0.96-1.35)	1.09 (0.92-1.3)
Low				1.08 (0.86-1.35)	1.07 (0.86-1.35)
Moderate				0.92 (0.74-1.15)	0.92 (0.74-1.15)
High				1.00	1.00
Residence					p=0.039
Urban					1.00
Rural					1.24* (1.01-1.51)
Region					p<0.001
Punjab					1.00
Sindh					1.61*** (1.25-2.07)
Khyber Pakhtunkhwa					1.25 (0.87-1.8)
Balochistan					0.96 (0.57-1.65)

Continued.....

Table 4.6.5. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics On Unmet Need For Limiting Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Wealth index					p<0.001
Poorest					2.01 *** (1.41-2.88)
Poorer					1.39* (1.01-1.91)
Middle					0.97 (0.73-1.29)
Richer					1.07 (0.84-1.36)
Richest					1.00
Nagelkerke R Square	0.110	0.130	0.218	0.225	0.240
Cox & Snell R Square	0.073	0.087	0.153	0.159	0.169

Ref: Reference group; **Statistical significance:** * p < 0.05, ** p < 0.01, *** p < 0.001.

1- Others include: Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko Potowari, Marwari, Farsi and English.

Table 4.6.6. Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) For Family Planning Among Currently Married Women Age 15-49 (Pakistan, PDHS; 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	P=0.129	P=0.225	P=0.231	P=0.159	p=0.103
15-19	2.21* (1.21-4.05)	1.39 (0.73-2.63)	0.50 (0.24-1.02)	0.45* (0.22-0.93)	0.42* (0.2-0.87)
20-24	1.64* (1.04-2.59)	1.58 (0.99-2.52)	0.65 (0.38-1.12)	0.64 (0.37-1.1)	0.62 (0.36-1.08)
25-29	1.51* (1.04-2.19)	1.44 (0.98-2.11)	0.68 (0.43-1.06)	0.67 (0.43-1.06)	0.66 (0.42-1.05)
30-34	1.23 (0.90-1.67)	1.18 (0.86-1.62)	0.64* (0.44-0.94)	0.63* (0.43-0.93)	0.62* (0.42-0.91)
35-39	1.13 (0.89-1.43)	1.11 (0.87-1.41)	0.70* (0.52-0.95)	0.71* (0.52-0.96)	0.69* (0.51-0.94)
40-44	1.17 (0.94-1.46)	1.19 (0.96-1.49)	0.86 (0.66-1.13)	0.88 (0.67-1.15)	0.86 (0.66-1.13)
45-49	1.00	1.00	1.00	1.00	1.00
Education	p<0.001	p<0.001	p<0.001	p<0.001	P=0.077
None	2.18*** (1.77-2.69)	2.00*** (1.61-2.49)	1.65 *** (1.29-2.11)	1.53** (1.19-1.97)	1.25 (0.96-1.63)
Primary	1.35** (1.08-1.70)	1.30* (1.03-1.64)	1.13 (0.87-1.45)	1.08 (0.83-1.40)	1.02 (0.78-1.34)
Secondary	1.23 (0.99-1.54)	1.17 (0.94-1.47)	1.08 (0.85-1.36)	1.04 (0.82-1.32)	1.05 (0.82-1.33)
Higher	1.00	1.00	1.00	1.00	

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) for Family Planning among Currently Married Women Age 15-49 (Pakistan, PDHS; 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Mother tongue	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
Urdu	1.00	1.00		1.00	1.00
Punjabi	1.25* (1.03-1.53)	1.23* (1.00-1.50)	1.36 ** (1.10-1.67)	1.48 *** (1.20-1.83)	1.83 *** (1.45-2.32)
Sindhi	2.74*** (2.12-3.55)	2.65 *** (2.04-3.44)	3.98 *** (2.96-5.35)	4.02 *** (2.97-5.43)	2.47 *** (1.79-3.40)
Pushto	2.10 *** (1.64-2.65)	1.94 *** (1.53-2.45)	1.48 ** (1.16-1.89)	1.43 ** (1.12-1.84)	1.22 (0.87-1.72)
Balochi	2.62 *** (1.92-3.59)	2.42 *** (1.76-3.34)	2.52 *** (1.77-3.59)	2.69 *** (1.88-3.86)	1.96 ** (1.34-2.86)
Barauhi	7.09 *** (4.49-11.19)	6.00 *** (3.78-9.53)	6.47 *** (3.77-11.08)	5.54 *** (3.21-9.57)	3.77 *** (2.01-7.05)
Siraiki	1.46 ** (1.16-1.84)	1.44 ** (1.14-1.81)	1.40 ** (1.10-1.79)	1.51 ** (1.18-1.93)	1.38* (1.06-1.8)
Hindko	2.40 *** (1.73-3.34)	2.22 *** (1.58-3.12)	2.01 *** (1.41-2.85)	1.95 *** (1.37-2.78)	1.70* (1.13-2.55)
Others ¹	1.47 ** (1.10-1.95)	1.40 * (1.05-1.87)	1.43* (1.05-1.93)	1.44* (1.06-1.95)	1.25 (0.91-1.72)
Employment	p<0.001	p<0.001	P=0.023	P=0.115	p=0.026
Unemployed	1.39 *** (1.17-1.65)	1.41 *** (1.18-1.67)	1.29 ** (1.07-1.56)	1.22* (1.01-1.47)	1.24* (1.02-1.5)
Agricultural/ Domestic/Unskilled	1.22 (0.99-1.49)	1.22 (0.99-1.50)	1.19 (0.94-1.49)	1.13 (0.90-1.42)	1.03 (0.82-1.31)
Professional/ Technical/ Services/ Sale	1.00	1.00	1.00	1.00	1.00
Age at marriage	p=0.056	P=0.101	P=0.157	P=0.123	p=0.130
15 and less	0.86 (0.67-1.11)	0.90 (0.69-1.17)	1.13 (0.86-1.50)	1.11 (0.84-1.48)	1.07 (0.81-1.42)
16-17	1.07 (0.86-1.34)	1.10 (0.88-1.38)	1.26 (0.99-1.60)	1.27 (1.00-1.62)	1.23 (0.96-1.56)
18-19	1.08 (0.88-1.32)	1.10 (0.90-1.35)	1.26 (1.02-1.56)	1.26* (1.01-1.56)	1.25* (1.01-1.56)
20-21	1.01 (0.83-1.22)	1.03 (0.85-1.26)	1.11 (0.91-1.37)	1.12 (0.91-1.38)	1.12 (0.91-1.38)
22 and more	1.00	1.00	1.00	1.00	1.00

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) for Family Planning among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I	Model II	Model III	Model IV	Model V
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Duration of Marriage	p=0.003	P=0.042	P=0.265	P=0.278	p=0.248
Less than 5	1.83 ** (1.18-2.83)	1.75 * (1.11-2.78)	1.29 (0.79-2.12)	1.25 (0.76-2.06)	1.25 (0.75-2.06)
5-9	1.39 (0.97-1.99)	1.52 * (1.05-2.21)	1.14 (0.77-1.71)	1.13 (0.75-1.69)	1.12 (0.74-1.68)
10-14	1.21 (0.91-1.60)	1.34 * (1.00-1.80)	1.10 (0.80-1.51)	1.11 (0.81-1.53)	1.06 (0.77-1.46)
15-19	0.94 (0.76-1.17)	1.01 (0.82-1.26)	0.90 (0.71-1.14)	0.90 (0.71-1.14)	0.87 (0.68-1.1)
20 and more	1.00	1.00	1.00	1.00	1.00
Actual-Ideal Gap		p<0.001	p<0.001	p<0.001	p=0.002
ideal=actual		1.00	1.00	1.00	1.00
ideal>actual		1.29 ** (1.12-1.50)	1.29 ** (1.10-1.50)	1.28 ** (1.09-1.50)	1.24 ** (1.06-1.46)
ideal<actual		1.00 (0.85-1.16)	0.93 (0.78-1.10)	0.95 (0.80-1.13)	0.99 (0.83-1.17)
non numeric response		1.72 *** (1.31-2.26)	1.47* (1.09-2.00)	1.48* (1.09-2.01)	1.56 ** (1.14-2.13)
Number of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
No child		5.24 *** (2.79-9.84)	5.0 *** (2.61-9.56)	4.87 *** (2.53-9.36)	5.76 *** (2.98-11.14)
1-2		0.83 (0.66-1.06)	0.84 (0.65-1.08)	0.84 (0.65-1.09)	0.86 (0.66-1.11)
3-4		0.86 (0.74-1.01)	0.93 (0.78-1.11)	0.93 (0.78-1.11)	0.96 (0.81-1.15)
5 and more		1.00	1.00	1.00	1.00
Sex of Living Children		p<0.001	p<0.001	p<0.001	p<0.001
Equal Number Of Both Sex		0.93 (0.81-1.08)	0.86 (0.73-1.00)	0.88 (0.75-1.02)	0.88 (0.75-1.03)
More Son		1.00	1.00	1.00	1.00
More Daughter		1.37 *** (1.22-1.53)	1.32 *** (1.16-1.49)	1.32 (1.16-1.49)	1.32 *** (1.16-1.49)

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Characteristics on Unmet Need (Total) for Family Planning among Currently Married Women Age 15-49 (Pakistan, PDHS; 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Deceased Children		P=0.840	P=0.679	p=0.721	p=0.651
None		1.00	1.00	1.00	
Yes		0.99 (0.87-1.12)	0.97 (0.85-1.11)	0.98 (0.85-1.12)	0.97 (0.84-1.11)
Deceased Children		P=0.840	P=0.679	p=0.721	p=0.651
None		1.00	1.00	1.00	
Yes		0.99 (0.87-1.12)	0.97 (0.85-1.11)	0.98 (0.85-1.12)	0.97 (0.84-1.11)
Abortion History		P=0.149	P=0.416	P=0.368	p=0.208
Non		1.00	1.00	1.00	1.00
Yes		1.08 (0.97-1.21)	1.05 (0.93-1.18)	1.06 (0.94-1.19)	1.08 (0.96-1.22)
Knowledge of Ovulatory Cycle		p<0.001	p<0.001	p<0.001	p<0.001
Correct answer		1.00	1.00	1.00	1.00
Wrong answer		1.41* (1.07-1.86)	1.48** (1.11-1.97)	1.49** (1.12-2.00)	1.45* (1.09-1.95)
Don't know		1.78*** (1.32-2.39)	1.88*** (1.38-2.56)	1.85*** (1.36-2.52)	1.82*** (1.33-2.48)
Age of Husband			P=0.210	P=0.240	p=0.332
lowest through 24			1.60* (1.08-2.38)	1.60* (1.07-2.39)	1.56* (1.04-2.34)
25-29			1.26 (0.90-1.75)	1.26 (0.9-1.75)	1.21 (0.86-1.69)
30-34			1.11 (0.83-1.49)	1.12 (0.83-1.51)	1.09 (0.81-1.48)
35-39			1.16 (0.88-1.53)	1.19 (0.90-1.57)	1.15 (0.87-1.52)
40-44			1.01 (0.79-1.30)	1.03 (0.80-1.33)	1.04 (0.81-1.35)
45-49			1.00 (0.79-1.27)	1.00 (0.79-1.27)	0.99 (0.77-1.25)
50 and more			1.00	1.00	1.00

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) for Family Planning among Currently Married Women Age 15-49 (Pakistan, PDHS; 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Education of Husband			P=0.156	P=0.310	p=0.613
None			1.24* (1.02-1.51)	1.2 (0.99-1.47)	1.06 (0.86-1.31)
Primary			1.10 (0.90-1.36)	1.09 (0.88-1.35)	1.07 (0.86-1.33)
Secondary			1.12 (0.94-1.33)	1.12 (0.94-1.34)	1.12 (0.94-1.34)
Higher			1.00	1.00	1.00
Husband Occupation			p=0.004	p=0.002	p=0.106
Unemployed			1.24 (0.83-1.84)	1.23 (0.82-1.83)	1.17 (0.78-1.76)
Agricultural/ Domestic/Unskilled			1.23 ** (1.09-1.39)	1.25 *** (1.11-1.42)	1.15* (1.01-1.3)
Professional/ Technical/ Services/ Sale			1.00	1.00	1.00
Husband's Desire For Children			p<0.001	p<0.001	p<0.001
Both want same			1.00	1.00	1.00
Husband wants more			1.45 *** (1.27-1.66)	1.40 *** (1.23-1.61)	1.35 *** (1.18-1.55)
Husband wants fewer			1.14 (0.89-1.47)	1.09 (0.84-1.41)	1.03 (0.79-1.34)
Don't know			1.57 *** (1.29-1.91)	1.50 *** (1.22-1.83)	1.46 *** (1.19-1.79)
Knowledge About Family Planning From Media				p<0.001	p=0.005
No				1.27 *** (1.12-1.45)	1.21 (1.06-1.38)
Yes				1.00	1.00

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) for Family Planning Among Currently Married Women Age 15-49 (Pakistan, DHS 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Visited by LHW				p<0.001	p<0.001
LHW is not present or women don't know				1.45 *** (1.26-1.67)	1.44 *** (1.24-1.67)
LHW is present but not visited				1.37 *** (1.20-1.57)	1.42 *** (1.24-1.62)
LHW is present and visited				1.00	1.00
Consanguinity in Marriage				P=0.70	p=0.017
No relation				1.00	1.00
2nd degree and other				1.12 (0.95-1.32)	1.12 (0.95-1.32)
First cousin				0.93 (0.82-1.06)	0.89 (0.79-1.02)
Gender Equality Index				P=0.006	p=0.022
No				1.28 *** (1.12-1.47)	1.25 ** (1.09-1.44)
Low				1.10 (0.92-1.32)	1.09 (0.91-1.32)
Moderate				1.09 (0.91-1.31)	1.08 (0.9-1.31)
high				1.00	1.00
Residence					p<0.001
Urban					1.00
Rural					1.34 *** (1.14-1.57)
Region					p<0.001
Punjab					1.00
Sindh					1.86 *** (1.52-2.28)
Khyber Pakhtunkhwa					1.35* (1.01-1.82)
Balochistan					1.39 (0.94-2.06)

Continued.....

Table 4.6.6. (Continued) Regression Analysis Results Assessing the Affect of Individual, Spousal, Community and Household Level Characteristics on Unmet Need (Total) for Family Planning among Currently Married Women Age 15-49 (Pakistan, DHS; 2012-13).

Characteristics	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95% CI)	Model IV OR (95% CI)	Model V OR (95% CI)
Wealth index					p<0.001
Poorest					2.1 *** (1.57-2.8)
Poorer					1.56 ** (1.22-2.01)
Middle					1.10 (0.88-1.38)
Richer					1.10 (0.91-1.33)
Richest					1.00
Nagelkerke R Square	0.107	0.132	0.150	0.163	0.185
Cox & Snell R Square	0.078	0.096	0.112	0.121	0.138

Ref: Reference group; **Statistical significance:** * p < 0.05, ** p < 0.01, *** p < 0.001.

1- Others include: Kashmiri, Shina, Brushaski, Wakhi, Chitrali, Khwar, Balti, Pahari, Hindko Potowari, Marwari, Farsi and English

5. DYNAMICS OF CONTRACEPTIVE USE

In demographic literature, the study of contraceptive use dynamics usually encompasses the following topics: contraceptive discontinuation, contraceptive switching behavior, and contraceptive failure (312). The study of dynamics of contraceptive use becomes essential when utilization of family planning rise among women in a population. In such a scenario, rather than contraceptive prevalence rate and proportion of unmet need for family planning, the contraceptive discontinuation rates and failure rates become more crucial indicator for monitoring the progress of the family planning program. Conforming to this, in recent years contraceptive discontinuation rate as well as contraceptive method switching rate are included in the core indicator list of FP2020 (313).

The first nationally representative data by which contraceptive discontinuation, contraceptive switching behavior and contraceptive failure can be estimated in Pakistan was collected with the advantage of calendar section of the women's questionnaire in the Demographic and Health Survey of the year 2012-13. Descriptive results were provided in the DHS country report (84), however further analysis of contraceptive use dynamics was limited till this analysis.

5.1. Conceptual Model of Dynamics of Contraceptive Use

Conceptual model of the dynamics of contraceptive use over reproductive life of women is delineated in Figure 5.1. This model pre-suppose three fundamental events in the contraceptive use status of a specific method of family planning user, which are 'getting pregnant while using the method', 'switching to another method' (more effective or less effective) and 'abandoning the use at all' (314). Among those who became pregnant while using the method (failure of contraception), two possible consequences are abortion (spontaneous or induce) or unintended birth (unwanted or mistimed).

Among those who abandoned the use of a method, the model assumes three possible outcomes. The first is that 'a user abandons contraception because she wants to get pregnant'; hence, she is 'not in need' to use any method. The second

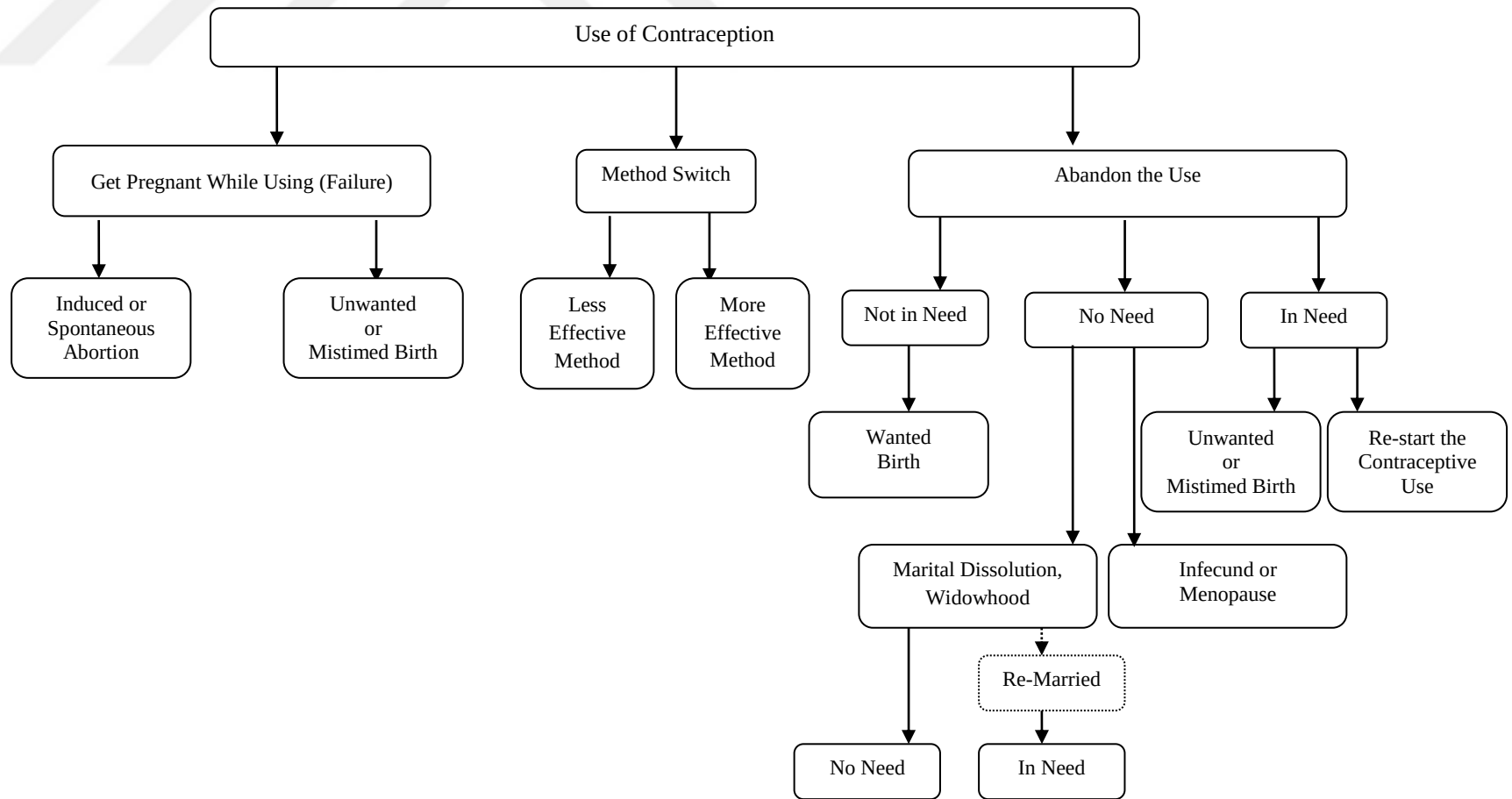
alternative is ‘she has ‘no need’ at all because she is not exposed to the risk of pregnancy’ (such as infrequent sex, marital dissolution, widowhood, infecund or menopause). The third possible outcome is ‘a user abandons contraception for reasons that leave her at risk of conception and indeed ‘in need’ for the family planning’.

Following abandonment of contraception, woman who abandoned the use and remained at risk of conception i.e. ‘in need’ for family planning; it is possible that she might become pregnant with an unwanted or mistimed labor. As an alternative, it is also possible that a woman who is ‘in need’ of family planning after abandonment may re-start the use of contraception once again.

A woman who is ‘not in need’ or having ‘no need’ of contraception may also subsequently re-start contraceptive use, but presumably she has to become at risk of conception before she restart the use. Accordingly, the transition from ‘not in need’ as well as ‘no need’ state to re-use operates through an ‘in need’ state in which she is at the risk of unintended or mistimed pregnancy.

Since, the DHS calendar data is retrospective in nature, limited information about the whole spectrum of above stated model is available. Accordingly, in the present analysis only the transitions from contraceptive use to ‘failure’, ‘switch to another method’ and ‘abandonment of contraceptive use’ are explored.

Figure 5.1. Conceptual Model of Contraceptive Use Dynamics



5.2. Data and Methods of Analysis

5.2.1 Data.

The analysis of dynamics of contraceptive use is based on data that was collected in the calendar section of ever married women questionnaire in the Pakistan Demographic and Health Survey 2012-13.

The DHS Contraceptive calendar (Appendix 1) is a matrix of 72 rows and 2 columns to collect month by month history of key reproductive and contraceptive use events in the life of respondent five years prior to the survey. Each row represents one month of time and the first row represents January of the fifth calendar year before the survey, i.e. January 2007 for the PDHS conducted in 2012 (including two overlapping years). The first column is used to record information on births, pregnancies, terminations as well as contraceptive use, while the second column is applied for reasons for discontinuation of contraceptive use corresponding to the last month of continuous use (315).

The unit of analysis is an *episode of contraceptive use* (also referred as ‘segment of use’), and in this analysis it is defined as ‘an uninterrupted period of contraceptive method used by an individual as reported in the calendar’. Conversely, an uninterrupted period in which women is neither pregnant, nor using a contraceptive method’ is referred as *segment of nonuse*.

It is noteworthy to specify that the contraceptive practice recorded in DHS calendar is dynamic in nature; a woman may move from being a user of one method at one point in time to being a user of a different method at a different point in time, or otherwise, being a non-user at one point in time, followed by being a user again in due course. Moreover, an individual woman may be user of different methods or even the same method at different points in time and this switching of method initiates a new segment of use.

Hence, a crucial feature of the study sample is that an individual woman may contribute more than one segment-of-use to the present analysis (for example if a woman has used two different methods in the five years preceding the survey, she is considered as two women using different methods; likewise, a women who has use

the same method twice in different periods of time during the five years preceding the survey, she is also considered as two different women using the same method).

It is also important to note that only those contraceptive segments-of-use which began in the period of 3 to 62 months before the survey date are included in the life table analysis. Segments within the three months immediately before the survey are excluded due to underreporting of first trimester pregnancies at the time of the survey, and preventing the bias in the estimates of contraceptive failure rates. Furthermore, segments which had started 62 months prior to the survey (before the beginning of the calendar period) are also excluded from the analysis because the duration of use cannot be determined for such cases.

5.2.2. Statistical Methodology

The present analysis about the contraceptive use dynamics in Pakistan is based on “The Model Further Analysis Plan” (312) developed for this purpose by Macro International Inc (Presently ICF international).

As mentioned earlier, the unit of analysis is an episode of contraceptive use but many women were still using a method at the end of observation period (three months prior the survey date), the full duration of these particular segment-of-use are unknown. Therefore, such segments-of-use are treated as *censored observation*- an observation for which the event of interest i.e. contraceptive discontinuation has not occurred by the end of observation period. These censored observations are not dropped from the analysis since this would bias the results.

Statistical analysis is done as per ‘survival analysis’ approach and the ‘life table’ methodology was used for estimating discontinuation, method switching and failure rates.

‘Life table’ is one of the appropriate statistical methodology for analyzing data that contains time to the ‘event’ (discontinuing a method, switching to other method, contraceptive failure) and ‘censored’ observations (316). In this analysis, life tables are basically used to study the transition from one event to another (in contraceptive use dynamics, the transition is abbreviated for the initiating use of a particular method of contraception to discontinuing its use, or switching to another

method, or contraceptive failure), while allowing the information from censored segments-of-use to be included in the analysis.

The basic idea of the life table analyses as applied to contraceptive use dynamics is based on event history models (316). In this model, the duration of contraceptive use is broken down into monthly intervals with assumption that the risk of discontinuation is constant within each month interval so that it takes the form of a step function. The number of discontinuation and the number of women-month of exposed (segments-month of exposed) are tabulated for each interval, and probability of discontinuation, reason for discontinuation and failure at each duration are calculated.

There are several types of life table techniques utilized in epidemiological and demographical analysis; however for the study of contraceptive use dynamics here three types of life table techniques are employed.

1- Single-decrement life table to study only one form of exit from the life table, for example, discontinuation of a particular method of contraception among users of that method. The total discontinuation rates and method specific discontinuation rates are calculated by Single-decrement life table technique.

2-Multiple- decrement life table (MDLT) to study several forms of competing exits from the life table, for example, reason specific discontinuation in the presence of other competing reasons for discontinuation, or status of women after abandonment of contraception. The MDLT is used to generate the reason specific discontinuation rates as well as for studying the contraceptive switching behavior.

3-Associated Single-decrement life table (ASDLT) to study only one of the several exits along with eliminating the influences of other competing exits from the life table, for example, discontinuation by virtue of being pregnant while using the method. This procedure is used to calculate contraceptive failure rates.

For the analysis of contraceptive use dynamics, a special package of Statistical Program for Social Sciences (SPSS) known as CAL2SPSS; developed by

ICF International (312) for analysis of calendar data was used. Separate set of life tables were constructed for different methods and for different subgroups of analysis.

The 12- and 24-month discontinuation rates, method switching rates as well as failure rates are obtained by subtracting the proportion of still using contraception at the end of 11 and 23 month from 1 respectively.

Further details regarding the methodology use for constructing the life tables and the summary measures that are obtained from them are presented in specific sections related to contraceptive use dynamics analysis.

5.2.3. Construction and Definition of Variables

The SPSS calendar data also known as '*Event File*' that contains all segment-of-use was extracted from PDHS 2012-13 '*Individual Record*' data file. To create final SPSS file for the analysis, selected background variables were also extracted from the '*Individual Record*' data file and merged with the calendar data '*Event File*'. The details of variables used in the analysis are described below.

- The *variables* selected for analysis from each segment includes method of contraception, reason for discontinuation, status in the month after the segment-of-use and the duration of use.
- The *methods of contraception* were categorized as follows: Pill, IUD, injectables, female sterilization, male sterilization, condom, withdrawal, other reversible modern methods (episodes of use of implants, lactational amenorrhea and standard day method are combined because there were few users of these methods) other traditional methods (includes periodic abstinence and folkloric methods).
- The *reasons for discontinuation* were categorized into five groups as 'failure' (defined as became pregnant while using), 'to get pregnant', 'side effect', 'other method related reasons' (include episodes that were discontinued because partner disapproval, health concerns, availability issues, wanting a more effective method, inconvenience to use, and cost) and 'other reasons'

(refers to episodes that were followed in the next month by infrequent sex, separated/widowed, fatalistic, don't know, sub-fecund, and other).

- The family planning *status in the month after the segment of use* was categorized into three groups as: 'No need' (i.e. no longer needs of family planning because woman was not at risk of conception. Moreover the definition of 'no need' is based on one of the following reasons for discontinuation: method failure, desire to get pregnant, infrequent sex, marital dissolution/widowhood, infecund or menopause); 'Method switch' (defined as episode of discontinuation that was followed in the next month by use of a different method of contraception), and 'Abandoned' (women who discontinue for the reasons other than those listed above and not switch to another method are considered as 'abandoned'. It also includes users who became pregnant followed by episode of discontinuation).
- The *duration of use* is measured in month.
- The *censored observation* is an observation for which the event of interest i.e. contraceptive discontinuation has not occurred by the end of observation period.
- The *background variables* were selected on the basis of their association with the dynamics of contraceptive use found in the prior studies from other countries (314,317-331). The selected background variables and their corresponding categories are as follows.
 1. Region: Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan.
 2. Residence: urban and rural.
 - 3: Respondent's education: none, primary, secondary, higher.
 4. Husband's education: none, primary, secondary, higher.
 5. Age: 15-24, 25-34, 35-49.
 6. Parity: 0-1 children, 2-3 children, 4 or more children.

The major issue in the choice of background variables was that the segment-of-use covers five years period prior to the survey, but many background variables were measures at the time of survey. Therefore, the current state of the variable may not be relevant to an earlier segment of contraceptive use. The first four variables were measured at the time of survey in 2012-13. These variables were not expected to have changed in the five year period prior to the survey (although interregional migration and urbanization may have had occurred for some women but it was ignored). The last two variables overcome this problem and are adjusted so that they reflect the situation at the start of the segment of use.

5.2.4. Background Theory and Analytic Details of Contraceptive Discontinuation Rates

The contraceptive discontinuation rate is the fundamental component of dynamics of contraceptive use study. Additionally, it is an important quantitative metric to observe the success of family planning program. Studies from developing countries suggest that contraceptive discontinuation accounts for substantially higher fertility rate, unwanted pregnancies, and induced abortions in studied population (320,329).

The contraceptive discontinuation is defined as “ceasing to use one’s current method of family planning”. In this analysis, ‘single-decrement life table approach’ was used to estimate the probability of discontinuation for the periods of 12 months as well as 24 months. These life table estimates are known as ‘*12- and 24-months discontinuation rates*’ respectively. Furthermore, these duration specific discontinuation rates are defined as ‘the percentage of contraceptive users who discontinue use of their method for any reason within a given time following the initiation of use (within 12 months and 24 months)’.

Another summary measure that is obtained from life table is the ‘*median duration of use*’; it is explained as ‘the duration of use at which half of all users of a particular method have discontinued use’. Life table median is differing from ordinary median in the sense that it hold for the censored observation too. Along with discontinuation rates, this measure helps to identify the sustainability of the use of particular method among users.

It is well documented that methods of family planning vary in their convenience, effectiveness, availability, as well as the side effect they can cause, consequently discontinuation rates are also expected to vary by the types of method. Accordingly, in this analysis, discontinuation of individual methods were also taken into account. Additionally, just as the use of contraceptive method was determined by the background characteristics of user (172-197,202-204), the characteristics of users also account for tendency to discontinue the method of contraception (314,317-331). Accordingly the differential in the discontinuation by background characteristics of users were also examined.

Furthermore, prior studies showed that the discontinuation rates by characteristics of users also intricate with the type of choice of the method (314,317-331). Therefore, differentials in discontinuation rates by background characteristics for some most commonly used methods in Pakistan (condom, withdrawal, IUD) were also examined in this thesis.

5.2.5. Background Theory and Analytic Detail of Contraceptive Discontinuation Rates by the Reason for Discontinuation

The analysis of total discontinuation rates provides an understanding about overall level of contraceptive discontinuation in study population. Moreover, a woman could discontinue a method for a variety of reasons, thus the study of variation between discontinuation reasons for contraceptive method mix can help to identify the argument in favor and disfavor of these methods, and also provides useful insight for contraceptive use dynamics in the population.

It is mentioned previously that the PDHS calendar part of the questionnaire had collected month by month history of women's reproduction and contraceptive use for five-year period (2007-2012) prior to survey. Additionally, in that calendar section the interviewer had asked some probing questions to determine the reason for discontinuing family planning at the end of each episode of contraceptive use, and these reasons were recorded corresponding to the month of cessation of use.

In general, women had multiple reasons for discontinuing the use of family planning method. However to keep adequate number of segments for analysis, the reasons for discontinuation were grouped into five mutually exclusive and exhaustive

categories: ‘contraceptive failure’, ‘to get pregnant’, ‘side effect’, ‘other method related reasons’ and ‘other reason’.

Analysis was done by multiple decrement life table technique, which is an extension of the single decrement life table methodology and originally used for statistical expressions of mortality by the causes of death. In present analysis, MDLT were employed for evaluation of the competing risk of discontinuations; for example, a user may discontinue the use due any of the specific reason in the presence of many other reasons of discontinuation. The framework of MDLT for the analysis of levels and pattern of reason specific contraceptive discontinuation was constructed with five modes of decrement corresponding to the previously mentioned five categories of reasons for discontinuation.

MDLT yields cumulative probability of reason specific discontinuation that is known as ‘*Net discontinuation rate*’. The net discontinuation rate is defined as “observed discontinuation rate for a particular reason in the presence of other competing reasons for discontinuation”. In the same line, the failure rate calculated by multiple decrement life tables was known as ‘*Net failure rate*’ (*it will be discussed in the next section*).

Importantly, this net discontinuation rate of each reason was affected by fluctuation in the discontinuation rate of the other competing reasons, and hence they were dependent on each other. Furthermore, the summation of all reason specific discontinuation rates at particular duration remained exactly same as overall discontinuation rate for that duration, calculated by the single decrement life table.

5.2.6. Background Theory and Analytic Detail of Contraceptive Method Switching Behavior

Information on contraceptive switching behavior identifies those women who abandon the use of family planning despite a need for contraception and thereby place themselves at the risk of an unwanted pregnancy. The contraceptive switching behavior is defined as ‘the contraceptive use status in the month immediately following the discontinuation’, and it is investigated in conjunction with the information regarding reason for discontinuation.

Yet, many women abandon the use of family planning as they have ‘no need’ of contraception at all (they are not at the risk of pregnancy). However, from family planning program perspective, it is essential to identify users who still had a need for contraception but abandon the use, consequently they become exposed to the risk of unwanted pregnancy. Accordingly, the contraceptive status of women in the month after the discontinuation is classified into three categories as ‘no need’, ‘method switch’ and ‘abandoned’.

The multiple-decrement life table (described in previous section) was used with three mode of decrement corresponding to no need, switch and abandoned. The 12-month cumulative switching rates were calculated by subtracting the proportion of still using contraception at the end of 11 month from 1.

5.2.7. Background Theory and Analytic Detail of Contraceptive Failure Rates

Contraceptive failure is a special form of discontinuation and is defined as “unintended pregnancy that results while using a method to prevent pregnancy”. Contraceptive failure may occur due to two reasons: *Method or Clinical failure* – i.e. “unintended pregnancy resulting solely from failure of the method when use perfectly and consistently”, and *Use failure* – i.e. “unintended pregnancy resulting from either failure of the method itself or from user error.” The former is more useful for clinical evaluation of contraceptive methods and the latter is more useful from a program perspective and is the type of failure that DHS surveys attempt to measure.

The difference between method-failure rates and use-failure rates tends to be wider for methods with large potential user error, for example withdrawal, but narrower for methods with low potential user error, for example IUD. The differences between these two failures also vary according to fecundity of population under study (312,314). All failure rates calculated in this analysis were use-failure rates.

Methodologically, the life table ‘*net failure rate*’ that was calculated by multiple decrement life tables in the previous section depends not only on the level of failure but also on the level of discontinuation for other reasons. This is due to the fact that all reasons of discontinuations in multiple decrement life tables are mutually

exclusive, and the probability of woman expose to the risk of failure is reduced if discontinuation for reasons other than failure is very high, resultantly the net failure rates decrease.

With the aim of eliminating the effect of other competing reasons, '*gross failure rate*' was calculated by employing associated single decrement life table technique. The associated single decrement life table is an extension of life table analysis tool used to calculate discontinuation rates for a particular reason (for example 'failure') in the absence of other competing reasons. Methodologically, failure rate calculated by this approach assume that the contraceptive failure i.e. unintended pregnancy is the only reason for discontinuation of family planning. Thus, except contraceptive failure, all other reasons for discontinuation were treated as censored observations in the calculation. The life table failure rate obtained by means of this is called as '*gross failure rate*' because theoretically it represents the rate of discontinuation solely due to contraceptive failure, and this rate is unaffected by the rate of discontinuation for other competing reasons.

This life table gross failure rate is defined as "the percentage of contraceptive users who unintentionally become pregnant within a given time (12-month or 24-month) following initiation of a method, and assuming that this was the only reason for discontinuing their contraceptive use". The previously mentioned SPSS program was used to estimate the probability of still using contraceptive at the end of 12 months and 24 months. Finally, the 12- and 24-month failure rates were obtained by subtracting the proportions of still using the method at the end of 11 and 23 month from 1, respectively.

5.3. Results

The results of life table analysis for dynamics of contraceptive use are presented in the following sub-sections.

5.3.1. Discontinuation Rates

The cumulative discontinuation rate at 12- month and 24-month duration of use and median duration of use by methods are shown in Table 5.1.1. A great variability was seen in discontinuation rates for the different contraceptive methods.

The highest discontinuation rates were observed for injectables; almost 60% of injectable use ended within 12 months of initiating the use, and 74% ended with in 24 months. Followed by injectables, the pill had second highest 12 months discontinuation rate of 56%. In accordance with expectations, IUD had the lowest 12 months and 24 months discontinuation rates (25% and 40%, respectively) and the longest median duration of use (35.6 months). There was minimal difference in 12 months and 24 months discontinuation rates of male control methods such as condom and withdrawal.

Data shows that over one-third of Pakistani women (36.7%) discontinue to use of their contraceptive method during the first year of use, while over half of them (58.3%) stop using by the end of second year of use. Because female sterilization was widely used in Pakistan, there was appreciable difference between overall 24 months discontinuation rates of all-methods and all-reversible-methods.

It is important to note that the analysis in present section is related to method-discontinuation, not abandoning of all family planning methods, which means switching to another method is regarded as a discontinuation of original method of family planning. The contraceptive method switching and abandoning of all contraceptive use will be presented in next section.

Table 5.1.1. The life table discontinuation rates and median duration of use by contraceptive method (Pakistan, DHS 2012-13).

Methods	12-month discontinuation rates (%)	24-month discontinuation rates (%)	Median duration of use (months)	Number of segments of use
Pill	56.0	75.0	11.6	583
IUD	24.9	40.4	35.6	554
Injectables	60.2	73.6	9.2	1010
Condom	37.7	59.0	18.8	1970
Withdrawal	32.1	55.9	20.8	1573
Other reversible modern methods ¹	33.2	85.2	15.7	763
Other traditional methods ²	33.6	51.4	24.7	174
Total ³	36.8	58.4	19.5	7146
Total ⁴	37.1	63.17	17.2	6625

1. Implants, lactational amenorrhea and standard day method.

2. Periodic abstinence and folkloric methods.

3. All methods, including sterilization.

4. All reversible methods (excluding sterilization).

Figure 5.2 presents the percentage of users still using at each duration following initiation for injectable, pill, IUD, condom, withdrawal, all other reversible modern methods (implants, lactational amenorrhea and standard day method) over first five years of observation. The two most popular methods i.e. condom, and withdrawal presented a similar pattern of discontinuation, though, discontinuation was greater among condom user compared to those practicing withdrawal.

As shown in figure, the discontinuation for hormonal methods i.e. injectable and pill was more rapid than condom and withdrawal during first 12 months of use. Furthermore, figure illustrates that pattern for discontinuation similar for hormonal methods of contraception; discontinuation was rapid in the first 18 months of use especially among injectable users. However, after 18 months of use, injectable and pill users followed a similar level of discontinuation.

Figure indicates that the IUD discontinuation rate was somewhat more rapid during first 12 months of use. However, after 12 months, IUD discontinuation rate was much lower than discontinuation rates for any family planning method presented in the figure.

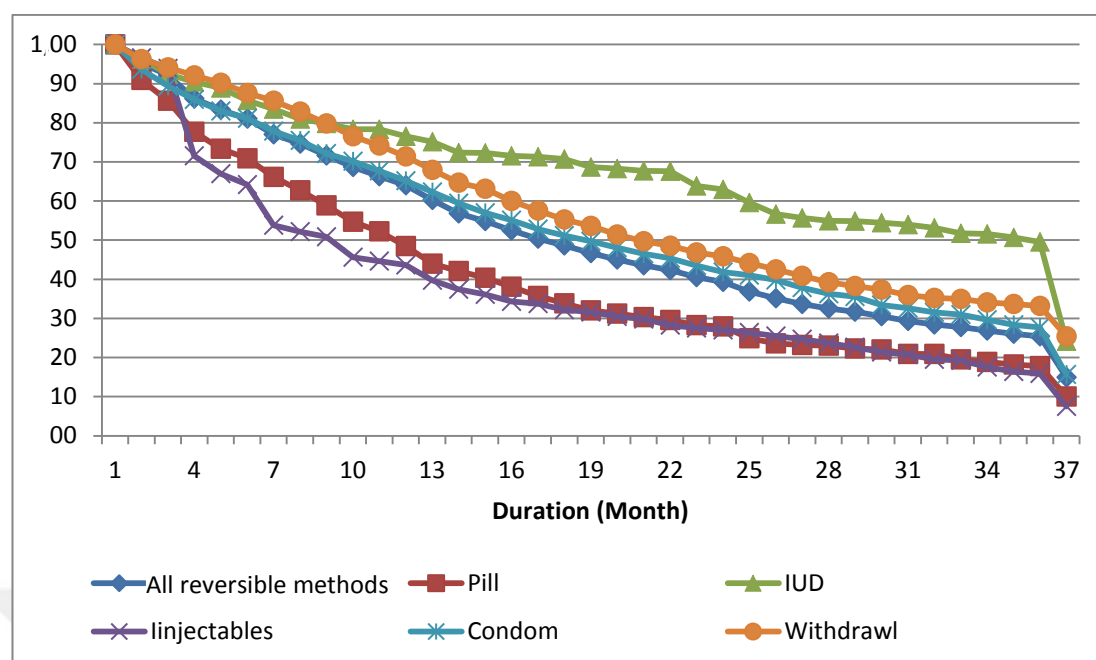


Figure 5.2. Percentage of users still using selected methods of contraception at each duration (Pakistan, DHS 2012-13).

The life table 12- and 24-months discontinuation rates as well as median duration of use in months for all reversible contraceptive methods jointly, by selected socio-demographic factors is presented in Table 5.1.2.

Results show that discontinuation rates at both durations were higher in rural areas than in urban areas as for median duration of use of contraceptive. The provincial 12 months discontinuation rates range from 27% in Baluchistan to 42% in Punjab, while 24 months discontinuation rates 55% and 66%, respectively. However, it should be considered that the number of segments were low in Baluchistan. Half of the women discontinued to use of method after 16 months in Punjab and around 20 months in other provinces. There were no mark differentials in the 12-months discontinuation rates by education attainment of women, while 24-months discontinuation rates show that women with higher education were less like to discontinue their method than their counterparts. The differentials in discontinuation rates by husband education followed very similar trend and women with higher educated husband was less like to discontinue method of contraception than other women.

When discontinuation rates were compared by wealth quintiles, it was observed that nearly half of the women in poorest wealth quintile discontinued

method use within a year as compared to the richest wealth quintile (only one-third of women discontinuing their use); moreover, median duration of use of the poorest women (13 months) was nearly half of that for the richest women. Women in the middle and rich wealth quintile experienced similar 12- and 24-month discontinuation rates (approximately 42% and 63%, respectively) and median duration of use (17 months).

Results revealed that younger women aged 24 and less, who presumably want to have another child due to low parity are more likely to discontinue than older women aged 25 and above; the median duration of use of contraception by women aged 24 and less is just one year.

Compared with higher parity women, contraceptive users with fewer than 2 children had the highest failure rates at both 12- and 24-months of use, it is also evident that women experienced lesser discontinuation if husband desired fewer children than his wife. Result also shows the relation between discontinuation of contraception and sex of the child(ren) and it is observed that women having more daughters also experienced greater 12- and 24-months discontinuation than women having more sons.

Table 5.1.2. The life table discontinuation rates and median duration of use for all reversible contraceptive methods combined by selected socio-demographic characteristics (Pakistan, DHS 2012-13).

Background characteristics	12-month discontinuation rates (%)	24-month discontinuation rates (%)	Median duration of use (months)	Number of segments of use
Age				
15-24	53.8	81.0	12.3	989
25-34	39.9	66.9	16.5	3754
35-49	30.0	49.4	25.0	1881
Education				
None	39.4	63.6	17.1	2968
Primary	40.5	66.0	16.0	1262
Secondary	41.9	64.8	16.4	1571
Higher	35.7	54.4	22.27	824
Number of Living Children				
0-1	47.2	68.8	13.9	63
2-3	41.2	67.1	16.2	2806
4 or more	37.1	59.0	18.9	3189
Sex of Living Children				
Equal number of both sex	38.5	64.6	16.9	1562
More son	37.2	59.1	19.4	2736
More daughter	43.0	66.8	15.3	2289
No living child	78.8	79.4	6.0	36
Husband Education				
None	40.8	64.3	16.4	1768
Primary	39.8	63.5	16.8	1024
Secondary	41.2	64.8	16.2	2438
Higher	35.7	58.7	20.4	1386
Desire for Children				
Both want same	38.6	62.2	17.9	4108
Husband wants more	40.9	64.6	16.5	1524
Husband wants fewer	36.5	55.6	21.6	353
Don't know	33.2	60.8	19.3	395

Continued.....

Table 5.1.2. (continued) The life table discontinuation rates and median duration of use for all reversible contraceptive methods combined by selected socio-demographic characteristics (PDHS 2012-13).

Background characteristics	12-month discontinuation rates (%)	24-month discontinuation rates (%)	Median duration of use (months)	Number of segments of use
Place of Residence				
Urban	36.0	57.5	19.9	2578
Rural	42.1	66.9	15.9	4047
Region				
Punjab	41.8	65.9	15.9	4606
Sindh	37.5	55.2	21.5	980
Khyber Pakhtunkhwa	34.5	60.1	19.7	892
Baluchistan	26.9	56.7	20.7	145
Wealth index				
Poorest	47.5	77.6	13.4	8092
Poorer	37.4	65.9	17.2	1212
Middle	42.1	62.2	16.9	1433
Richer	41.9	63.0	16.7	1619
Richest	33.2	55.5	22.2	1551
Total	37.1	63.17	17.2	6625

Figure 5.3 presents percentage of users still using contraception at each duration by province. As shown in the figure, discontinuation was particularly high in Punjab and the pattern of discontinuation is steadily at all time points. Furthermore, it was evident that discontinuation was much lower in Baluchistan than in other provinces at all time points. The probability of discontinuation was approximately same in Sindh and Khyber Pakhtunkhwa provinces for the first year of use. But, after 12 months of use, larger differential appeared among these two provinces and users in Khyber Pakhtunkhwa followed more discontinuations.

Owing to insufficient number of segments-of-use, the further analysis of discontinuation rates by background characteristics was limited to two most commonly used methods of contraception i.e. condom and withdrawal only.

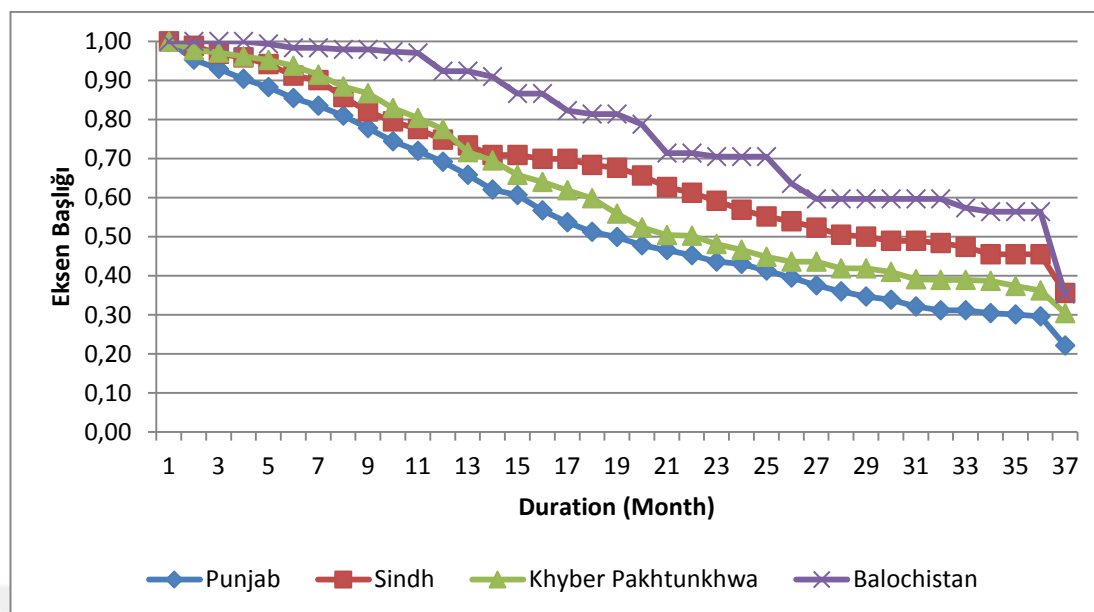


Figure 5.3. Percentage of users still using contraception (all reversible methods combined) at each duration by province (Pakistan, DHS 2012-13).

Table 5.1.3 presents 12- and 24-months discontinuation rates and median duration of use for condom by selected background characteristics of users. It is observed that 12-months discontinuation rate were lower for urban women (29%) than rural women (35%) and the difference in discontinuation became wider at 24-months of duration (50% vs. 60%). 12- and 24-months discontinuation rates for condom was higher in Punjab (34.2% and 58.6%, respectively) than other provinces. In Sindh and Khyber Pakhtunkhwa, condom users had similar discontinuation rates in the first year that was below 30%, however the discontinuation rates of condom for Khyber Pakhtunkhwa at the end of second year was 55.6%, exceeding the corresponding discontinuation rate of 44.8% for Sindh.

The differential in the discontinuation of condom by wealth quintile became marked at 24-months of duration of use. Result shows that three-fourth of all women in the poorest wealth quintile discontinued condom use compared with only half of women in the richest wealth quintile doing so. Yet, the differentials in the 24-months discontinuation rates for condom among women in poor, middle and rich wealth quintiles were not marked.

The differential in discontinuation of condom by education status of women was very weak, moreover a paradoxical relationship between husband education and

discontinuation of condom was noted. Data shows that the 12-months discontinuation rates of condom at 57.4% for women with higher educated husband slightly exceeded than corresponding rate of 52.9% for women with none-educated husband.

According to expectations, young women aged 25 or less and those having less than 2 children had higher 12- and 24-months discontinuation rates for condom than their counterparts. It was also noticed that 24-months discontinuation rate for condom was lower for the women having more sons and their average duration of use was longer than other sub-categories. Data reveals that women experienced lesser discontinuation if husband desires fewer numbers of children than wife or if wife is unaware of husband desire for the number of children, however small number of segments in these categories made the interpretation of results difficult.

Table 5.1.3. The life table discontinuation rates and median duration of use for condom by selected socio-demographic characteristics (Pakistan, DHS 2012- 13).

Background characteristics	12-month discontinuation rates (%)	24-month discontinuation rates (%)	Median duration of use (months)	Number of segments of use
Age				
15-24	57.8	77.7	10.9	329
25-34	37.8	61.6	17.8	1198
35-49	24.8	42.0	30.7	441
Education				
None	37.5	60.2	19.5	621
Primary	40.1	62.7	16.9	391
Secondary	39.6	61.7	16.8	615
Higher	31.9	47.5	27.1	341
Number of Living Children				
0-1	50.2	65.1	12.5	253
2-3	38.0	60.7	18.3	970
4 and more	33.3	54.8	22.1	745
Sex Of Living Children				
Equal number of both sex	37.6	60.8	18.2	490
More son	33.7	53.4	22.4	801
More daughter	41.7	64.0	15.6	658
No living child	79.6	79.6	3.2	19
Husband Education				
None	40.9	62.0	16.8	416
Primary	37.0	62.4	18.6	299
Secondary	40.5	62.1	16.5	722
Higher	31.7	50.3	24.7	530
Desire For Children				
Both want same	36.3	55.6	20.8	1259
Husband wants more	41.7	66.1	15.2	456
Husband wants fewer	30.5	43.3	27.7	112
Don't know	36.4	71.2	16.2	90
Place of Residence				
Urban	35.0	55.1	20.8	1008
Rural	40.4	63.0	16.7	961

Continued.....

Table 5.1.3. (continued) The life table discontinuation rates and median duration of use for condom, by selected socio-demographic factors (Pakistan; DHS 2012-13).

Background characteristics	12-month discontinuation rates (%)	24-month discontinuation rates (%)	Median duration of use (months)	Number of segments of use
Region				
Punjab	42.6	61.5	16.2	1386
Sindh	23.9	46.6	26.6	311
Khyber pakhtunkhwa	30.1	62.3	20.6	243
Baluchistan	13.9	41.6	27.6	29
Wealth index				
Poorest	42.5	74.1	14.1	73
Poorer	39.6	71.2	16.4	249
Middle	37.4	59.4	18.5	402
Richer	41.5	58.5	16.7	601
Richest	32.5	53.0	22.7	642
Total	37.7	59.0	18.8	1970

The withdrawal is one of the popular methods of contraception in Pakistan. Results show that currently one-third of all family planning users practiced it. The variations in discontinuation of withdrawal and the median duration of use by background characteristics of respondent were examined in Table 5.1.4. Result shows that higher proportion of rural women dropout of use after 12- and 24-months than women in urban area.

The discontinuation rate of withdrawal in Sindh was lower (44.8%) and average duration of use was longer (22 months) than other regions due to extremely low number of segment of use (only 18) that is why the result of Baluchistan can not to be interpreted. The discontinuation rates decreased and the average duration of use got longer by increasing in the age of women. 24-months discontinuation of withdrawal among women in poorest wealth quintile was more than 76%, compared with only 50% for women in the richest wealth quintile. In general, discontinuation rates were higher for low parity women, women with more daughters than son and in the case if husband wants more children than respondent.

Table 5.1.4 indicates that discontinuation rates tended to be lower for non-educated women than educated women for any duration of use. Moreover, no

remarkable differences in term of husband education were observed with discontinuation of withdrawal practice.

Table 5.1.4. The life table discontinuation rates and median duration of use for withdrawal by selected socio-demographic Characteristics (Pakistan, DHS 2012-13).

Background characteristics	12-Month discontinuation rates (%)	24-Month discontinuation rates (%)	Median duration of use (Months)	Number of segments of use
Age				
15-24	41.4	80.5	15.5	250
25-34	34.3	61.3	18.8	927
35-49	22.6	34.3	36.0	396
Education				
None	28.1	52.5	21.9	616
Primary	34.3	56.5	18.8	322
Secondary	38.4	60.2	19.4	363
Higher	29.9	56.6	22.5	270
Number of Living Children				
0-1	38.3	65.4	22.1	175
2-3	34.0	62.8	19.2	725
4 and more	28.9	47.4	27.3	671
Sex Of Living Children				
Equal number of both sex	29.3	59.4	19.9	373
More son	30.5	50.0	24.9	644
More daughter	34.7	59.6	18.5	544
No living child				
Husband Education				
None	30.6	52.9	21.8	330
Primary	39.4	58.0	16.8	240
Secondary	32.2	55.7	19.6	647
Higher	28.6	57.4	22.4	355
Desire For Children				
Both want same	33.4	55.9	20.4	1033
Husband wants more	30.4	59.9	19.6	330
Husband wants fewer	20.5	46.7	27.7	88
Don't know	23.6	36.9	27.8	91

Continued.....

Table 5.1.4. (continued). The life table discontinuation rates and median duration of use for withdrawal, by selected socio-demographic factors (Pakistan, DHS 2012-13).

Background characteristics	12-Month discontinuation rates (%)	24-Month discontinuation rates (%)	Median duration of use (Months)	Number of segments of use
Place of Residence				
Urban	28.8	50.7	24.3	699
Rural	34.8	60.4	18.5	873
Region				
Punjab	34.2	58.6	19.0	1135
Sindh	26.6	44.8	29.1	206
Khyber pakhtunkhwa	28.5	55.6	21.8	213
Baluchistan	7.6	29.5	36.0	18
Wealth index				
Poorest	38.2	76.4	15.2	105
Poorer	27.4	55.2	21.2	244
Middle	38.1	56.5	20.6	364
Richer	35.5	57.8	19.6	404
Richest	25.5	50.1	25.0	454
Total	32.1	55.9	20.8	1573

5.3.2. Discontinuation Rates by Reason for Discontinuation

In Table 5.2.1 the 12-months cumulative discontinuation rates by reasons for the discontinuation as well as by types of the contraceptive method used are presented. According to the expectation, the sum of discontinuation rates for the individual reasons is equal to the total discontinuation rate and it provides a convenient control that the rates are calculated correctly. For all reversible methods, combined side effect or health concern was the most cited reason for discontinuation within a year. While approximately 11% of users discontinued use of their method in the first year due to side effect or health concern, 9% intentionally dropped their method within a year to get pregnant. Furthermore, 6% of women discontinued by virtue of becoming pregnant while using the method (that is, failure of contraception). Overall, the reasons for discontinuation were found to be method specific among Pakistani women. In the first year of use, reason for abandons by virtue of side effects was particularly higher for the modern methods such as

injectable, pill and IUD that were generally accepted as more reliable method for contraception.

Relatively few users of IUD discontinued use within a year in order to get pregnant and this might be probably because the majority of women who want a birth within few years were unlikely to initiate this method of contraception. In the first year of use, failure was the main reason for discontinuing traditional methods such as withdrawal. Although condom was one of the most commonly used method of contraception in Pakistan, husband disapproval for it was relatively higher than other modern methods of contraception. Other method related reason that includes include episodes that were discontinued because health concerns, availability issues, wanting a more effective method, inconveniency to use, and cost ranged from 7.5% for injectable to less than one percent for the IUD. Abandoning due to desire to get pregnant was notably higher for traditional methods as well as condom; these figures highlight the use of less effective method of contraception for short term purpose in Pakistan.

Except for the other modern methods that includes implants, lactational amenorrhea and standard day method, it is clear from the table that desire for a more effective method was less cited reason for discontinuation in Pakistan. Discontinuation due to husband's disapproval was virtually zero among IUD users and this might be the reason of husband's permission to woman before she initiates the use of IUD.

Table 5.2.1. The life table 12-month discontinuation rates by reason for discontinuation and contraceptive method (Pakistan, DHS, 2012-13).

Method	Reason for Discontinuation							Any reason
	Failure	Desire to become pregnant	Other fertility related reason ¹	Side effects/ health concerns	Wanted more effective method	Other method related reasons ²	Husband disapproval/ fatalistic	
Pill	6.4	8.9	4.7	32.0	1.8	3.0	0.4	55.2
IUD	1.4	1.0	1.2	20.8	.8	0.6	0.0	24.3
Injectable	1.8	7.8	4.1	36.6	1.7	7.5	1.3	60.1
Condom	7.7	12.9	1.8	3.4	2.0	5.3	4.5	36.6
Withdrawal	9.2	13.4	2.6	0.9	2.8	1.0	1.8	30.9
Other reversible modern methods ³	4.9	6.4	2.3	1.0	6.1	7.0	4.2	30.8
Other traditional methods ⁴	8.2	16.7	0.0	0.9	0.9	1.1	6.9	29.8
Total ⁵	5.7	9.4	2.4	10.7	2.3	3.8	2.5	35.8
Total ⁶	5.7	9.4	2.4	10.7	2.3	3.8	2.5	35.8

1. Infrequent sex, separated/widowed, fatalistic, don't know, sub-fecund, and other.

2. Health concern, availability issues, wants a more effective method, inconvenient to use, and cost.

3. Implants, lactational amenorrhea and standard day method.

4. Periodic abstinence and folkloric methods.

5. All methods, including sterilization.

6. All reversible methods (excluding sterilization).

Figure 5.4 shows the percentage dissection of 12 months discontinuation rates by reason and contraceptive method. This figure conforms that side effects and health concern were by far the main reason for discontinuation for injectable, pill and IUD in Pakistan. Surprisingly, intentional abandoning of traditional methods by need for more effective method of family planning accounted for only a small proportion of the overall discontinuation. In contrast, traditional method users mainly dropped their method within a year by the aim of getting pregnant.

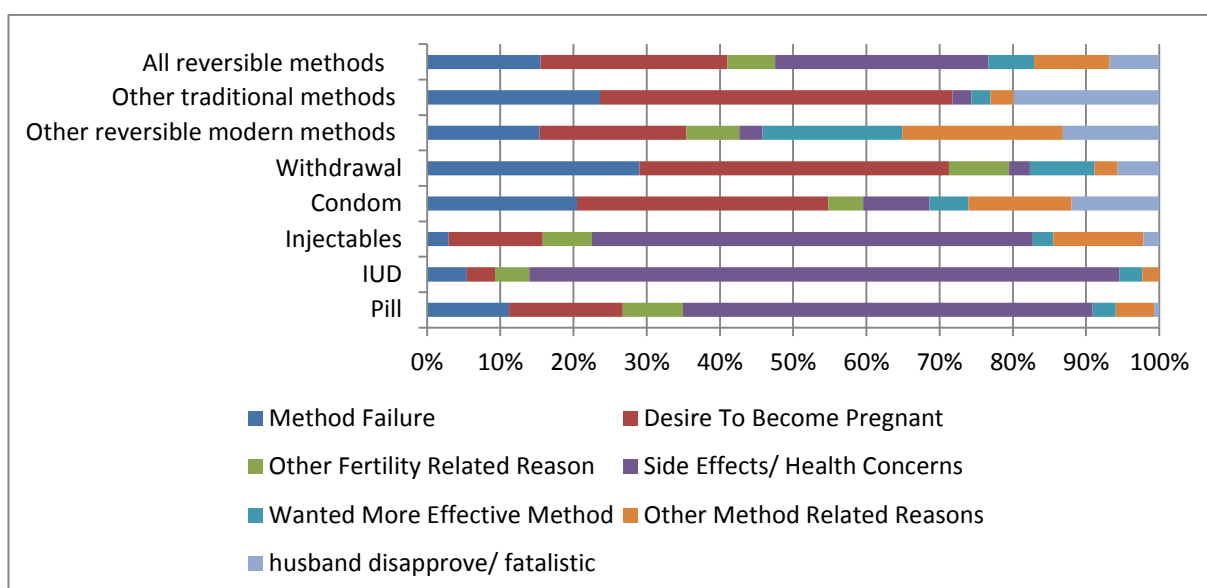


Figure 5.4. Percentage dissection of life table 12- month discontinuation rates by reason for discontinuation and contraceptive method (PDHS, 2012-13).

The 12-months reason-specific discontinuation rates for all reversible methods combined by background characteristics are presented in Table 5.2.2. Results indicate that according to expectation, women younger than 25 years of age were generally more likely to discontinue to get pregnant. Furthermore, young women were also more likely to experience net discontinuation due to method failure and side effects than older women age of 35 and above, and this might be owing to better experience of using contraception among women age 35 and above.

Results also show that side effect and health concern were the main reasons for discontinuing the use within a year among non-educated women. However, discontinuation due to side effect and health concern was lesser among better educated women; probably this reflects the more appropriate choice of method together with education. It is also found that desire to get pregnant was the prominent reason for discontinuing among educated women and in view of greater contraceptive use among educated women, this reflects that better educated women use contraception to delay pregnancy than non-educated women.

Overall, 3% of discontinuation among primary and secondary educated women was due to desire of more effective method while this, as a reason for discontinuation, was less frequent among non-educated as well as higher educated

women. This finding was complex and probably reflects that, non-educated women were unaware of better choice of method while higher educated women were less likely to discontinue due to need for more effective methods. It is also important to note that discontinuation due to husband's opposition or due to fatalistic reason was minimal if women have had higher education.

As would be expected, discontinuation rates due to getting pregnant were lower among women with four and more children (about 6%) than with three or less number of children (above 12%). However, the discontinuation due to husband's disapproval did not vary with number of children. Result also shows that with increasing parity, women were more likely to perceive the side effects of method and this lead to discontinuation of their current use of method. Higher discontinuation rate among women with more daughters was due primarily to higher discontinuation because of other method related reasons.

The result of husband's versus wife's desire for family size and reasons for discontinuation reflected that whenever husband's desire for children is greater, women experience greater discontinuation, and the main cited reason for abandoning the use were side effect and health concern followed by desire to get pregnant. Furthermore, results show that side effect (9%) followed by husband's apposition (7%) were the most cited reason for 12 months discontinuation of contraceptive use among women who were unaware of their husband's desire for children. In view of higher contraceptive prevalence of male methods (condom and withdrawal), this finding was crucial, and highlights importance of husband's desire for children and associated contraceptive drop by women.

Along with husband desire for children, husbands' level of education was also associated with the women's reason for discontinuation of contraceptive use. Result shows that if husbands were higher educated, women were less likely to report side effect/health concern and spousal opposition as a reason for discontinuing the contraceptive method.

Rural users experienced higher discontinuation than urban users and this was by virtue of side effect or health concern. Surprisingly, result revealed that net failure of contraception was higher among urban users (7.3%) than rural users (4.8%). However as it was mentioned earlier that net failure rates were dependent on the

other reasons for discontinuation, therefore this finding should be viewed within this limitation.

There was a remarkable difference in the pattern of reasons for discontinuation among users between regions. Side effect or health concern was the most cited reason in Punjab and in Sindh while desire to get pregnant was most prevalent reason for discontinuation in Khyber Pakhtunkhwa and Baluchistan. Women in Khyber Pakhtunkhwa and Baluchistan experienced relatively low discontinuation because of husband's opposition; this was probably by virtue of husband's approval prior to the use of family planning in these provinces. However, the reason-specific discontinuation rates of Baluchistan should be interpreted cautiously because they were based on relatively small amount of exposure and were subjected to large sampling error.

Result indicates that women in the poorest wealth quintile experienced relatively greater discontinuation due to side effect and health concern or due to husband's disapproval than women in richest wealth quintile. Moreover, a linear relationship was evident between wealth quintile and discontinuation due to side effect/health concern indicating the choice of more appropriate and suitable method among women with increasing wealth status. It is also interesting to note that proportion of discontinuation due to net failure rate was higher among richest user than among poorest user.

Table 5.2.2. The life table 12-month discontinuation rates by reason for discontinuation and contraceptive method by selected socio-demographic characteristics (Pakistan, DHS 2012-13).

Background Characteristics	Reason For Discontinuation							
	Failure	Desire to become pregnant	Other fertility related reason ¹	Side effects/ health concerns	Wanted more effective method	Other method related reasons ²	Husband disapproval/fatalistic	Any reason
Age								
15-24	9.3	18.4	1.7	13.8	3.0	3.8	3.0	51.2
25-34	6.0	11.0	2.3	10.1	2.3	4.8	2.1	37.2
35-49	3.9	3.4	2.6	10.5	2.0	2.0	2.9	26.9
Education								
None	5.1	7.4	1.7	13.1	1.8	3.1	2.9	34.4
Primary	5.4	10.4	3.1	9.6	3.2	4.2	2.0	36.3
Secondary	6.2	11.8	2.9	9.2	2.9	4.0	2.7	38.3
Higher	7.8	11.1	2.3	5.6	1.6	5.1	1.4	34.0
Number of Living Children								
0-1	6.5	17.7	2.9	7.9	2.4	8.6	2.8	44.9
2-3	6.8	12.1	2.3	10.1	1.5	4.2	2.6	38.3
4 and more	4.8	6.1	2.3	11.5	2.9	2.7	2.3	32.1
Sex Of Living Children								
Equal number of both sex	6.6	9.3	2.4	10.2	1.9	2.6	2.8	34.8
More son	4.5	8.8	2.7	10.5	2.6	3.0	2.4	33.4
More daughter	6.7	9.8	1.9	11.5	2.2	5.4	2.5	39.2
No living child	4.1	59.7	1.6	1.5	0.0	15.4	0.0	71.6
Desire For Children								
Both want same	6.6	10.6	2.6	10.2	2.4	4.3	2.0	37.3
Husband wants more	5.1	11.4	1.6	13.3	1.8	3.9	3.6	39.5
Husband wants fewer	5.4	8.0	3.0	9.4	3.4	3.5	1.5	34.1
Don't know	4.4	6.8	3.0	9.0	1.4	2.3	6.9	33.1
Husband Education								
None	5.0	7.5	1.5	12.7	2.6	4.6	2.6	35.7
Primary	8.2	9.1	.8	9.9	1.9	3.3	3.9	35.4
Secondary	5.0	10.8	3.3	11.1	2.1	3.6	2.3	37.1
Higher	6.1	9.7	2.9	7.5	2.4	3.3	1.6	32.9

Continued.....

Table 5.2.2. (continue) The life table 12 month discontinuation rates by reason for discontinuation and contraceptive method by selected socio-demographic variables. (Pakistan, DHS 2012-13).

Background Characteristics	Reason For Discontinuation							
	Failure	Desire to become pregnant	Other fertility related reason ¹	Side effects/ health concerns	Wanted more effective method	Other method related reasons ²	Husband disapproval /fatalistic	Any reason
Place of Residence								
Urban	7.3	9.5	1.6	8.3	1.7	4.3	2.2	33.8
Rural	4.8	9.5	2.8	12.2	2.6	3.5	2.7	37.1
Region								
Punjab	6.6	8.8	2.5	10.8	2.8	4.3	2.7	37.3
Sindh	3.6	9.4	0.8	12.6	0.6	4.1	2.4	32.1
Khyber Pakhtunkhwa	4.5	10.9	3.7	9.3	1.4	1.3	1.5	31.7
Baluchistan	0.3	20.3	0.0	1.4	2.4	0.4	0.5	25.3
Wealth index								
Poorest	4.0	9.9	.3	16.1	1.6	3.7	5.2	40.0
Poorer	4.3	6.9	1.6	13.6	2.8	2.5	2.9	33.1
Middle	6.0	9.7	3.6	11.0	2.2	4.5	1.4	37.9
Richer	6.7	11.2	1.4	9.9	3.1	5.0	2.6	38.3
Richest	6.4	9.1	3.9	6.2	1.5	3.1	1.6	30.6
Total	5.7	9.4	2.4	10.7	2.3	3.8	2.5	35.8

1. Infrequent sex, separated/widowed, fatalistic, don't know, sub-fecund, and other.

2. Health concern, availability issues, wants a more effective method, inconvenient to use, and cost.

5.3.3. Contraceptive Method Switching Behavior

Result in Table 5.3.1 presents the 12 months cumulative switching rates for each method in Pakistan. It is evident from the table that switching behavior after discontinuation varies considerably by the type of family planning method. For all methods combined, the rate of switching to another method was lower (7.3%) than the rates of abandoning use (11.9%). Amongst all methods, injectable and pill ranked first and second, respectively, in the rate of switching to no method of contraception (that is complete abandoning the use of contraception, yet still having the need for family planning). The rate of abandoning, the use for the injectable and pill were estimated at 30% and 24% respectively. In line with this, it was also worth to mention that prevalence of these methods was very low in Pakistan. Additionally, in contrast to other methods of contraception, it was also noticed that those who discontinued these two methods were also more likely to switch to another method.

The switching rate from the injectable to another method was estimated at 16.5% while corresponding rate for the pill was 12%.

Condom and withdrawal were widely used methods of contraception in Pakistan. Result shows that following discontinuation, condom and withdrawal users had lower rates for switching to other methods. It was found that substantially higher proportion of women who discontinued condom, withdrawal and other traditional methods in one year have no need for family planning after discontinuation. The high rate of transition to no need for contraception for condom, withdrawal and other traditional methods was due to higher proportion of intentional and unintentional pregnancies among users of these methods.

In spite of lowest 1- months discontinuation rate for IUD, interestingly, one in every two user who abandoned the use of IUD within a year of insertion yet still needs contraceptive coverage to avoid unintended or mistimed pregnancy.

Table 5.3.1. The life table 12-month discontinuation rates by status after discontinuation and contraceptive method (Pakistan, DHS 2012-13).

Method	Status After Discontinuation			
	No need for contraception ¹	Switch to another method	Abandon use	Total
Pill	19.8	12.7	23.9	55.8
IUD	3.6	9.8	12.4	24.3
Injectable	13.6	16.5	30.6	60.1
Condom	22.3	5.4	9.5	37.5
Withdrawal	25.2	3.7	2.9	32.4
Other reversible modern methods ²	13.2	7.1	10.8	33.8
Other traditional methods ³	23.6	4.1	5.6	33.2
Total ⁴	17.5	7.3	11.9	35.8
Total ⁵	17.5	7.3	11.9	35.8

1. Discontinuation for the following reason: failure, desire to get pregnant, infrequent sex, marital dissolution widowhood, infecund or menopause.

2. Implants, lactational amenorrhea and standard day method.

3. Periodic abstinence and folkloric methods.

4. All methods, including sterilization.

5. All reversible methods (excluding sterilization).

The analysis of contraceptive switching behavior is aimed at identifying those women, who drop the use of family planning despite having a need for contraception. Against this background, the present findings showed dire situation of family planning program in Pakistan and revealed that, along greater proportion of non-users in the country, most of those who adopt modern as well as effective method of family planning and discontinue within a year still have need for family planning.

Figure 5.5 presents the percentage decomposition of the overall discontinuation rate by the status after discontinuation. This figure explains the pattern of status after discontinuation given in the previous table. Abandonment of family planning represents much larger proportion of discontinuation for injectable, pill and IUD. Since the current use of effective methods of contraception is limited in Pakistan, this finding is very critical; it suggests that users who tried the effective method of family planning and stopped within a year were not able to find any suitable alternate for them.

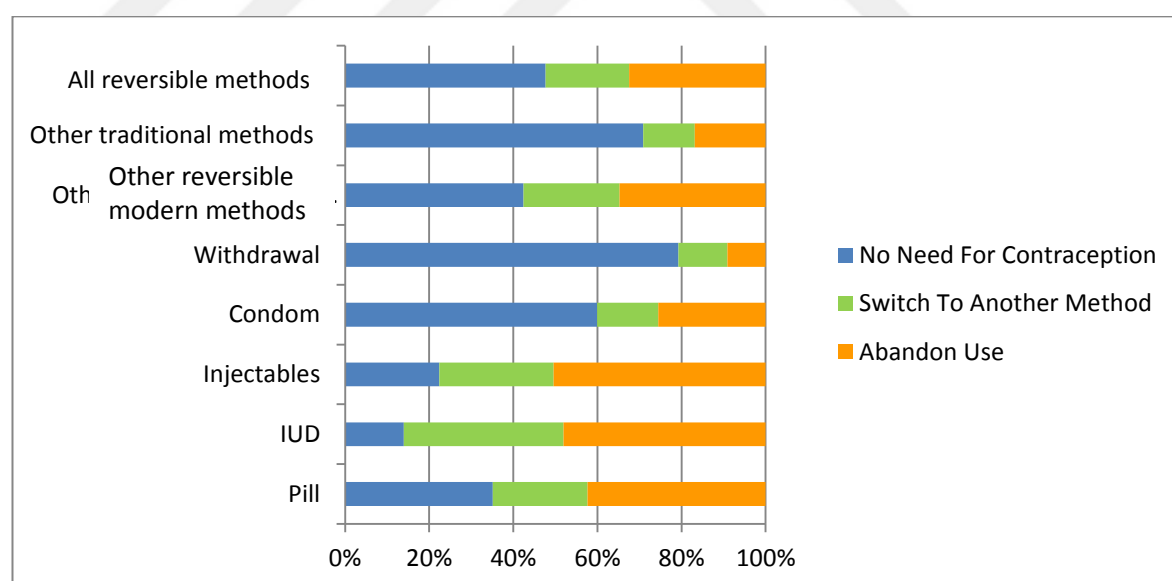


Figure 5.5. Percent decomposition of the 12 month discontinuation rates by status after discontinuation and contraceptive method (Pakistan, DHS, 2012-13).

Table 5.3.2 presents switching behavior among different subgroups of women who discontinue the use of any reversible method of contraception. Although it is crucial to observe switching behavior for different contraceptive methods separately, owing to the shortage of cases for the sub-categories of some background variables, the analysis was performed for all reversible methods of contraception combined.

The data shows that the young women aged below 25 years were more likely to abandon using than switching to another method compared with women in other age categories. Furthermore, almost half of these young women had no need of contraception after discontinuation and this reflects higher intention of getting pregnant after quitting the contraceptive use.

A remarkable differential in switching behavior was found for educational attainment of women. It is observed that education was an important determinant for switching to another method compared to abandoning. Relative to educated women, those without formal education were more likely to abandon the use rather than switch to another method. Similar trend was also evident for the educational status of husband. Wives of higher educated men displayed a slightly higher rate of switching to other method than wives of non educated men.

There was marked variation in contraceptive switching behavior of women according to region and place of residence. Results show that potentially due to limited access or knowledge for alternative method, rural women were much more likely to abandon the use altogether if they still need contraception than switching to another method.

Results revealed that almost half of women in Sindh abandoned the method after discontinuation and for every one women switched to another method after discontinuation, three abandoned the use altogether. While regional differences in contraceptive switching behavior were examined the highest proportion of switching to another method is seen in Punjab, even so, the proportion of method abandon still exceeds slightly the proportion of switch to another method in Punjab.

The relationship between number of living children and contraceptive switching behavior shows that in all subgroups, abandoning the method was almost equal and approximately 12%. However, the proportion of users who abandon the use and shift to no need of contraception decreased from 27% among women none or

one living child to 13% among women with four or more children. Also, this decline was compensated by switch to another method; it was found that relative to other subgroups, greater proportion of women with four or more children swapped to another method of contraceptive in a year after discontinuation of primary method.

Differentials by sex of children were complex. However, as anticipated, data revealed that woman having more daughters were more likely to abandon the use within a year relative to women with more sons.

The affect of household wealth status was more pronounced but in expected direction and shows that poor and poorest women were the most disadvantageous as the proportion of women who abandon the use was far greater than those who switch to another method of contraception after the discontinuation.

Table 5.3.2. The life table 12-month discontinuation rates by status after discontinuation and selected socio-demographic characteristics (Pakistan DHS, 2012-13).

Background characteristics	Status After Discontinuation			
	No need for contraception ¹	Switch to another method	Abandon use	Total
Age				
15-24	28.8	7.5	15.3	54.4
25-34	19.2	7.2	11.8	38.1
35-49	9.8	7.1	10.2	28.4
Education				
No	14.0	6.0	14.3	35.5
Primary	18.9	8.9	10.1	37.7
Secondary	20.6	8.1	10.7	40.3
Higher	21.1	7.8	5.8	34.4
Number of living children				
0-1	26.5	9.3	11.9	46.1
2-3	20.7	6.2	11.9	40.0
4 and more	13.1	7.7	11.4	33.3
Sex of living children				
Equal number of both sex	17.9	6.8	10.4	37.1
More son	15.6	7.4	10.5	33.6
More daughter	18.4	7.4	13.9	40.2
No living child	65.4	0.0	16.8	71.6
Desire for children				
Both want same	19.7	7.2	11.4	38.6
Husband wants more	17.9	7.9	14.5	41.5
Husband wants fewer	16.0	9.9	7.7	37.7
Don't know	13.7	4.7	14.2	33.4
Husband education				
No education	13.8	7.1	15.2	37.4
Primary	17.9	5.9	13.0	36.1
Secondary	19.0	7.7	11.2	38.4
Higher	18.7	7.7	7.1	34.6

Continued.....

Table 5.3.2. (continue) The life table 12 month discontinuation rates by status after discontinuation and selected socio-demographic factors (Pakistan; DHS, 2012-13).

Background characteristics	Status After Discontinuation			
	No need for contraception ¹	Switch to another method	Abandon use	Total
Place of Residence				
Urban	18.0	7.8	8.4	34.0
Rural	16.8	6.9	13.8	38.3
Region				
Punjab	17.8	8.5	11.9	38.2
Sindh	13.7	5.1	14.5	32.9
Khyber Pakhtunkhwa	18.5	3.9	9.1	33.8
Baluchistan	20.0	2.8	1.8	25.6
Wealth index				
Poorest	13.9	6.4	19.7	40.6
Poorer	12.8	6.5	14.7	34.5
Middle	19.0	7.6	10.9	39.2
Richer	18.9	9.3	10.9	39.7
Richest	19.4	5.8	6.5	31.6
Total	17.5	7.3	11.9	35.8

1. Discontinuation for the following reason: failure, desire to get pregnant, infrequent sex, marital dissolution widowhood, infecund or menopause.

5.3.4. Comparison of Contraceptive Failure Rate

The gross failure rates are more suitable than net failure rates for comparative analysis of failure across methods as well as across sub groups of population. Table 5.4.1 represents the gross 12- and 24-months failure rates for individual methods, all methods, and all reversible methods. As shown in table, overall 12-months and 24-months failure rates are 6.9% and 13.4%, respectively. According to expectation, these 'gross failure rates' are higher than the corresponding 'net failure rates' given in the previous table (table 5.2.1) and this is due to elimination of all other competing reasons for discontinuing contraception.

There is great difference between the gross failure rates of various methods. The lowest 12- and 24-months gross failure rate was observed for IUD (1.6% and 2.2%) and for injectable (2.8% and 7.4%). The highest 12- and 24-months failure rates were seen in methods that are routinely part of family planning services, i.e.

condom (9.3% and 17.3%) and pill (10.3% and 15.0%). The gross failure rate of other reversible methods that includes implants, lactational amenorrhea and standard day method surprisingly increased from 5.2 % to 26.5% for the period of 12-months to 24-months; this might be due to small number of cases associated with these methods. The users of withdrawal experienced very similar pattern of 12- and 24-months gross failure rate as that of condom users.

Since female sterilization is one of the commonly used method in Pakistan, excluding sterilization from total makes noticeable difference to the overall failure rate in Pakistan. Furthermore, choice of error prone contraception such as condom and withdrawal among current users in Pakistan has larger impact on the total failure rate.

Considering perfection over time among the users of especially condom, withdrawal and pills, the present analysis went beyond first year. However contrary to expectation, it was observed that eventually with time, contraceptive failure rate increased in Pakistan.

Table 5.4.1. The life table gross failure rates by contraceptive method (Pakistan, DHS 2012-13).

Methods	12-month failure rates (%)	24-month failure rates (%)	Number of segments of use
Pill	10.3	15.0	583
IUD	1.6	2.2	554
Injectable	2.7	7.4	1010
Condom	9.3	17.3	1970
Withdrawal	10.4	17.4	1573
Other reversible modern methods ¹	5.2	26.5	763
Other traditional methods ²	9.2	11.1	174
Total ³	6.9	13.4	7146
Total ⁴	7.6	15.2	6625

1. Implants, lactational amenorrhea and standard day method.

2. Periodic abstinence and folkloric methods.

3. All methods, including sterilization.

4. All reversible methods (excluding sterilization).

Table 5.4.2 shows the 12-and 24-months gross failure rates for condom by selected background characteristics. It is noticed that the 12-months gross failure rate was twice higher for urban women than the rural. The 12-months failure rates were

highest in Punjab (11.9%) and lowest in KPK (2.6%); the inadequate number of segments in Baluchistan made it difficult to interpret the differentials. In term of wealth status, it is observed that user error was lowest among those in the poor wealth quintile and higher at the both extremes of wealth quintiles.

It is also evident that failure rate was related with the declining age. User error did not vary according to women's education however, the 24-months failure rates among women with higher education were lowest (9.1%) than other women for the same period. In contrast to woman's education, husband's education followed somehow linear pattern with failure rates; 24-months failure rate decreases form 25% among women having non-educated husband to 8% among women having educated husband.

The relationship between parity and failure rates were not consistent in the first year of use yet, 24-months failure rate were slightly higher among women with four or more children. 12- and 24-months failure rates were found to be higher in women with more female children (11.9% and 20.5%) than male children (8.2% and 16.2%). It was also found that user error were the highest when women have no idea about husband's desire for the number of children, comparing husband and wife desire; it is evident that 24-months failure rate was higher when husband desired for more children (19.5%) than if the respondent desired more children (12.8%).

Table 5.4.2. The life table gross failure rates by condom and selected socio-demographic characteristics (Pakistan, DHS 2012-13).

Background characteristics	12-month failure rates (%)	24-month failure rates (%)	Number of segments of use
Age			
15-24	18.5	22.0	330
25-34	8.7	17.4	1199
35-49	5.9	13.9	441
Education			
None	9.0	16.3	622
Primary	10.0	21.1	391
Secondary	10.1	20.9	616
Higher	7.7	9.1	341
Number of Living Children			
0-1	10.9	11.4	253
2-3	8.4	15.5	970
4 and more	10.0	20.2	745
Sex of living children			
Equal number of both sex	7.9	15.0	491
More son	8.2	16.2	801
More daughter	11.9	20.5	658
No living child			
Husband education			
None	10.0	24.7	416
Primary	17.2	25.5	299
Secondary	7.4	16.6	722
Higher	6.8	8.4	530
Desire For Children			
Both want same	9.6	15.8	1259
Husband wants more	6.7	19.5	456
Husband wants fewer	7.5	12.8	112
Don't know	11.4	27.2	89

Continued.....

Table 5.4.2. (continued) The Life table gross failure rates by condom and selected socio-demographic characteristics (Pakistan; DHS 2012-13).

Background characteristics	12-Month failure rates (%)	24-Month failure rates (%)	Number of segments of use
Place of Residence			
Urban	11.7	18.8	1009
Rural	6.6	15.8	961
Region			
Punjab	11.9	20.4	1362
Sindh	4.7	11.1	311
Khyber Pktunkaw	2.6	10.8	236
Baluchistan	0.6	6.8	29
Wealth index			
Poorest	6.9	11.2	73
Poorer	5.6	15.3	250
Middle	11.0	19.9	402
Richer	10.6	20.2	601
Richest	8.6	14.6	642
Total	9.3	17.3	1970

Table 5.4.3 shows the 12-and 24-months gross failure rates for the pill by selected background characteristics. In terms of region and residence, the 12-and 24-months failure rates for pill followed the similar pattern as that for condom. The woman in urban area was more likely to have unintended pregnancy while using the pill than the woman living in rural area (12-months failure of 18% for urban women versus 6% for rural women). Pill failure was highest in Punjab (12.9%) and failure rates were similar in Sindh (9.8%) and Khyber Pakhtunkhwa (9.3%). Because of inadequate sample, it was difficult to interpret result for Baluchistan. In contrast to condom failure rate, for pill, the failure rates were higher at the both extremes of wealth quintiles.

Regarding age of the woman, pill users followed reverse pattern of failure than condom users; 12-months failure rates increased from 5% for age group 15-24 years to 13% for 35-49 years. When affect of woman's education on failure rate was examined, it is evident that gross failure rate declined with the level of education, but due to small number of cases in sub-groups, there might be wide confidence intervals. Moreover, the husband's level of education was more complex to explain. In summary, education attainment of women as well as spouse was not found to be an important factor affecting pill failure rate in Pakistan.

It is also observed that the gross failure rates were higher when husband desired for more children (14.5%) as well as if the woman had equal ratio of male and female children (14.1%). Failure rate of pill was also found to be declined with the increase in parity (14% for women with 2-3 children versus 9% for women with four or more children).

Table 5.4.3. The life table gross failure rates by pill and selected socio-demographic characteristics (Pakistan, DHS 2012-13).

Background characteristics	12-month failure rates (%)	24-month failure rates (%)	Number of segments of use
Age			
15-24	5.0	20.7	80
25-34	8.6	12.3	309
35-49	12.9	17.6	194
Education			
None	11.6	15.0	308
Primary	4.7	11.6	98
Secondary	5.4	12.9	139
Higher	29.4	32.1	37
Number of Living Children			
0-1	0	0	38
2-3	13.8	16.4	223
4 and more	9.0	15.3	321
Sex of living children			
Equal number of both sex	14.1	22.4	117
More son	12.0	18.9	261
More daughter	6.0	6.6	203
No living child	0.0	0.0	0
Husband education			
None	10.0	13.8	171
Primary	2.9	5.8	79
Secondary	10.3	13.6	210
Higher	15.8	25.2	120
Desire For Children			
Both want same	7.8	13.0	322
Husband wants more	14.5	18.5	150
Husband wants fewer	7.0	33.6	39
Don't know	0.0	0.0	30

Continued.....

Table 5.4.3. (continued) The Life table gross failure rates by pill and selected socio-demographic characteristics. (Pakistan, DHS 2012-13).

Background characteristics	12-month failure rates (%)	24-month failure rates (%)	Number of segments of use
Place of Residence			
Urban	17.8	20.0	179
Rural	6.2	12.4	404
Region			
Punjab	12.9	17.6	323
Sindh	9.8	15.1	120
Khyber pakhtunkhwa	9.3	13.4	109
Baluchistan	1.2	1.2	21
Wealth index			
Poorest	15.8	22.8	94
Poorer	2.5	8.7	136
Middle	11.4	11.6	117
Richer	8.5	19.1	124
Richest	16.5	16.5	110
Total	10.3	15.0	583

As shown in Table 5.4.4, the 12-months failure rate of withdrawal was higher in rural areas (9.1%) than urban areas (11.6%). Also there was a marked difference in gross failure rate for withdrawal between the regions and the user error was more in Punjab (11.9%) and least in Sindh (5.8%). The relationship between gross failure rate of withdrawal and women age shows that the failure rate was considerably lower in women aged 35 and above, this probably reflects improvement in the use of method by couples with time. It is also evident from the table that the wealth status, woman's and husband's educational attainment had minimal role on the failure rate for withdrawal. The finding indicates that failure rates declined with more sons (6.7%) than daughters (14.5%) and with four and more number of living children (8.6%).

Table 5.4.4. The life table gross failure rates by withdrawal and selected socio-demographic characteristics. (Pakistan, DHS 2012-13).

Background characteristics	12-Month failure rates (%)	24-Month failure rates (%)	Number of segments of use
Age			
15-24	11.6	23.6	250
25-34	11.3	20.2	927
35-49	8.0	10.8	396
Education			
None	9.3	17.4	616
Primary	8.9	12.0	322
Secondary	12.1	21.3	363
Higher	12.5	18.3	270
Number of Living Children			
0-1	12.1	17.1	176
2-3	11.9	19.9	725
4 and more	8.6	15.0	671
Sex of living children			
Equal number of both sex	11.2	17.1	373
More son	6.7	12.4	644
More daughter	14.5	24.0	545
No living child	0.0	0.0	0
Husband education			
None	8.3	15.3	331
Primary	18.1	22.8	240
Secondary	8.5	17.7	647
Higher	10.6	15.8	355
Desire For Children			
Both want same	11.7	21.5	1033
Husband wants more	8.0	10.7	330
Husband wants fewer	9.7	9.7	87
Don't know	5.6	6.8	90

Continued.....

Table 5.4.4. (continued) The Life table gross failure rates by withdrawal and selected socio-demographic characteristics.(Pakistan, DHS 2012-13).

Background characteristics	12-Month failure rates (%)	24-Month failure rates (%)	Number of segments of use
Place of Residence			
Urban	9.1	16.0	699
Rural	11.6	18.9	874
Region			
Punjab	11.9	19.9	1124
Sindh	5.8	11.9	205
Khyber pakhtunkhwa	7.7	11.4	203
Baluchistan	0.6	0.6	18
Wealth index			
Poorest	10.3	12.1	105
Poorer	12.5	21.4	243
Middle	10.4	18.8	364
Richer	11.1	15.7	404
Richest	8.9	16.4	454
Total	10.4	17.4	1573

6. DISCUSSION

This thesis evaluated the trend in magnitude of contraceptive prevalence and unmet need for family planning among married women in stable union, aged 15-49 in Pakistan between 1990-91 and 2012-13, as well as identified determinants for the use of contraceptives and unmet need for family planning in this population during year 2012-13. For this analysis, the study used data from the 1990-91, 2006-07, and 2012-13 Pakistan Demographic and Health Surveys.

6.1. Trends in Contraceptive Use

Knowledge of contraceptive methods is indispensable requisite for their use. Admirably by 2012-13, knowledge of at least one method of contraception is almost universal in Pakistan. This healthy trend in knowledge is not specific for Pakistan only. The most recent DHS data from Afghanistan (238), India (239), Bangladesh (240) and Nepal (241) also shows that more than 95% of currently married women knew at least one method of contraception.

Regarding the knowledge of contraceptive method mix, it is surprising to find that until now, only half of the currently married women in Pakistan know about male sterilization although this figure is higher from Western neighbour Afghanistan at 23% (238) but lower than Eastern neighbour India at 87% (239).

Emergency contraceptive pills are also one of the less well-known methods of contraception in Pakistan, and only 24% of currently married women ever heard about this method of contraception. Low level knowledge of emergency contraception in the region is also evident in survey report from Afghanistan (238) and Bangladesh (240) shows that near 15% of currently married women know emergency contraceptives while in Nepal it is figured at 26% (241). However, it is relatively better known in India and approximately half of currently married Indian women know this method of contraception in different states of the country.

According to WHO (242), emergency contraceptive pills are effective in preventing pregnancy after unprotected sex and do not induce abortion. Considering abortion is prohibited by law in Pakistan (210), emergency contraceptive pills can play important role in avoiding unintended pregnancies after possible contraceptive

failure, unplanned/unprotected intercourse and post sexual assault. Considering critical importance and reproductive health benefits of emergency contraception, emergency contraceptive pills are included in the WHO list of essential medicine (243) and it is recommended that it should be integrated into health care services and always be available and accessible for all women and girls at risk of an unintended pregnancy (242). In view of this, improvement in the knowledge of emergency contraceptive pills among men and women in Pakistan through reproductive health education and mass media campaigns are needed.

Findings from trend in the knowledge of contraceptive method revealed that in the last two decades, substantial improvement occurred in the knowledge of male control contraceptive methods specially condom and withdrawal. However, it is interesting that female control methods of contraception such as female sterilization, IUD, pills and injectables are always better known compare to male control contraceptive methods such as male sterilization, condom, and withdrawal among currently married women. This finding demonstrates that family planning campaign was successful for raising the awareness of family planning among Pakistani women. Today Pakistani woman knows at least one method of contraception that she can use to control her fertility. Once she will be empowered to decide according to her own fertility goals and reproductive health as well as motivated for family planning, she can convert her knowledge into practice.

The differentials in the contraceptive knowledge highlights that there is still room to improve knowledge of Barauhi women and those living in Baluchistan Province. These findings are needed to be addressed in family planning program and polices of Sindh and Baluchistan Governments.

The uprising trend in ever-use of contraceptive methods in Pakistan shows that during the past two decades along with increased awareness, women and couples had accepted as well as tried family planning methods. Yet still by 2012 overall, one in two women who were aware of method of family planning had ever tried to practice it. This finding demonstrated that national family planning was more successful in increasing the awareness but still less successful in motivating women and couples.

The picture of family planning in Pakistan becomes more drastic when looking in to the current use of contraception. The contrast between ever-use and current-use of contraception in Pakistan revealed a huge gap and roughly indicates perseverance of family planning users for the relative short duration of contraceptive use.

The present ranking order of Pakistan on the basis of proportion of women who had ever used of contraception is similar to Sub-Saharan African countries (244). Although the trend in the ratio of ever use and current use of contraception become progressively smaller yet in absolute term the gap is still wider in the recent survey and indicates that most of Pakistani women do ‘experimentation’ with contraception and those who try a method do not stick with that.

The results from dynamics of contraceptive use also reflect high dropout rates among users of family planning method in 2012-13. If timely interventions are not taken in this regard, this trend will probably grow the difference between proportion of ever use and current use of contraception in Pakistan.

Regarding Contraceptive Prevalence Rate (CPR) it can be concluded that women in Pakistan continue to have the lowest level of current-use of contraception than their counterparts in the regional countries such as India, Bangladesh, and Nepal. According to the most recent surveys, these countries have contraceptive prevalence rates of more than 50 percent. Among regional countries, contraceptive prevalence rate of Afghanistan is at 23% which is lower than that of Pakistan (35 %) (238).

Regarding current use of contraceptive method mix, it is surprising to note that the current use of traditional methods at 9% is comparable with India, Bangladesh, and Nepal (239-241). This observation not only proves huge share of traditional methods of contraception in Pakistan’s CPR but also demonstrate that in relation to regional countries (excluding Afghanistan), far less proportion of women in Pakistan are still using effective and modern methods of contraception.

Although Pakistan Family Planning Program is the oldest with respect to other countries in the region (222), while exploring the history of family planning in Pakistan it is observed that greater focus on the issue of family planning was given in 1990s after establishment of the Federal Ministry of Population Welfare, and thereafter Pakistan had started experiencing gradual fertility decline. The post-ICPD

period is marked by the greatest achievement in family planning efforts in Pakistan. The contraceptive prevalence became more than doubled from 11% in the year 1990, to 28% by the end of the year 1999 (96). However, this progress was short lived and since the beginning of new millennium, there has been little growth in contraceptive prevalence. The national average remained stagnant at 30% by 2006-07. Yet, the contraceptive prevalence of 35% in present study indicates some progress in Pakistan Family Planning Programs in five years period prior to the recent surveys.

Bifurcation of the national CPR in to regional as well as sub-regional urban and rural context, troublesome results are observed. It is evident that marked regional as well as urban and rural disparities persist since beginning. Until now, the current CPR of Punjab is twice than that of Baluchistan. Besides this, the comparable CPR of Sindh with that of Khyber Pakhtunkhwa is primarily due the contribution of highest urban CPR of Karachi, (which is the capital city of Sindh province and it is the most populous city in Pakistan) otherwise, the CPR of rural Sindh is less than that of Baluchistan's rural. The poor situation of family planning in Baluchistan is unveiled by the finding higher CPR of Punjab's rural than that of urban Baluchistan. The aforementioned differentials suggest that national level family planning statistics are not sufficient to understand the situation of family planning in Pakistan.

The sluggish progress in CPR became more alarming when it is found that compared to previous survey in 2006-07, increasing proportion of non-users were uncertain whether they will use or not family planning in the future. Besides substantial increase in indecisive attitudes, the proportion of women who showed intention to use family planning in the future has decreased in the recent survey.

Future intention is an important measure of changing demand for contraceptives as well as extent to which non-users of family planning aims to use a method of contraception in the future. Though, this sort of negative trend is also evident in the recent DHS of Bangladesh (240). However, recognizing that CPR in Bangladesh is at 62%, this negative trend is more significant for Pakistan.

A similar unsound trend is also noticed in family planning media campaign. It is found that exposure to family planning messages via mass media has been substantially decreased between current and previous survey. Moreover, those who had listened, read or watched the messages, only one in every three understood that

message was regarding the use of contraception, the other perceived it as an advantage of small family size by limiting family. This finding is also reflected by the fact that three-quarters of current users are practicing family planning for the purpose of limiting the childbearing. The differentials in the current use such as contraceptive prevalence is higher among women age 30-40 years, higher for women with five and more children, lesser among those whose ideal number is greater than actual and lesser among women married recently. These facts support the observation that contraceptives are primarily used for limiting the childbearing in Pakistan. Historically, the slogan of National Family Planning Program in Pakistan “smaller the family, happier the home (translated from Urdu)” has focus on family planning as a way of limiting the births, not as a way of spacing the births. Additionally, previous study in Pakistan has highlighted that both men and women lack awareness of the health risks engendered by the rapid succession of pregnancies (245).

The current low contraceptive prevalence in the presences of thousands of nationwide public and private family planning service providers as well as health facilities and non-governmental organization working for family planning, conform to the prior finding of low service utilization in Pakistan (171). The wide and diverging gap between knowledge of contraceptive method, ever-use of method and current-use of method indicates that in order to translate knowledge into action and transform action into continuation just recognizing method of family planning is not sufficient. Mahmood and Ringheim (246) had shown that the knowledge about source of method is also an important determinant of its use in Pakistan. Furthermore, Fikree et al (247) had shown that knowledge about appropriate use was poor among users who knows the availability and affordability of the method.

Modern Family Planning Programme is conceptualized as spectrums which includes counseling services, provision of method mix, instruction for correct use, information about side effects as well as follow-ups of the users (248). Efforts are needed for improvement of the current national and provincial family planning program in these lines.

6.2. Trends in Unmet Need for Family Planning

The Previously discussed stagnation in contraceptive prevalence also impersonates the demand for family planning in Pakistan. Looking to the figures, it is found that total demand for family planning is halted in Pakistan at 55% since the year 2006. Actually this constant level of demand might be due to the decrease in unmet need for family planning between PDHS 2006-07 and PDHS 2012-13.

The results showed that total level of unmet need for family planning has decreased moderately from 32% in the year 1990-91 to approximately 20% in the years 2012-13. This decrease in unmet need was possible due to increase in the use of family planning, especially for limiting births during this period. With regard to component of unmet need, it is interesting to note that from 1990 to 2012, unmet need for spacing dropped more rapidly from 17% to 9% as compared to unmet need for limiting that dropped from 16 % to 11%. In view of unequal decline, the components of unmet need became more diverged in recent years.

Since, the overall objective of measuring unmet need is to determine women at risk for unintended pregnancy (64), this persistently high level of unmet need for limiting in Pakistan is alarming as it explains the high proportion of unwanted pregnancies and induced abortions that were estimated by Satar, et al (249).

There is a wide variation in unmet need for family planning among regional neighbours. The recent DHS data from these countries suggest that the total unmet need in India and Bangladesh is approximately 12%, moreover the need for spacing and limiting are equally distributed (239, 240). However, in Nepal overall, 27% of currently married women have an unmet need for family planning, with 10% having an unmet need for spacing and 17% for limiting (241). While data from Afghanistan suggest that 25% of currently married women have an unmet need for family planning, with 18% have need for spacing and 7% for limiting births (238). This variation might be partly due to the diversity of contraceptive utilization and partly due to the disparity in fertility intention of the women in these countries. This can be explained along these lines. The low level of unmet need in India and Bangladesh is caused by having women's access to full range of family planning methods as well as having preference for small family size. The mean ideal number of children for Indian and Bengali women was found as 2.4 and 2.0 respectively (239-240).

However, along with 50% contraceptive prevalence rate, the high level of unmet need particularly unmet need for limiting in Nepal reflects success of family planning program in changing behavior towards low family size. This is supported by the fact that the mean ideal number of children desired by Nepalese women was 2.2 (241). Finally, the low contraceptive prevalence with the higher level of unmet need especially unmet need for limiting in Afghanistan presumes low utilization of contraception together with interest of Afghani women in using contraception for spacing purpose, since the average number of children desired in Afghanistan is 5.6 (238). This regional comparison explicates the context of unmet need in Pakistan. The moderate decline in unmet for family planning in the past 22 years was possible due to two reasons: First, larger family size is still norm in Pakistan and Pakistani women consider four-child family to be the ideal. Furthermore, this figure remained unchanged since 1990. Second, though contraceptive use was increased in this period, the use of contraception was mainly after attaining fertility goal and for restricting the childbearing. The consistently diverging gap between the components of unmet need demonstrates that women in Pakistan need contraception for long-term purpose that is to limit childbearing.

The findings suggest that larger-fertility preference in Pakistan is one of the possible reason for slow transition in contraceptive prevalence rate as well as unmet need for family planning. Once the attitude will be changed and desired family size will reduce and women will start using contraceptives for limiting as well as for spacing the child birth and the target of replacement level fertility will achieved.

It is evident that, proportion of women with no need is higher in all three surveys, and this is due to higher fertility in Pakistan, thus, greater number of the women were either pregnant, postpartum amenorrheic or want to become pregnant shortly in the near future. If desire for smaller family as well as contraceptive use rises, the bulk of this group will decline.

Undoubtedly, it is correct that reducing unmet need is a major approach to lower fertility rates in countries with rapid population growth (137). However, in Pakistan, efforts are required first to generate need for family planning by reducing the paradigm of larger family size. The success of fertility decline as well as raise in

contraceptive prevalence in India and Bangladesh is parallel with reduction in ideal number of children desired by women in these countries (239,240).

Regarding components of unmet need, the relatively higher importance of need for 'limiting' versus 'spacing' in Pakistan is explained by the fact that Pakistani women want to 'reproduce' and then 'use' the contraceptives. This finding has implication for the types of methods needed by the women in Pakistan. In this scenario, offering effective long term and effective methods of contraception will be more appropriate.

The concern for higher unmet need and lower contraceptive prevalence becomes more questionable while looking at the regional inequalities within these parameters. The greater, unmet need together with low contraceptive prevalence in Balochistan shows that women in Balochistan had increased their demand without much change in contraceptive use. The scenario in Balochistan is in accordance with Robey, et al (250) 'change-in-attitude stage' as attitude towards control of fertility change ahead of the actual use of contraceptives. Therefore, unmet need rises without much change in contraceptive use. Whereas, above national level contraceptive use along with lowest level unmet need in the Punjab is the result of "Change-in-behavior stage", in which the use of contraceptive rises rapidly, while unmet need declines.

It is also interesting to note that Balochistan is the only region of the country where unmet need for spacing exceeds the unmet need for limiting. This finding is in line with desire for larger family among Balochi women. The average ideal number of children desired by currently married women in Balochistan is six. The result suggests that women in Baluchistan want to delay childbearing but they do not yet have the means to do so effectively.

While looking in the trend of unmet need in urban and rural areas, wide disparity is evident in unmet need of rural Pakistan compared with the urban Pakistan; yet, 22 years ago the level of urban and rural unmet needs were alike. This finding indicate family planning preference in rural Pakistan have outpaced the growth of family planning services in these areas.

Finally, observing the trend in differentials of unmet need, it is noticed that in recent years the differences in unmet need are somewhat more prominent between

poorer and richer as well as between non educated and more educated women in Pakistan.

The relationship between unmet need and contraceptive use in Pakistan become more complex when it is observed that married women across all age-groups have an unmet need for contraception in Pakistan, but interestingly among users of modern methods, one in every three women rely on permanent method of birth control namely female sterilization, whereas use of hormonal methods of contraception is very little.

According to the recent survey (84), Pakistani women have approximately one extra child than they desired. This finding suggests that the current total fertility rate of 3.8 children per woman will be reduced by 31 percent if all unwanted pregnancy will be avoided by using family planning.

In the view of persistent demand for larger family size in Pakistan, even if all programmatic issues in family planning services are effectively addressed and remedied, the universal provision of contraceptive method mix alone cannot fully achieve the targets of population policies and replacement level fertility. It will only take-care of the immediate need for family planning.

6.3. Determinants of Current Contraceptives Use

One of the objectives of this thesis was to identify the major determinants positively or negatively contributing to current contraceptive use in Pakistan during 2012-13. The results showed significant variation in the use of contraception according to background characteristics of the woman, spouse, community and household selected on the bases of conceptual framework.

6.3.1. Differences Due to Woman's Socio-demographic Characteristics

Findings from this nationally representative survey indicate that in Pakistan, contraceptive use declines with women's age, and showed that old aged women were more reluctant to use family planning than younger ones. Such relationship between age and use of contraceptives has been observed in prior studies in Pakistan (190). Studies from other developing countries also showed similar patterns. (175,176,180) Consistent increase in the use of contraceptives among women aged of 30 to 40 in

bivariate analysis indicates that during this period of reproductive life, most of the women reached their fertility goal and then willing to use contraceptive methods.

Perhaps the lowest contraceptive use behavior of women aged 40 and above is probably indicative of ‘marriage cohort’ effect in family planning utilization, as most of these women were married by the age of 20’s and the data from earlier half of 1990’s suggest that use of contraceptive methods (45) as well as family planning services were very limited during that time. Besides this, these aged women represent the lifelong effects of sexual bias and low social status (252) thus women aged 40 and above in current survey are less likely to use contraception.

Additionally, it is also possible that due to false assumption of fertility decline or infrequent sex, women aged 40 and above abandon the use of contraception in Pakistan and are left at risk of pregnancy. Henshaw and Forrest (253) had shown that in addition to younger women, those who were in the later part of reproductive ages were also at risk of unintended pregnancies. Moreover, woman facing unplanned pregnancy in later life are at increased risk of pregnancy-related complications (254). These complications are not only due to the changes in reproductive physiology of women but also because of general health issues that comes with age.

The results of the study affirmed that educated women were more likely to use contraceptives than non-educated women and this finding is consistent with most of the studies from Pakistan (178,190,191) and elsewhere (175,176,180). This might be due to the fact that educational attainment empowers the women and provides opportunity for information on family planning method as well as removes the barriers to the access.

Regrettably, Pakistan is among those countries where female literacy rate is very low. According to recent survey of Pakistan Bureau of Statistics, more than half of the women in the country are still illiterate (255), furthermore ‘net enrolment rate’ at primary school level and ‘survival to last grade’ of primary level is low for girls as compared to boys (95). Additionally, this gender disparity in education is more evident in rural areas compared to urban areas. A variety of factors hinder girls’ education in Pakistan. Studies claimed that poverty, parental illiteracy, concerns of parents about safe mobility of their daughters, socio-cultural constraints such as

female modesty as well as emphasis on early marriages limit parental willingness to send their daughters to school (256). This highlights that barriers that hinder provision of female education are deeply rooted in Pakistani societies and are not just due to issues of management by government.

It is important to realize that education had played a vital role in fertility reduction in developed as well as developing countries (257). Without minimum universal primary education of females in Pakistan, the target set by government for replacement of the level of fertility is difficult to achieve in near future. Alaka Malwade (258) had shown that female education has many direct and indirect mechanisms in fertility decline. It is hope that more widespread female education in Pakistan will likely reduce the ideal family size from the current level of four children to two children.

The available evidence from developing countries suggests that female occupation is not a determinative factor of family planning use behavior (175,176,180), however in this study a weak association was evident by slightly greater use of contraception among women employed in agriculture, household, sale and services sectors compared to the unemployed women.

Recalling that the descriptive statistics of this study showed highly skewed employment status of women in Pakistan. More than two thirds of women were unemployed and those employed were mostly work in agricultural and unskilled jobs. Conforming this, the report of Pakistan Bureau of Statistics showed that in the year 2012-13, the 'Labor Force Participation Rate' for females was only 24% compared to males at 80% (259). In consideration of these facts, it is likely to get such weak association between occupation and contraception in Pakistan. Yet, probably because majority of respondents in PDHS data were unemployed, many prior studies in Pakistan (178,190) did not included this variable in analysis.

It is documented that lack of quality education, technical skills, limited mobility due to poor transport, vulnerable to sexual harassment at the place of work, as well as absence of affordable and accessible childcare are the major challenges for Pakistani women to join the labor force (260). Furthermore, it is a common observation in Pakistani societies that even educated women abandon their professional career for the sake of raising children and taking care of their family.

The impact of women employment on women's fertility is widely documented in the literature. In general, studies claimed that the social development of high income countries is positively linked with women employment and fertility decline in these countries (261,262).

These findings have significant implications for policies in Pakistan. Investment in family planning program will slow the population growth but in view of slow progress in contraceptive use, it is important to invest in female education and jobs creation to reinforce the family planning programs. Studies shows that employed women have wider social network which improves her knowledge about family planning, remove myths and decreases fertility preference (263).

In contrast to prior family planning related studies in Pakistan, this study is unique because of the fact that respondents' ethnic data was used in both bivariate and multivariate analysis. The results strongly indicate that in Pakistan, there are wide ethnic variations in family planning use. Study finding shows that the Urdu, Siraiki, Pushto and Punjabi ethnicities have significantly higher odd of contraceptive use.

The persistence of ethnic difference in multivariate analysis explains that beyond the socio-demographic and socio-economic determinants, factors such as ethnical customs, traditional beliefs, cultural rules and principals are stronger predictors of contraceptive use in Pakistan. Cultural and social norms are highly influential in shaping individual behaviors (264). Furthermore, the available literature shows that they affect the reproductive health of women (265).

In summary, present study fills a gap in the literature and provides insight on ethnicity of Pakistani women and its influences on family planning use behavior. Using the nationally representative sample of women of reproductive age, it documents that significant ethnic disparity in the use of contraceptives exists in Pakistan. Considering ethnic polarization in Pakistan, much less is known about ethnic differences in health indicators, pattern of healthcare provision and health services utilization in Pakistan.

This study identified that delayed marriage is positively associated with the increased use of contraception. A review article from African countries indicates non significant association (181), whereas, study from Bangladesh shows negative

association between age at marriage and use of contraception (176). However, the role of age at first marriage on contraceptive use is not well studied in prior studies in Pakistan. In addition to contraceptive use, the association between age at first marriage and fertility decline is well acknowledged in demographic literatures (266,267). Delayed marriage not only delays childbearing but also reduces reproductive span of women's life. Beyond the law and legislation for minimum age at marriage, female education is also found as an effective strategy to increase the age at marriage. It is supported by the fact that girls' years of education are positively correlated with postponement of marriage (268).

6.3.2. Differences Due to Woman's Fertility Related Characteristics

Regarding the number of living children and contraceptive use, it is found that use of contraception increase markedly among women having five or more children in Pakistan. Indeed, this finding is in line with the facts that mean ideal number of children among respondents in the survey was figured at four. Based on these observations, it could be concluded that women in Pakistan eager to obtain their desired fertility level before starting family planning. Furthermore, this impression is supported by the finding of discrepancy between the actual and ideal number of children that revealed contraceptive use increase among women who had attained their desired fertility goal. These indications reinforce the fact that the ideal number of children is decisive factor for contraceptive use in Pakistan.

The preference for son or more number of sons than daughters has been a part of South Asian culture (269) and is evident in prior studies in South Asia (270) including Pakistan (271). This study is in line with previous findings and claims significantly greater use of contraception among women with more number of son(s) than daughter(s).

Son preference is also found as a barrier for use of contraception. Study from neighboring country India claims that the preference for a son is one of the major obstacles in the way of reducing the national fertility level (272).

The consideration of sex composition of living children in the decision to have more children is also evident in Pakistan. In nationally representative recent DHS data, 90% of women with two daughters want to have another child, compared

to only 62% of women who have two sons (84). Similarly, among women with four children, about 78% of those with only sons replied that they want no more children as compared with 44% of those with only daughters (84). It can be concluded that the relationship between the desire for additional fertility based on ideal number as well as sex of living children is one of the major barriers for contraceptive use in Pakistani culture.

It is important to understand that in Pakistani culture, a son is considered as one who will forward family name and business; he is presumed to protect the family and support the parents in old age. This explains that son preference is deeply rooted in Pakistan. However in the view of male dominated societies in Pakistan where gender bias is evident in every sphere of life, and gender discrimination in the form of immunization and primary education of female child starts since childhood (255), it is important to recognize the social cost of son preference. Until gender equality will be not promoted and women's empowerment is not supported, it will be difficult to reduce the culture of son preference in Pakistan.

The positive impact of family planning in reducing child mortality is well known, albeit reverse is also true; Rahman (273) showed strong negative impact of previous death of children and continuation of contraceptive use in Bangladesh. In the present study, the relationship between deceased children and current use of contraception was not found to be significant. In order to find replacement effect of child mortality on contraceptive use and discontinuation behavior, further well planned studies are needed.

The chain of event that starts for no-use of contraception that leads to unintended pregnancy and ends at termination of pregnancy and finales in motivation for future contraceptive use is well described in demographic literature (274). However, the findings of the current study unable to identify significant relation between previous history of abortion and current use of contraception in Pakistan.

There are several arguments for this finding. First, the abortion statistics from Pakistan DHS are neither reliable nor the objective of the survey was to identify such association. Second, due to religious and legal reasons, women who have an unintended pregnancy in Pakistan are possibly less likely to have their pregnancy

terminated. Third, as a cross-sectional nature of the study, temporal association between abortion and contraceptive use cannot be established.

This study is unique in a sense that it has observed relationship between knowledge of fertile period and contraceptive use in Pakistan. The result gives credence to the differential in levels of fertile period knowledge in the utilization of contraceptives. It is interesting to note that regardless of accurate reply about “fertile days” mere presence of knowing that “from one menstrual period to the next, there are certain days when a woman is more likely to get pregnant if she has sexual relations” increases the odd of contraceptive use in all regression models. Study from neighboring country Iran also claimed that the reproductive health education of women during premarital counseling was successful in increasing the practice of contraception among these women (275).

6.3.3. Differences Due To Spousal’s Characteristics

Recognizing that fertility goals of husband and wife can be different, and this difference can affects the contraceptive use behavior; several studies had explored the association between husband versus wife fertility intention and use of family planning (178,180,218). Previous study in Pakistan (178) and other developing countries (180,218) suggest that when fertility preferences within couples differ, use of contraception was in favor of husband’s fertility goals. Finding of this study is consistent with previous studies and suggest that husband’s fertility intention is a barrier for contraceptive use in Pakistan.

Prior studies in Pakistan explicatively and consistently identified dominant role of husband in family planning issues (178,190,192). This study also suggests that in Pakistani setting, husband play influential role on family planning matters. For instance result of this study indicates that, when the fertility goals of husbands and wives are compared, husbands were found to be more pronatalist than wives. Descriptive analysis result also shows that the decision for family planning was mostly taken jointly with husband and respondent have limited role in deciding alone.

The current analysis revealed that almost half of the contraceptive method mix used in Pakistan are either male controlled such as condom, coitus interruptus

that needs husband's willingness and active participation and remaining half needs husband consent for example female sterilization. PDHS report also shows that husband opposition was the third most commonly cited reason among non-users who do not intend to use a method of contraception in the future (84). Additionally a recent study (192) conforms that husband approval for family planning is an important determinant for woman's intentions to use family planning, it was also found that, wife's belief that the use of family planning is mainly husband's decision lowered her future intention to use contraceptives.

Contrary to previous findings, it is also interesting to note that the PDHS 2012-13 country report revealed that 76% of men disagreed with the statement that 'contraception is a woman's business and a man should not have to worry about it' (84). This positive attitude showed that males in Pakistan are supportive for family planning. Additionally, the result shows that share of male control contraceptive methods (condom, male sterilization, and withdrawal) in contraceptive method mix has increased from 33% in 1990 to 50% in 2012.

Reality is that, classically the image of family planning campaign in Pakistan was to encourage women for contraception and national LHW programs have focused their efforts exclusively on women. Regrettably, exclusion of men from family planning program might be one of the reasons for slow progress in contraceptive prevalence in Pakistan. In a country like Pakistan where men make decisions on all family matters and women are dependent on their husbands for the use of contraceptive methods, it becomes really important to involve them in family planning interventions. Evidence from FALAH Case study in Pakistan (276) presents successful examples of strategies for involving men in family planning program. Furthermore, it was found that Pakistani men are supportive of involvement in family planning and express a clear desire to be involved in family planning interventions (276).

6.3.4. Differences Due To Community Characteristics

Research based on Demographic and Health Surveys from developing countries confirms positive association between exposure to family planning messages in the mass media and the use of contraceptives (176,177,180,181,193). In

the present study, substantially greater use of contraception is observed among women who had remembered seeing, hearing or reading family planning messages in any of the three medias, i.e. television radio, or newspapers. Similar finding also comes from the analysis of previous Pakistan Demographic Health Surveys (178).

As discussed previously, contrary to the knowing any method of contraception, only one-third of the respondents was found to be practicing any method at the time of survey. In this light, above finding should be viewed beyond the knowing of the method. Those were using any method actually understood the benefit of family planning in the message, and the mass media was successful in motivating only one-third of audience.

The present study conform the previous findings that claimed LHW program is effective in increasing contraceptive prevalence in Pakistan (46,47,115,222). Studies from Bangladesh (174) and sub-Saharan Africa (184,279) also identified that community based family planning worker were successful to raise family planning knowledge and contraceptive utilization in their serve areas. The most explicit reason of success of LHW program in raising contraceptive use in Pakistan is their defining characteristic; that is they are selected for training form the communities they are going to server. In the context of rural Pakistan where socio-cultural prohibition as well as lack of accurate information and availability of services prevents most of the women form utilizing family planning, this defined characteristic is critical element for establishing trust among people they serve. Moreover, awareness of social norms and behavioral attitude in their own society, additionally provision of services at the doorstep is a notable component of their success.

It is logical to hypothesize that women's empowerment in terms of decision making might be positively associated with family planning indicators. However, the association between women's decision making index and current use of contraceptive showed complex association in this study. It is observed that strong and significantly increasing linear relationship between these two variables found in bivariate analysis lost its affect after controlling other variables in multivariate analysis, and only weak but significant association is observed in the highest category of decision making index.

One possible explanation for this could be that social and cultural factors are stronger determinants for family planning issues in Pakistan; result shows that women had moderate level of autonomy in household decision-making yet, but this autonomy does not support in making choice for use of family planning. Another possibility is that the outcome and exposure variable are confounded by the number as well as sex composition of living children and also by women's age.

Surprisingly this finding is not unique for this study. A review article examining the relationship between women's empowerment and family planning outcome found consistently non-significant associations between household decision-making indicators and current contraceptive uses in at least 60% of the studies included in that review and were from developing countries (280). Reviewer of that study suggested that current use of contraception is not a lifespan perspective therefore conceptually finding an association between decision making index as an indicator and current use of contraception as an outcome variable is a methodological issue (280).

Overall, finding of the present study explicate that after controlling socio-demographic, socio-economic and selected community level variables, use of family planning is linked to only those women in Pakistan who have full autonomy in household decision-making.

6.3.5. Differences Due To Household Characteristics

With regards to geographical regions of the country, the region, which is least likely to make use of contraceptives, is Sindh with Baluchistan as the reference category. This supports finding from previous studies that showed women who live in Sindh and Baluchistan have the least tendency to use family planning (178,190).

In order to understand the reason for this difference, it is necessary to look beyond the National Family Planning services. First of all, the recent document 'Multidimensional Poverty in Pakistan' reports marked regional disparities that are reflected in every aspect of socioeconomic and other developmental indices (281). In addition to regional divide, varied gender inequalities are also visible in that document. Secondly, the socio-cultural barriers do not encourage family planning and this variance is already observed among ethnic sub-groups of Sindh and

Baluchistan in the present study. Thus, this result implies that cultural factors as well as place of residence influence the utilization of contraceptives in Pakistan. Study from India also shows that women living in the same country but from different culture and different place of residence are heterogeneous in their contraceptive use behavior (282).

This finding has important policy implications, as after the 18th Amendment in Constitution Health and Population Welfare are provincial business and interventions aimed at scaling up family planning and contraceptive use in the province will have to be holistic in their approach, going beyond the socio-cultural variables.

According to previous studies in Pakistani settings, the contraceptive use was expected to be lower in rural areas (178,190). This analysis also accord the evidence and suggests that still, wide urban rural variations in contraceptive use continue in Pakistan. Reasoning about this disparity, previous studies have underscored the gap in family planning service between rural and urban Pakistan (116).

The multivariate analyses also revealed positively increasing odds ratios between use of family planning and household wealth index after controlling other variables. Utilization of contraceptives was higher among women of all wealth quintiles relative to the reference category of poorest wealth quintiles. This finding corroborates the findings of a previous study (178) and demonstrates consequence of socioeconomic disparity in explaining the utilization of family planning methods in Pakistan. Studies from other developing and neighboring regional countries have also found that household wealth status significantly increase the likeliness of contraceptive use (175,180,193,199).

Yet in Pakistan, majority of the family planning services are either free or at reasonable price (96). Previous survey data showed that less than one percent non-user women were not willing to use contraception because of cost (96). Furthermore, findings of present study from the analysis of dynamics of contraceptive use revealed that cost was least cited reason among those who discontinued the use of contraception. In the light of these, variation among women living in the same country but from different socio-economic classes discloses that other than monetary

cost of contraceptive methods; there are other reasons responsible for such differential and call for further investigating of this finding.

The concern of lower contraceptive prevalence along with higher unmet need of poorer women become even more questionable while looking at the trend of inequalities in these parameters. It is observed that women from poorest wealth quintile had experienced substantial changes in their fertility desires between year 2006 and 2012. Currently their desires for fertility control become equal to desires of women from richest wealth quintile in 2006. In present survey, their intention to use contraception became approximate the intention of women from richest wealth quintile. This explains that women from poorest wealth quintile had increased their demand for family planning. Yet, contraceptive prevalence for women in poorest wealth quintile remains lower at 20% compared to 46% for women from richest wealth quintile.

Theoretically, lower utilization of contraceptives among women from poorest wealth quintile might be in part due to poor access to family planning services. However, recent PDHS report shows that overall 64% of women from poorest wealth quintile regardless of knowing outlet which provides contraceptive services never visited such facility compared with only 47% from rich and 53% of women from richest wealth quintiles (84). Findings also disclose that one-half of the women from poorest wealth quintile cited they want more children as reasons for not visiting the outlet compared with only one-fourth of women from rich and richest wealth quintile (84).

These findings demonstrate that definitely lack of access to service provision, and affordability for contraceptives is not the only factor for low contraceptive prevalence among poorest women in Pakistan.

6.4. Determinants of Unmet Need for Family Planning

The multivariate analysis of predictor variables on unmet need for family planning provided additional insight as well as understanding of the issue of family planning in Pakistan.

6.4.1. Differences Due to Woman's Socio-demographic Characteristics

Considering the variation in unmet need for FP over the reproductive life span, *women's age* was explored in many studies and heterogeneous relationship is evident in literature. Studies from India and Bangladesh showed unmet need for family planning were more among the younger age women particularly around 20 years of age and gradually starts to decline after 25 years of age (282,283). Studies from Nepal (284), Zambia (285) and Ethiopia (193) showed that the unmet need increases below the age of 35, and decreases once woman reached 35 or above years, while in Kenya (286), it decreases after the age 30. Zimbabwean study (287) showed lowest unmet need for women aged between 20 to 30 years. The present study in Pakistan found that the unmet need for family planning varied across the whole range of reproductive age, from young to old. The relationship shows that unmet need decreases below the 20 years of age, then increases with age as woman reached 20 years or above and again decreases when woman reaches 40 years and more ages.

Regarding limiting component of unmet need, prior study using Pakistan DHS 2006-07 data found a significantly negative but weak association between age of woman and her unmet need for limiting the birth (288). However, the present study contradicts the finding and claims that after controlling other background variables, once woman aged 40 years or above, demand for limiting the number of births increases. Study from Zimbabwe (287) and Zambia (285) also showed positive association between woman's age and unmet need for limiting the birth, whereas negative association was found in Ethiopia (193), while age of women was identified as lesser determinant for unmet need for limiting the number of births in Kenyan study (286).

In contrast to total and limiting component, the spacing component of unmet need failed to show any significant relationship with women's age in the present study. However, the prior study in Pakistan using women's age as a continuous variable revealed that age was negatively associated with unmet need for spacing births in DHS 2006-07 (288). Studies from Ethiopia (193), Zimbabwe (287), Zambia (285) and Kenya (286) also revealed that unmet need for spacing decreases with age.

The diversity of unmet need for family planning over the woman's reproductive life span in different studies necessitates understanding of woman's

reproductive need more logically and in contextually. The present study portrays the true picture of women in Pakistan needing for family planning. It is rational for Pakistani woman who have had already attained their desired fertility goals and who is in the middle of her reproductive life declared a greater need for limiting the birth while woman at upper extremes of reproductive age, based on her age and educational level, employment status, marital duration and considering number and sex of already existing children, express her demand for limiting the number of births. However, when husband's fertility goal was considered in the model, wife's desire for limiting became unimportant.

Results from Ethiopia (193), Kenya (286) and Zimbabwe (287) shows that woman's education was the most important predictor of unmet need for family planning and unmet need was significantly lower for women with secondary or higher level education. While, women's education was not significant predictor of unmet need in studies from India (282), Bangladesh (283) and Nepal (284). In Pakistan, the significant association of women's education with unmet need was observed only in bivariate analysis and after controlling other variables in multivariate analysis, education has lost its significance. Prior studies in Pakistan using PDHS 2006-07 dataset also failed to identify significant association (288).

The lack of independent affect of female education on unmet need in the regression model can be explained by fact that concept of unmet need is by itself much complex and depends upon fertility intention as well as fertility goal. Apart from this, it might be possible that expected affect of women's education is masked by other socio-demographic, socio-economic and reproductive level determinants in the model.

Findings from present study revealed, ethnic variation as one of the major determinant of contraceptive prevalence as well as unmet need for contraception in Pakistan. This result corroborates the findings from previous study in Pakistan that claimed socio-cultural factors and community norms play important role in shaping family planning behavior of women (289). The analysis showed that along with low contraceptive prevalence in Barauhi and Sindhi women, their unmet need for family planning is significantly higher than other ethnic groups. This finding clearly indicates while keeping other factors constant, socio-cultural factors might prevent

these women from making their own family planning decisions. In the presence of socio-cultural barriers in these communities, the implementation of family planning services has little or no impact. Additionally, the Barauhi and Sindhi communities are settled in the areas that are underprivileged and most neglected (280); accordantly, prior study had also highlighted supplied sides issues in these areas (116).

Woman's employment as a proxy for their financial autonomy as well as social status is also revealed as an important factor affecting whether or not their need for family planning need could easily be met (186). Present result shows that total unmet need as well as unmet need for limiting was significantly higher among unemployed Pakistani women. Studies from Kenya (286) and Zimbabwe (287) also indicated low level unmet need among employed women. Yet, Indian (282) and Ethiopian (193) studies did not found association between unmet need and woman's employment.

An interesting finding in present study is, women engaged in agricultural, domestic, household and unskilled manual work had significantly higher unmet need for limiting but concomitantly, their unmet need for spacing was markedly lower. This astonishing finding might demonstrate that women employed in these jobs either want to achieve their fertility goals soon or if they had achieved, their desired fertility level and they want to stop child bearing at all.

This finding is self explanatory since in traditional and unorganized working sectors such as agricultural, domestic, household, unskilled manual sectors, there is no concept of maternity leave as well as social security or health insurance coverage anywhere in Pakistan. In this scenario, either the reproductive role limits women in their homes where they raise their children and keep them out of employment. Another alternative is due to low job security and less income stability, have them perform dual role at home as well as at the workplace even while pregnant or in postpartum period (290). Keeping with this context, it is logical to get above findings in this study. Yet, the Maternity Benefit Ordinance-1958 provides maternity benefits for women in all establishments (291) but undeniably, the role of governmental labor policy and regulatory mechanisms are only cosmetically on papers in Pakistan.

Regarding association between women's age at first marriage and need for family planning, study from India (282) found an increase in the odds for unmet need among women who married between 15 to 18 years of age, while Ethiopian study (193) noticed lower odds among women who married at younger than 15 years of age. Present study found slightly greater need among women who married between 18 to 19 years of age. A varied pattern of significance for unmet need was observed in a review article (185). It can be concluded that in the presence of other variables in the model, age at first marriage is a lesser determinant for unmet need in present study.

6.4.2. Differences Due to Woman's Fertility Related Characteristics

With respect to ideal versus actual family size, the finding that the unmet need for spacing is significantly greater among women who had yet not achieved their desired number of children is methodologically a duplication of the concept of unmet need for limiting, and conforms that to achieve desired number of children. These women want to delay childbearing up to some years but at the same time not using any method of contraception.

Hypothetically, it is expected to find higher demand for limiting the birth among women whose actual family size exceeds their ideal wanted number, however contrarily to expectation, non-significant association was observed. This finding demonstrates that non-user women do not express need for limiting the birth even if they had more children than they desired. This argument is supported by the fact that is found in a recent survey that, women in Pakistan have in general about one extra child than their wanted number (84). This information is a potential indicator of the extent to which Pakistani women are successful in controlling their childbearing.

The most surprising finding is for those who had non-numeric syllabic response for the ideal number of children. It was identified that unmet need for spacing is up to five times greater for these women compared to those who have equal ideal and actual number of children. Given that, over the past two decades, proportion of women with non-numeric replies for the question about ideal family size has declined from 60% (45) to just 4% (84), and furthermore, in the recent survey, women with non-numeric responses showed considerably higher need for

family planning. This finding indicates that reproductive behavior in Pakistan has entered into the “calculus of conscious choice”, one of the necessary preconditions for the fertility decline described by Ansley Coale in 1973 (292).

Studies from India (282), Ethiopia (193) and Kenya (286) identified positive association between number of living children and woman’s total unmet need for family planning as well as unmet need for limiting; it means as the number of children increased, the likelihood of total unmet need and unmet need for limiting increased in parallel. Whereas studies from Nepal (293) and Zimbabwe (287) showed that unmet need decreased with number of living children, while no association between number of living children and unmet need was evident in Bangladesh (194). A review article found that the number of living children or parity were usually positively associated with the limiting component of unmet need, while the effect on spacing component of unmet need was less consistent across studies reviewed in that article (185).

The present study is unable to reveal any increasing or decreasing pattern of associations between number of living children and unmet need for family planning. However, it is evident that unmet need for limiting was significantly lower among women having 1-2 children compared with women having five or more children, acknowledging the fact that the most common ideal number of children among respondents in current survey was ‘four’ and this finding was consistent with the fertility goal of women.

In the current study, unmet need for spacing was found higher among women with no children. The possible explanation is that these women might be younger aged and might be married in recent past. Reasoning that and considering early marriages along with earlier marital childbearing in Pakistan. This finding conforms the desire of women for effective method of contraception for delaying the first birth but unable to do so. Literature shows delayed interval of first birth is positively related with delay subsequent birth intervals (268). Furthermore, a study from Rwanda found significantly negative relationship between the previous birth interval and unmet need for family planning (207). Along with these findings, pre-marital family planning counseling in Iran showed positive impact on post-marital contraceptive practice (257).

The existence of a son preference has been documented in some studies from South Asia (269-272). Sex preferences for children are great concern because of their potential negative effect with family planning indicators (294). This study revealed that the women's total unmet need and spacing component has a strong positive association with greater number of surviving daughters compared to greater number of surviving sons.

In the presence of better indicators to measure extent of sex preference such as sex selective abortions, sex ratio at birth, sex differentials in child mortality, and gender disparity in the health of children, the findings of present study cannot be explicitly as male sex preference in Pakistan but yet these findings highlight occult male sex preference behavior in Pakistani society and its impact on family planning as well as possible reproductive health cost.

In line with this finding, a prior study in four districts of Karachi (Pakistan) found that the number of surviving daughters were substantial determinant of the probability for further childbearing (295). Undeniably, use of family planning and preferred sex of child is greatly correlated because if husband and/or wife do not reach the desired sex composition of offspring, they do not start family planning. Contraceptive use behaviors in developing countries are significantly shaped by the number as well as sex of living children (175,177,180,199,204).

Due to the cultural, social and economical reasons, the drives for sex preference are deeply rooted in the society and are difficult to erode. The consequences of son preference in the society go far beyond its affect on family planning. Studies from Pakistan give evidence of discrimination against female child in terms of food allocation (295) and provision of healthcare (296).

An Egyptian study (209) disclosed that the *history of abortions* was an important determinant positively associated with total unmet need for family planning. The present study however, unable to find any significant association with the history of abortion. Considering the responder biasedness due to social stigma, and legislatorial consequences, future investigation using rigorous methods and innovative approaches is required for evidence based answer.

Other variables at the reproductive level, such as number of deceased children, varied in their significance patterns between studies. For instance, the

unmet need among women in Nepal (293) who had lost a child born to them is greater as compared to those with no lost. Whereas in Rwanda (207), decline in overall need for family planning was observed with child death experience and replacement effect of child mortality was evident. Albeit current study in Pakistan did not revealed association between women's *experience of child death and their need for family planning*.

The result revealed that woman's correct knowledge of ovulatory cycle significantly decreased her unmet need for contraception. The knowledge of the ovulatory cycle is defined in this thesis as 'accurate awareness of fertile period during the menstrual cycle'. Apart from indicating fertile period, accurate knowledge of ovulatory cycle is considered by Busari (297) as a predictor of a woman's reproductive health status and it was also noticed that incorrect or lack of information about ovulatory cycle was associated with higher frequency of menstrual problem (297) whereas, literature on the relationship between women's knowledge of ovulatory cycle and unmet need for family planning is an underdeveloped area.

Finding of this study on the knowledge of ovulatory cycle and unmet need for family planning of the women in Pakistan is timely, since it highlights the potential relationship between, knowledge of reproductive health and family planning behavior of currently married women in Pakistan. Considering this, it is suggested that lack of accurate information about reproductive health has prevented most women in Pakistan from use of family planning services. However in Pakistan, there is a general shyness when it comes to talking about reproductive health awareness topics; cultural norms as well as *religious conservatism* have deemed sexual and reproductive health as a taboo subject and sensitive issue.

Pyper (298) suggests reproductive health awareness is an important dimension and needed to be integrated into existing reproductive health programs. Despite the fact that the demographic transition had made Pakistan a youth profile country (8), there are very few programs to increase the awareness along with to deal the issues of the youth sexual and reproductive health.

Finding on the knowledge of ovulatory cycle and unmet need for family planning of women in this study is not without limitation. First, as cross-sectional nature of study design, it cannot establish causality. Second, the question in the DHS

questionnaire was just to establish accuracy of knowledge of ovulatory cycle, it may be possible women who had just guessed the correct answer statements were counted with those having correct knowledge. Furthermore, respondents who know the correct answer but due to misunderstanding, chose the wrong statement were undercounted. In depth studies in this topic could better help to understand the association between knowledge of ovulatory cycle and family planning behavior of women in Pakistan.

6.4.3. Differences Due to Spousal Characteristics

In the present study, after controlling other variables in regression model, husbands' level of education lost its significantly negative independent effect on wives' unmet need. This finding is in accordance with a study from Bangladesh (194), while Ethiopian (219) study claimed that the odd of unmet need for spacing increased if husband is more educated than his wife, however no association was observed for unmet need for limiting.

Findings from the Rwanda indicated slightly higher level of unmet need among women whose partners were employed in the services sector compared to those who were employed in agricultural sector (207). While present study found slightly greater unmet need among women whose husband were employed in agricultural, domestic and unskilled manual sector relative to whose husband were unemployed.

Among the husband's level factors contributing wife's unmet need for family planning, the relationship between husband desires for children was most prominent determinant in indicating how the women's need for family planning changes over husband fertility goals. Finding of present study supported prior study (300) and conform that husband's fertility preference and attitude was a major barrier for the women's need for family planning in Pakistan.

Overall, the spousal influence on a woman's reproductive health is an important area of family planning research and has acquired greater attention since 1990's (301). The results of studies from Bangladesh (194) and Zambia (285) are similar to the finding of present study and suggest that the husband fertility intention and fertility goals exert significant influence on a woman's need to use family

planning. Study from Kenya further mentioned that family planning is more likely to be practiced if husband, not the wife, desires to limit childbearing (302).

The objective of present study was not to assess specifically how, by what and why the fertility goals of husband's influences woman's demand for contraceptive use in Pakistan. However, findings from Pakistan and other developing countries may provide some insight into the topic and suggest avenues for future research.

To reduce unmet need for family planning in Pakistan, the barriers of male's influence on women's fertility intention and women's demand for family planning must be addressed. Many approaches have been successfully applied in other developing countries to promote male engagement in family planning. These perhaps can be applied in Pakistan. For example, in Kenya, workplace motivators were successful in educating men about family planning, advantages of birth spacing and reproductive health issues (303). Another example is from Benin where local non-governmental organizations used dramas to convince man to be supporting of his wife's' desires towards contraception. This approach contributes significantly in decreasing the ideal number of children desired by couples and increasing contraceptive use (304). An initiative implemented in Zimbabwe is Male Motivation Campaign that consists of male motivation discussions, radio dramas, family planning brochures focusing males. It was found successful for increasing male engagement in family planning as well as developing husband and wife communication on fertility intention that ultimately leads to greater use of family planning (305).

Similar innovatory approaches are needed to be designed in Pakistan to involve males in family planning decision-making processes as well as to convert them as facilitators for women's family planning use.

It is well understood that, spousal communication on number of children and family planning can reduce the unmet need for family planning by women. Indeed, a study from India had shown that spousal agreement on fertility goals was one of the reasons for reduction in unmet need (306). Consistent with this, present study also found that women's need for spacing as well as limiting the number of births is considerably higher if women were not aware of husband's fertility goal.

6.4.4. Differences Due to Community Characteristics

Radio, television, newspaper and magazines are most commonly used strategies employed in promotion of family planning (221). Even though people never respond alike to mass media family planning campaigns, the role of the mass media cannot be over-looked in the pursuit of awareness of benefits of contraception in the population. In the current study, both the bivariate and multivariate results support that exposure to family planning media messages was negatively associated with all components of unmet need for family planning in Pakistan. Finding of this study is consistent with previous studies in Bangladesh (194), Ethiopia (193), Kenya (286), Zimbabwe (287) and Pakistan (288) shown that women who had heard, listen or seen family planning messages from mass media have significantly lower unmet need for family planning.

The results explicate successfulness of Pakistan LHW Program and increase likelihood of having unmet need was observed among women who were not visited by LHW compared to the women who were visited. This finding is in line with those of Megan and Patrick (222) that found significantly greater contraceptive prevalence in areas served by LHWs even after controlling other socio-demographic variables. Community family planning workers and community health workers have been on the front lines of efforts to provide family planning services in many developing countries. Studies from Bangladesh (194) and Zimbabwe (287) also reported the effectiveness of community health and family planning workers in reducing unmet need for family planning in their serving areas. While study in Ethiopia (193) documents that visited by family planning worker was positively associated with unmet need for spacing, but not for limiting.

Despite the lack of an experimental design in this thesis that limits the confidence with which effect of LHW can be inferred, the present analysis of trends and determinants of contraceptive use and unmet need for family planning proved that increase in contraceptive prevalence rate in Pakistan has coincided with LHW Program.

Though many studies come with positive impact of Pakistan LHW Program (47, 115, 222), but the difficulties lie in program financing. It was found that expenditure on key inputs, suchlike contraceptive materials, vehicle fuel, vehicle

maintenance, salaries and allowances were much below than planned amounts and were insufficient for full implementation (222). These findings have several implications. In the year 2016, Federal Government of Pakistan had launched a new comprehensive policy document, 'National Health Vision Pakistan 2016-2025' (86) and universal access to safe family planning methods is one of its main objectives. In view of socio-cultural barriers, access to family planning services is limited among women in many areas in Pakistan. The provision of door-step services by community based lady workers will help to achieve the goal of universal access to family planning and replacement level fertility in near future. Albeit considering reduces donor funding (222) and low per-capita health expenditure (19), the expansion of the program must be planned not beyond the realistic resource envelope.

Woman's decision-making authority was measured using indicators reflecting various aspect of a woman's autonomy in daily decision making. This study found puzzling mixed significant and non-significant relation between decision-making authority and the women's need for family planning. On one hand, significantly higher unmet need for spacing and total unmet need is observed for women who have no decision making authority; on the other hand, no association was observed with limiting component of unmet need.

In accordance with the commitment in the Third Millennium Goal (62) to improve women's empowerment and gender equality, the household decision making index was used as an indicator for women's empowerment in many family planning studies during last decade (186). The results of these studies also demonstrate complex relationship between women's empowerment and family planning behavior.

This complexity can possibly be explained with two reasons. First, the construction and measurement of authority in decision making is by itself a complicated issue. This decision-making index used in the analysis did not monitor actual participation in decision-making process but only examined the ability of women to participate in decision-making process. Secondly, given that woman's autonomy and her decision on family planning issues remains subject to the man's willingness and reflects socio-cultural norms, getting an association between household decision making index (as an exposure variable) conceptually associated

with family planning outcome is challenging. Present study justifies the above arguments and demonstrates significantly positive association between household decision making authority and unmet need that was observed in bivariate analysis, compromised by considerable diffusion effects of other variables in the multivariate analysis. It can be concluded that women's need for family planning operates beyond the level of her household decision making authority in Pakistani scenario.

6.4.5. Differences Due to Household Characteristics

Regarding residence, present study shows that unmet need for spacing as well as unmet need for limiting was significantly higher for rural women than their urban counterparts. Similar pattern was also evident in analysis that comes from 2006-07 Pakistan DHS (288). The substantially higher unmet need among rural women is also evident in Bangladesh (194), Ethiopia (193) and Nepal (293). However studies from India (282) and Zimbabwe (287) did not show any association.

Although utilization of contraceptives among urban and rural residents in Pakistan was gradually increased in the last two decades but yet the gap in unmet need between rural and urban women persistently became more widened. This marked urban and rural gap in unmet need for family planning can be explained by the fact that women in the rural areas are less educated and are socioeconomically disadvantageous compared to urban counterparts; however after adjusting for education level and household wealth status in current study, the urban and rural difference in unmet need remained still significant. Apart from this, but with respect to other health and development indicators (307), rural Pakistan is far behind urban Pakistan; for instance, Population Reference Bureau Report-2015, based on authentic data source suggests that 'percent of female aged 15-24 who have completed lower secondary school' is 23% in rural areas versus 58% in urban areas. Concurrently, 'antenatal care (at least 4 visits)' is 62% in urban areas versus 26% in rural areas. Furthermore, inequalities are evident in almost all indicators of similar kind (255,280,307).

Given the fact that more than two-thirds of country population is residing in the rural areas, these findings are alarming. Taking this into account, it is necessary for government to improve and maintain equal access to education, health, and

family planning services for both urban and rural people. Together with this, comprehensive research is needed to identify factors that contribute marked urban and rural disparities in Pakistan.

Geographical variation was also found as an important determinant of unmet need for family planning in Pakistan. The results showed that women living in Sindh Province were more likely to have unmet need than those who lived in the other provinces. This is contrary to the findings from Shirin et al (288) where women in Baluchistan were reported to have greater unmet need for family planning. Since unmet need for family planning is one of the widely used indicators for monitoring family planning programs, this finding should be interpreted with caution. The discrepancy in the results could be by two reasons. Initially, due to sample variation, Shirin et al (288) used PDHS 2006-07 dataset while current study was using PDHS 2012-13 dataset. Secondly, due to the methodological differences, in current study wide range of background variables were controlled in multivariate analysis while only few socio-demographic and community variables were include in the analysis of prior study.

Overall, the above geographical variation reinforces the fact that regional inequality remained problematic throughout the history of Pakistan (308). Besides this, the recent Multidimensional Poverty Report (280) also highlights regional disparities across Pakistan and claimed that Baluchistan followed by Sindh is the most disadvantageous provinces in Pakistan. Sindh and Baluchistan are not only backward in family planning indicators but health and educational indicators are also far below the national level in these two provinces.

The central-provincial conflict on authorities and responsibilities was resolved after the unanimous passage of 18th Constitutional Amendment in 2010 (117) by which structure of the state was redefined and shifted from mainly centralized to a predominantly decentralized federation. The 18th Amendment represents opportunities as well as challenges, since health and population welfare are now under provincial government with this regional disparity. There will be no single approach that will work in all provinces and each province has to take action according to its current situation to achieve the national targets.

The regional findings of unmet need in present study are important for two reasons: first, with the current level of unmet need, target of population policies were unachievable in the planned time and in fact it will be difficult to achieve Sustainable Developmental Goals (85) by 2030. Furthermore, if provincial government will not take concrete steps in this post devolution scenario, the regional disparities in family planning indicators will likely to more widen than ever before.

The PDHS 2012-13 data used in this analysis was collected just after two years since the passage of 18th Amendment that transferred authority of population welfare and health to the provisional government. Present findings cannot highlight the regional disparity in post devolution scenario, however the next demographic and health survey will better help to understand the influences of evolving decentralization structure on health and population policy as well as their outcomes under multi-level governance in Pakistan. This finding just suggests provincial government to take necessary steps without being late, it is high time to take responsibilities given to them.

Studies from many developing countries (185,193,283,285-287,293) show that there is a wide gap between unmet need for family planning of the poorer and the richer. This gap is also evidenced in the current study and it is found that women in the poorest and poor wealth quintile have significantly higher unmet need for spacing as well as limiting. Moreover the results of current survey are in tandem with those of 2006-07 survey (288).

Studies in 462 districts within 26 African countries showed that fertility decline in districts are positively associated with an increased average household wealth in that districts (309). Simultaneously increased contraceptive use was evident in districts with greater fertility decline. Several other studies had showed that family planning is positively associated with developmental indicator and economical growth of the region (65-69). Indeed, economical growth of the region may exert a positive influence on wealth accumulation of household.

In view of this, it can be concluded that household wealth has two-way cause and effect relationship with unmet need for family planning. On one hand, causal chain runs from wealthier households to increase contraceptive knowledge through greater acceptance of family planning and greater use of contraception and finally

culminate at reduced unmet need and fertility. On the other hand, it runs from reduced fertility to greater empowerment of women and better health and education of children to positive household wealth accumulation. Of course this cause-effect relationship can be argued as conclusion comes from cross-sectional studies, but even then it is clear that each link in this chain contributes itself favorably to contraceptive use and unmet for family planning.

Lastly, perception of people about birth control also matters for the need of family planning; for example, men in rural residences working in agriculture sector considered birth limiting as negative affect for the household productivity as well as additional medical expenses in case of side effects from using contraception (310), whereas women from urban residence considered that birth control help to reduce the costs (e.g. nutritional, educational, and medical) of child bearing and is supportive element for household income (311).

6.5. Dynamics of Contraceptive Use

The availability of calendar data in PDHS 2012-13 had granted a retrospective cohort and provide opportunity to determine the first-ever population based dynamics of contraceptive use in Pakistan. These results provide useful insight about the length of time different contraceptive methods are used by women, how often they stop practicing a specific method, their behaviors and reasons for switch to a different method as well as frequency of user failure during five years prior to the survey, from 2007 to 2012. Results of present study will guide national family planning program managers to identify the problems faced by clients for the continued use of family planning technologies and to develop strategies for reducing the dropout. Considering this, present study has shown important implications for improving family planning services and policies in Pakistan.

6.5.1. Discontinuation of Contraception in Pakistan

This study found that more than one-third of all contraceptive users (37%) discontinued their method within the first 12 months, while more than half (58%) discontinued within the first 24 months. The one-year dropout rate is comparatively higher than some other recently surveyed countries in the region like India at 27%

(239), Afghanistan 26 % (238), Bangladesh 30% (240), as well as countries like Turkey at 32% (332) and Indonesia 27% (333). However, this discontinuation rate is lower than Myanmar 39% (334) and Nepal 51% (241).

The analyses of discontinuation rates for contraceptive method mix in Pakistan clearly demonstrate choice of method among women according to duration of protection. In Particular, the IUD presents much lower discontinuation rates than other methods, where injectable and pill present higher discontinuation rates. Yet, this trend is similar among women in India (239), Bangladesh (240), Afghanistan (238) and Turkey (332). However the method-specific discontinuation rates for hormonal methods (particularly pill) and IUD are relatively much greater in Pakistan than all these countries.

The 12-months discontinuation rates for condom in Pakistan at 38% is comparable with Bangladesh of 39% (240), but higher than Turkey 33% (332), Afghanistan 19% (238), Nepal 29 % (241), and Indonesia 18% (333). However, this rate is lower than India, which is 45% (239). The international variability in discontinuation rates of withdrawal reveals that the rates of discontinuation at 32% in Pakistan is slightly lower than that in Turkey 34% (332), India 35% (239) and Nepal 36% (241). However, it is higher than that in Bangladesh 14% (240) and Afghanistan 20% (238).

What these results come to know is that in Pakistan, discontinuations for effective methods of contraception within the year of use is greater than regional countries, however the differentials in discontinuation of less effective methods are not marked and rates are somehow comparable. This finding suggests that discontinuation of contraceptive methods is an important issue and that should be addressed in Pakistan Family Planning Program.

From these results, it is evident that socio-demographic and socio-economic factors are not only important in relation the use of contraception in Pakistan, but the discontinuations of the contraceptive use as well. The influence of the socio-demographic and socio-economic background characteristics of couples on the discontinuation of contraceptive methods were also found significant in prior studies in some other countries (314,317-331). The current analysis of the dynamics of contraceptive use cannot draw causal linkages between contraceptive discontinuation

behavior and the background characteristics of women; yet, it can help in identifying some correlation between them.

The regional differential in the use of contraception shows that women in Punjab remained always more advantageous in the use of contraception. From begging to the most recent demographic and health surveys, the contraceptive prevalence in Punjab is above national level. Whereas, the analysis of discontinuation shows that they are at the same time more likely to discontinue contraception with a year of use relative to women in the other provinces of the country. This negative trend in contraceptive utilization is important for the awareness of Punjab Family Planning and Population Welfare Department especially in the scenario of transfer of health and social welfare program authority to provisional government since 2010. The lower discontinuation rate along with smaller contraceptive prevalence in Baluchistan reflects more sustainable behavior of those who practice family planning in Baluchistan.

Similar to the findings in prior studies in other countries (317-323,325,326,331), the urban-rural residence and wealth status are found to be related to contraceptive discontinuation in Pakistan, women in the lowest wealth quintile and women living in rural areas are the disadvantageous groups with regard to the both, contraceptive use as well as contraceptive discontinuation. In view of 70% of the population residing in the rural area of Pakistan and about 1/3rd of people living below national poverty line (335), the above finding necessitate increasing follow-up services and concealing activities by Lady Health Workers and governmental as well as non-governmental family planning associations, specifically targeting these women.

Consistent with other studies (317-323,325,326,331), discontinuation rates are much higher among younger contraceptive users (under age 25) in Pakistan. This probability reflects that young women with lesser or no children are motivated to use contraception for only spacing purpose. In general, the pattern of increasing continuity of contraceptive use with increasing parity is also consistent with other studies (318,321,322,325,326,331). Since, age and parity are often correlated with each other, one factor may be indicative of the other.

One might expect that more education would be associated with lower discontinuation rates, reflecting better understanding and adoption of suitable methods. In this analysis, except for slightly lower discontinuation for higher education categories, the discontinuation rates are very similar among non-educated as well as primary and secondary-educated women. In the fact the higher discontinuation rates among up to secondary level educated women could be due to lower prevalence of long term method such as IUD and sterilization and greater use of short term methods. Moreover in Turkey and Bangladesh, paradoxical association between contraceptive discontinuation and education is also reported. The relation between education and discontinuation of contraception should be examined in the light of method types and purpose of the use, that is for limiting or spacing, as well as age and parity of the women.

As mentioned before, the mean ideal number of children in Pakistan is four. Yet, continuations of contraceptive use after having four children is still low and surprisingly, less than half of the women with four and more children continue their initial use of method by two-years-time. The trend of continuation of contraceptive use in favor of male child demonstrates the son preference in Pakistani society. This finding supports the argument that child sex preference is associated with contraceptive use behavior of women (336). These findings have implication for family planning program in Pakistan. It necessitates the program to assist couples for achieving national demographic goal by encouraging all men and women who have two living children to start using long acting and effective method of contraception, irrespective of sex of living children.

In view of the finding that demonstrates inverse association between contraceptive use and husband's desire for more number of children, it is expected that discontinuation of contraceptive use will also be associated with husband's intention for more number of children. This summarizes as what are remarkable about Pakistan is not the women's fertility goals but rather husbands' fertility goals are the obstacles in the continuation of contraceptive use in this country. Additionally, this argument supports the finding of a prior study conducted in five Asian countries including Pakistan (337).

6.5.2. Reason for Discontinuation of Contraception in Pakistan

Population policies of Pakistan are directed towards increasing contraceptive prevalence in the country (70). However, from family planning programs viewpoint, it is important to understand why after accepting and initiating the use of family planning method users abandoned to use within a year. Additionally, the policy modification required to address discontinuation for one reason is likely to differ from those required to address discontinuation for other reasons.

The 12 months discontinuation rates for pill, injectable and IUD are particularly higher and due to side effects and health concerns; this is in agreement with the studies in other countries (238-241,332,333) and clinical literatures (338-339) that report higher frequency of side effects for hormonal methods and IUD. Though, in contrast to the studies in other countries and estimates given in clinical researches, the proportion of women discontinuing hormonal methods (pill, injectable) and IUD due to side effect in 12 months are far greater in Pakistan. This is become exceptional for the 21% discontinuation of IUD by virtue of health concern or side effect in Pakistan, the corresponding rate in the most recent survey in Afghanistan is 7% (238), India 11% (239), Indonesia 3% (333), Turkey 7% (332), and in Nigeria only 2% (340).

Currently, one in three women in Pakistan discontinues the use of method because of side effect and health concern. Additionally, DHS country report also revealed the type of side effects experienced by these women. It was found that menstrual irregularities accounts for two-third of all women who experiences side effects by hormonal methods as well as IUDs (84). In fact the older generation of contraceptive methods brought unanticipated health risks, thereafter, these methods have been re-formulated and re-designed to enhance their safety and effectiveness (339,341). Whereas scientific research has bettered the quality of contraceptives, research had shown that family planning programs could also influence the continuation of method use by improving service quality and accessibility (342).

With the aim of enhancing contraception prevalence in Pakistan, it is also important to engage those clients who drop-out by reason of health concern and side effect. This can be achieved by ensuring that clients have complete and accurate information to make an informed, voluntary choice of method. This encompasses provision of full range of contraceptive method mix, guidance for correct use of the method, information about possible health risks and health benefits, counseling for anticipated and unanticipated symptoms, instruction to visit healthcare provider in case of adverse effect, knowledge about fertility return after stopping the method, as well as information about alternate choice of method. Contrary to all this, 75% of current users rely on three methods of contraception. Furthermore, DHS country report shows that only 34% of current modern method users were informed by health or family planning worker about side effect of the method they used, and only 28% of current users were informed about what to do if experiences any side effect.

The side effect due to condom is 3.4% in Pakistan and the corresponding rates are comparable to 2.7% in India (239), 3.3% in Indonesia (333) and 4.0% in Afghanistan (238) but lower than 5% in Bangladesh (240). Lower user perceived side effect might be one of the reason that condom is more popular as a choice for method of contraception in Pakistan although according to WHO classification of contraceptives it is not as effective as hormonal methods and IUD (343).

The discontinuation of pill, IUD and injectables due to desire to get pregnant is comparatively lower than condom and withdrawal; these rates are comparable with studies in India (239), Bangladesh (240) and Nigeria (340). This is probably because majority of women in Pakistan who want to get pregnant either do not use any method of contraception at all or use short term methods like condom and withdrawal. The data for Turkey (332) and Afghanistan (238) shows that along with withdrawal and condom, pill is also discontinued frequently by reason of getting pregnant and in Indonesia (333), pill is the most frequently discontinued method for getting pregnant.

Fertility related reasons are important for two methods namely pill and injectables; the most common fertility related reason is husband's being away or infrequent sex (84). This may be due to short term, effective and easily reversible

properties of these two methods among users how chose them for family planning. A study among migrants' wives has been found that long-term separation of spouses effect the choice of contraceptive method (344). It is possible that women use these methods temporally still living with husband and discontinue the use once they are not at the risk of pregnancy and restart again when living together. This pattern of discontinuation is also evident in Nepal where labor migrations play a key role in the context of national economical and social development (345). Further epidemiological research is needed to explain contraceptive use and discontinuation behavior of migrant worker's wife in Pakistan as more than 3 million people moved abroad through the formal channel for foreign based employment in the five-year period between 2011 to 2015 (346).

It is noted that discontinuation by the reason of wanting more effective method is 2.3% in Pakistan and is comparable with a low contraceptive prevalence country like Nigeria (2.6%) (340). This rate is higher from 1.5% in Bangladesh (240), where contraceptive prevalence is 62% and 2/3rd of all current users already use hormonal methods of contraception but lower than 5.3% in Turkey (332), where contraceptive prevalence is 74% but half of all current user depends upon condom and withdrawal as method of contraception. Currently, withdrawal and condom are the two most commonly used method of contraception in Pakistan but only fewer than 2.5% discontinue the use of these methods due to need for more effective method. The comparative analysis form Turkey and Bangladesh suggest that with increasing contraceptive use, there would be more demand for hormonal method of contraception in Pakistan. But definitely, this can only be possible if family planning program will be successful in Pakistan like Bangladesh and Turkey

Results from PDHS 2012-2103 shows that knowledge of any contraception is almost universal among currently married women however, from the policy point of view, it is needed to increase the knowledge by effectiveness of method of contraception in Pakistan as almost 2/3 of all users depend upon less effective method of contraception like condom and withdrawal and majority of them don't discontinue these methods for the need of more effective method.

Except for condom and injectables, method related reason (that include availability, inconvenient to use and cost) accounts for only a small proportion of

discontinuation in Pakistan. Like other countries in the region (238-241), cost is not the major reason for discontinuation as only 0.2% of events are discontinued due to cost. Moreover, prior study found that except for cost of traveling, the monetary costs of contraception is almost non-existent but it is highlighted in studies that access -physical distance to family planning services facility (347), addition to this restricted mobility of women remains a critical issue particularly in rural Pakistan (348).

Discontinuation due to husband's disapproval is low in Pakistan and only 3% of episodes are discontinued because of husband's disapproval. This rate is slightly lower than 4.3% in Afghanistan (238) yet, slightly exceeds 1.9% in Bangladesh (240). However, it is important to keep in mind that three most common methods of contraception in Pakistan are female sterilization –that already need consent from both husband and wife and can't be discontinued due to irreversibility, condom – that is purely male method of contraception that needs husband's active participation, and withdrawal –that totally depends upon husband cooperation. Considering these arguments, husband's disapproval for discontinuation of contraception is out of question and expected to be negligible in Pakistan.

The findings from other studies also suggest that Pakistani women are dependent on their husbands for the use of family planning methods and most of the time decision for contraceptive use is a joint decision (192).

The reason specific discontinuation rates by selected background characteristics for all reversible method combine shows that side effects and desire to get pregnant are the most cited reason for discontinuations in almost every subgroup. The greater proportion of women younger than 25 years of age stop using their method within a year due to side effects and health concern is consistent with other studies (318,321), and this could be explained due to less adaptive behavior of younger women than older women who are more adapted because of their experience in using the contraceptive methods.

Overall, the differential in the reason of discontinuation by background characteristics shows that in Pakistan, user-perceived side effect and health concern are more common cause of discontinuation in rural than urban areas, among non-educated women than higher-educated women, among woman having husband with

no education than higher-educated husband, among poorest women than middle and upper wealth quintile women.

Like other parameters of dynamics of contraceptive use, the husband's desire for more children than wife is related with higher proportion of discontinuation by the reason of getting pregnant or because of health concern/side effect. Moreover, it is also evident that slightly higher proportion of women discontinue for need of more effective method of contraception if their husbands want fewer children.

Except for the failure and method related reasons (availability, in convenient to use, cost and other reasons), 12-month reason specific discontinuation are similar among women having more daughters than sons; this pattern might be real or because of covert son preference behavior of women who discontinue the use of contraception by desire of getting pregnant but don't want to express their child's sex preference attitude.

6.5.3. Contraceptive Switching Behavior in Pakistan

Contraceptive discontinuation and contraceptive switching behavior are closely related, particularly with respect to switching versus complete abandoning the use. Additionally, in evaluating family planning policies, what women do after discontinuing a contraceptive method is equally important as why they discontinued the method.

As pictured in the analytical frame work of contraceptive use dynamics, not all of the family planning users who abandon their method become non-users; some of them switch to another more or less effective method of contraception. Generally, the significance of contraceptive discontinuation for both national fertility level and individual women depends on switching behavior (349); if the women switched to another method immediately, the fertility implications are much less serious.

Whether women will switch or not to another method of contraception after abandoning of use depends also upon her risk of conception. Discontinuation data from 60 countries has estimated that no further need of contraception after discontinuation range from 6% to 17% for all reversible methods combined (324). The present analysis of contraceptive switching behaviors shows that the corresponding rate is 17.5% in Pakistan. It is important to remember that, user who

discontinue due to method failure and because they want to be pregnant are classified as no longer in need of contraception. In consonance with this argument, the higher rate of moving to 'no need' category in Pakistan is, in fact, attributable to planned and unplanned pregnancies among user of withdrawal and condom.

A substantial number of pill and injectable users also move to the no need category; this finding is in agreement with studies in other countries (317,321,322,325,326) and this also conforms short term use of these methods for spacing purpose while living together with spouse, as discussed in the previous section.

Additionally, in the study of method switching, the focus of attention is the behavior of users who discontinue the use but still have a need of contraception. The data from Pakistan shows that overall rate of abandoning use is higher than the rate of switching to another method and this is contrary to studies in Bangladesh (240), Indonesia (333) and Turkey (332), which shows that the rate of switching succeeds the rate abandoning. The result from Pakistan revealed that more than one-third of all discontinuation in one year of use are followed by abandoning the use. On one hand this substantial rate of contraceptive abandons has serious implication for the national fertility level, as without switching to alternative method of family planning, these women are at risk of unplanned or unwanted or mistimed pregnancies, which ultimately results in maternal, neonatal and infant morbidity as well as mortality (350-351). On the other hand, it supports the argument that family planning services in Pakistan are not successfully meeting the need of users (116).

A critical finding in the result is noticeably higher abandonment for effective methods of contraception such as IUD, pill, and injectables than condom and withdrawal. In conjunction with lower utilization of modern contraceptives, this greater abandonment draws a picture of declining importance of IUDs and hormonal family planning methods in the contraceptive method mix in Pakistan.

The twelve month cumulative switching rate of contraception in Pakistan at 7.3% is about the same as in Nepal at 6.7% (241) and in Cambodia at 8% (331) but lower than in Bangladesh at 11.5% (240), and Indonesia and Turkey, both at 13% (333,332). The corresponding rates in India, Afghanistan and Nigeria are 5.8%, 3.6% and 4.8%, respectively (239,238,340) and are lower than that in Pakistan.

The higher switching rates among users of effective method of contraception such as pill (13%), injectables (17%) and IUD (10%) with relatively lower rates among user of condom (5%) and withdrawal (4%) suggest further analysis with respect to type of method chosen after switching. Yet, looking at figures in the result, it is expected that the higher proportion of users of pill, injectable and IUD are likely to be switched to less effective method of contraception within a year of initiation their original method. If this assumption is correct, then likewise abandonment, this finding will also support the argument that hormonal methods and IUD are losing importance among contraceptive method mix in Pakistan and family planning users would have more dependence on less effective methods of contraception, most probably condom and withdrawal in future. A recent study of women who discontinue the use of IUD received through social franchising program in Pakistan found that 40% of these women didn't switched to another family planning method and those that did switched accept short acting modern or traditional method of contraception (352,353). This finding should be viewed with importance because currently only 28% of modern contraceptive users were informed by health or family planning worker of other methods available and that could be used in case of discontinuation (84).

The switching behavior of contraceptive users varies between urban and rural Pakistan and among provinces in Pakistan. The relatively higher rates of abandoning among rural users and in Sindh province indicates poor access to alternative methods of contraception in these locations, but firm conclusions on this cannot be drawn from this analysis.

The method switching analysis found that the associations of method switching with age are in same direction as for method discontinuation, i.e. younger users (age below 25 years) have a higher discontinuation rate and simultaneously higher abandoning rates in Pakistan. As majority of respondents were married by 20 years of age in the current survey, this trend might be due traditional custom in Pakistani society that compelled new bride to get pregnant soon after the marriage (354). Additionally, this argument is further strengthened by facts that greater share of birth in Pakistan are within a year or two after the marriage (84). The lower rate of abandoning the contraceptive use among older women in Pakistan can be explained

by assuming that with increasing age of women, parity also increases and, family economical concerns became more important and the rate of contraceptive discontinuation reduced.

The current analysis of switching behavior of contraceptive is useful for Pakistan maternal and child health programs that are aimed at preventing unplanned pregnancy and also for Pakistan social welfare program that advocates for planned pregnancy with use of family planning. In the light of these findings, health and population policies can be formulated focusing towards the sub-groups of the population that are more at risk of mistimed, unplanned and unwanted pregnancies.

6.5.4. Contraceptive Failure in Pakistan

In the present study, contraceptive user-failure rates in Pakistan are of particular interest because they impact directly to higher level of unwanted pregnancies in Pakistan (249). Moreover, in the absence of legal frame work for abortion, contraceptive failure might be one of the factor that contribute to the higher fertility level in Pakistan.

The net failure rate of contraception in Pakistan at 5.8% is comparable to 5.9% in Turkey (332) but greater than 3.2% in India (239), 2.1% in Afghanistan (238), 3.6% in Nigeria (340), 1.5% in Indonesia (333), 2.4% in Myanmar (334), and 2.5% in Nepal (241). As stated earlier, the net failure rates obtained from the multiple-decrement life depends not only on the level of failure but also on the level of discontinuation for reasons other than failure. Consequently, the above differentials in the net failure rates between Pakistan and other countries not only reflect the variation in the level of failure but also in the level of discontinuation caused by reasons other than failure.

As noted previously, the reasons for contraceptive discontinuations varies between Pakistan and other countries, therefore the comparison of net failure rate will distort the real picture of contraceptive failure. However, the gross failure rates that come from single decrement life tables are free from above limitation and they are more useful for cross countries comparisons.

In demographic literature, as well as health literature, no method of contraception except sterilization is found up to 100% effective in preventing

pregnancy. The effectiveness of contraceptive method in avoiding pregnancy is measured under perfect-use pregnancy rate, and typical-use pregnancy rate. The *'perfect-use'* of the method means how well the method works during clinical trial i.e. when it is used correctly and consistently at every act of intercourse, while *'typical-use'* of contraception means how effective the methods are in real life when real people use it (355).

Based upon researches regarding pregnancy rates under typical-use of contraception, WHO/CDC had ranked contraceptive methods in three groups (343). In the descending order of effectiveness these are: methods that results in *'less than 1 pregnancy per 100 women in a year'*, methods that results in *'6-12 pregnancies per 100 women in a year'* and methods that results in *'18 or more pregnancies per 100 women in a year'*. In consonance with this, the contraceptive use-failure rates estimated by demographic and health survey are comparable to the WHO/CDC categorization of contraceptives effectiveness.

According to WHO/CDC categorization of family planning methods, IUD and implants are included along with sterilizations in the uppermost category (343). The gross failure rate of IUD at 1.6% in Pakistan is comparable with 1.0% in India (239), 1.8% in Bangladesh (240), 1.6% in Turkey (332) and 1.0% in Nigeria (340) but higher than 0.3% in Cambodia (331) and 0.2% in Indonesia (333). Yet, despite being foolproof and virtually free of user error, miserably small fraction of Pakistani women had chosen intrauterine devices or under-skin implants as their preferred method of contraception.

Taking into consideration of human error, hormonal methods such as contraceptive pills and injectables are included in the second category of WHO/CDC list based on method effectiveness (343). The 12-month gross failure rate for pill in Pakistan is estimated at 10.3% that is much higher compared to those in other countries; the corresponding rate for India is 3.6% (239), Bangladesh 5.5% (240), Nepal 6.0% (241), Indonesia 4.2% (333), Cambodia 2.6% (331), Turkey 7.8% (332) and Nigeria 5.9% (340). The higher failure rate of pill in Pakistan became more remarkable in a contraceptive failure study that includes data from 43 countries and the result showed that except for Burundi and Uganda, pill failure rate are the highest in Pakistan (329). The gross failure rate of another hormonal method, injectable is

2.8% in Pakistan; this rate is also higher than Nepal at 0.8% (241), Indonesia at 0.5% (333) and Bangladesh at 1.4% (240), yet, lesser than Turkey at 5.3% (332) and India at 6.1% (239). However, it is comparable to 1.9% in Nigeria (340) and 1.8% in Cambodia (331).

Based on lower capability in preventing pregnancy, condom is classified in to the lower most category of WHO/CDC family planning method (343). The users of condom experience 9.3% failure within a year of use in Pakistan, excluding Bangladesh (240), where estimated failure rate of condom was 10.1%, this failure rate is greater than 4.6% in India (239), 7.2% in Nepal (241), 4.2% in Cambodia (331), 2.3% in Indonesia (333), 7.6% in Turkey (332) as well as 2.1% in Nigeria (340).

In reference to the other regional and somewhat similar demographic profile countries, these comparatively higher user-failure rates of pills and condom in Pakistan suggest that modern method of contraception are used improperly by Pakistani couples; either they use incorrectly or inconsistently. Nevertheless, it is important, not to exaggerate the impact of user-error, the other plausible causes might be quality of contraceptive methods practice as well as family planning service delivery in Pakistan.

Considering higher failure rate and lesser effectiveness, withdrawal is also included in the third and the lowermost category of WHO/CDC contraceptive classification (343). The result of present study shows that those who practice withdrawal in Pakistan experience 10.4% gross failure rate in one-year-period. This rate is comparable to 9.2% in Bangladesh (240) and 10.7% in Nepal (241) but slightly above India at 8.4% (239), Cambodia at 8.1 % (331) and Nigeria at 7.7 % (340). However, on the other hand, failure rate of withdrawal up to 16% in Turkey (332) is higher than that of all countries mentioned above as well as Pakistan.

Though failure rate of withdrawal in Pakistan is comparable with other countries but generally due to it's relatively lesser protective effectiveness than other methods of birth control, it is not a preferred method of contraception to be promoted in national family planning program. Nonetheless, evidence from neighboring countries, Iran and Turkey where practice of withdrawal is popular like Pakistan, suggests that the majority of unwanted pregnancies and induced abortions occur

among women who do not desire any more children and who use withdrawal (356,357). Evidence with this and by virtue of fact that induced abortion is legally prohibited in Pakistan, the high prevalence of unwanted pregnancy due to failure of withdrawal is a social as well as economic burden for Pakistan. Additionally along with a high complication rate of unplanned pregnancy and significant burden of unsafe abortion in Pakistan, situation become more complex and become a matter of interest for family planning policy makers, as well as reproductive health stakeholders in Pakistan.

In view of religious ideological society barriers for legal abortion are hard to be removed, but user-side and supply-side barriers for access to long acting, more effective and human error free methods of contraception can be removed without delay. Since last ten years emergency contraception is considered as last chance to prevent unintended pregnancy and studies have shown that increased access to emergency contraceptive decreases abortion rates. It is important to increase awareness and access to emergency contraception as a back-up method of contraception to prevent unwanted pregnancy, and solution for reducing unsafe abortion (242).

Examination of differentials in the failure rates of condom, pill and withdrawal helps to identify sub groups of users in Pakistan who experience difficulties using particular methods effectively. The wider urban rural disparity in failure rates of pill and condom indicate weaknesses in the family planning program in providing information about correct use of methods in rural area of Pakistan. Interregional disparity became more remarkable after 2 years of study, the 24 months gross failure rates of condom and pill are higher in Punjab than other provinces of country.

Overall, the data support the finding of lower user error among higher educated couples and like in other countries (319,321,322), education matters for effective use of contraceptive methods in Pakistan. From perspective of national investment in family planning, the failure of contraception is an economical issue.

7. CONCLUSION

This study examined the trends of current use of contraception and unmet need for family planning in three nationally representative Pakistan Demographic and Health Surveys, 1990-91, 2006-07 and 2012-2013. The determinants of contraceptive use and unmet need for family planning were identified by using information on currently married women as retrieved from the latest available PDHS 2012-13 dataset. The findings from the study can be recapitulated in to the following principal observations.

7.1. Executive Summary

- Pakistani women's knowledge about method of contraception is comparable to the developed countries but regrettably the contraceptive prevalence is far below compared to other south Asian countries.
- After remaining less than 10% contraceptive use from 1947 (year of independence) to 1990, first but short lived inclination up to 30% in post ICPD era, during 1990s had seen. The first decade of new millennium had not seen much improvement and the current contraceptive prevalence of 35% is just five percent greater than that of year 2000.
- Overall, one in two women knowing any method of family planning had ever tried to practice it. The contrast between ever-use and current-use of contraception among women indicates perseverance of family planning users for the relatively short duration of contraceptive use.
- Comparison of changes in current-use of contraception in Pakistan between year 1990-91 and year 2012-13 showed that the gap in contraceptive prevalence by women's education, place of residence and region has declined. It further showed that contraceptive utilization grew faster among non-educated, rural women, living in the province of Baluchistan.
- As contraceptive prevalence increased among less educated and rural women, their increased reliance on less effective methods might resulted in greater share of traditional methods and condom in contraceptive method mix.

- Currently used most common method of contraception are condom, female sterilization, and withdrawal. Each of them have equal share ($\approx 8\%$) in contraceptive method mix.
- Large amount of heterogeneity in contraceptive use is evident among different ethnic groups, with a difference of up to 33% points. The contraceptive prevalence among Urdu and Punjabi speaking women is well above the national average whereas Barauhi and Sindhi speaking women lag behind the rest of ethnic groups in the country.
- Contraceptive prevalence is higher among women aged 30-40 years, women with five and more children, among those whose ideal number is lesser than actual.
- Three quarters of current users of family planning are practicing contraception for the purpose of limiting the child birth.
- Pakistani women consider four-child family to be their ideal and this figure is constant since 1990s. However, non-numeric response regarding ideal family size has decreased from 60 to only 4%, showing that the fertility preference is entered in the "calculus of conscious choice" among Pakistani women.
- Corresponding to the stall in family planning utilization, the overall unmet need for family planning has decreased moderately from 32% in year 1990-91 to approximately 20% in year 2012-13.
- The unmet need for limiting has dropped more gradually as compared to unmet need for spacing during this period and with this unequal decline, the components of unmet need has become more diverged.
- Comparative studies with developing countries suggest that larger fertility preference in Pakistan is one of the possible reasons for slow transition in contraceptive prevalence rate as well as unmet need for family planning.
- The trend in the differentials of unmet need shows that the differences in unmet need are more prominent between poorer and richer, non-educated and more educated, rural and urban women during recent years in Pakistan.
- Compared to the previous survey, increasing proportion of non-users was uncertain, whether they will use family planning in the future.
- After controlling for various predictors, women's education, working in agricultural or domestic sectors, first marriage at the age of 20 or above, attaining

ideal family size, having 4 or more children, knowledge of ovulatory cycle, exposure to media message, visit by Lady Health Worker, greatest say in household decision making and urban residence are positively and significantly associated with contraceptive use in 2012-13.

- In regression model, contraceptive prevalence was significantly lower among women aged 35 or above, from Barauhi, Sindhi or Hindko ethnic communities, having more daughters than sons, residing in Sindh province and from the poorest households.
- Husband's age, educational attainment and occupation were not found statistically significant; however, it is evident that women's use of contraceptive was strongly dependent on husband's fertility intention.
- Regression analysis shows that in Pakistan, several groups of currently married women still have substantial unmet need for family planning. These include women from all major ethnic groups except from Urdu and Pushto speaking communities, unemployed women, women married at age 18 or 19, women having either no child or greater number of female children, women lacking concept of ovulatory cycle, women who had not yet attained her desired fertility level or uncertain ideal number of children, women whose husband desires more number of children or those who do not know husbands' desire for number of children, women having no role in house hold decision making, women from rural Pakistan, women residing in Sindh or Khyber Pakhtunkhwa province as well as women from poor or the poorest household.
- After controlling background variables, significantly increased unmet need for limiting the birth was observed among women aged 40 or above, from Barauhi, Hindko, Sindhi or Balochi ethnic groups, employed in agricultural or domestic sector, living in stable union for 5 to 15 years duration, ignorant of husband's fertility intention or if husband's fertility goal is greater than their own, unaware of ovulatory cycle, unexposed to family planning media message, not visited by Lady Health Worker, from rural dwelling, resident of Sindh province and from poor or poorest household. Whereas, significantly lower unmet need for limiting is observed among women having two or less number of children.

- With regard to unmet need for spacing, it is found that women from all ethnic groups expect Hindko, women in stable union for 5-9 year, women who had not yet achieved their desired fertility level or who are indecisive about their desired number of children, women having no child and women having more daughters than sons, women whose husband desires for more number of children or who is unaware of husband's desire, women with no exposure to family planning mass media campaign, women not visited by Lady Health Worker, women living in rural areas, women living in any provinces compared to Punjab, as well as from poor or poorest household have significantly greater demand for spacing the birth.
- The high level of unmet need for spacing together with lowest contraceptive use among women; who have not yet had their first birth, and who have more daughters, and whose husbands wanted more children, indicates an obvious desire of these women to delay pregnancy with an absence of the means to accomplish their desire.
- Weaker effect of women's empowerment displacing variables such as education, working status, household decision making ability probably shows that the social and cultural factors as well as influence of husband play a major role in contraceptive use choice in Pakistan.
- Overall, one-third of episodes of contraceptive use were discontinued within a year of their initiation. The highest discontinuation rate was observed for injectable; almost 60% of injectable use ended within 12 months of initiating the use. Followed by injectable, pill has second highest 12 months discontinuation rate of 56%.
- Along with relatively increase contraceptive use in the Punjab, high discontinuation of use after a year is also common in Punjab. It is also estimated that median duration of use is lower in rural area than urban area.
- In general, fertility intention of husband, household wealth status, number and sex of living children, effects the decision on whether to continue using a method or not.
- Health related reasons (10.4%) followed by wanted to get pregnant (9.1%) were the most cited reason for contraceptive discontinuation in the five years preceding the survey.

- Side effects and health concern were the main reasons for discontinuation of hormonal methods and IUD in Pakistan. Whereas, abandoning due to desire to get pregnant was the most common cause for discontinuing use of condom and practicing withdrawal.
- For all contraceptive methods combined, the rate of switching to another method is lower (7.3%) than the rates of abandoning use (11.9%).
- Intentional abandoning of traditional methods by need for more effective method of family planning accounts for only small proportion of the overall discontinuation.
- The 12-month gross failure rate for pill, condom, and withdrawal was 10.3%, 9.3% and 10.4%, respectively. Amongst reversible methods, the lowest 12-month failure rate (1.6%) was observed for IUD.

7.2. Limitations and Strengths

The results of present study are not without limitations. In the first place, dataset used in the study comes from Demographic and Health Survey that have its own limitations. For instance; information of the events in the past (e.g. age of respondent and husband, age at marriage, birth dates of children, duration of breastfeeding, history of contraceptive use 5 years prior to survey as well as discontinuation or switch to another contraceptive method etc.) collected by DHS questionnaires as well as contraceptive use calendar is subject to recall and reporting biases.

Though efforts are made by ICF international and National Institute of Population Studies to collect complete and accurate information during interview, still almost all fertility information is based on women's report; therefore, taking social taboos and shyness into account, underreporting of deceased children as well as misreporting of wantedness of previous pregnancy is imaginable. Additionally, it may be possible that responder who has had experienced contraceptive failure may report desired pregnancy as her reason for discontinuation.

The high-level of miscarriages as compared to abortion in PDHS 2012-13 country report (84) indicates that due to legal prohibition and social stigmatization, responders either might omit history of induced abortions or misstate in the form of

miscarriages. Consequently, it is possible that contraceptive use episodes that were ended in terminated pregnancies may be under-reported and give rise to misreporting of reasons for contraceptive discontinuation in the calendar data.

It is also possible that women may include adopted children of their relative as their own; moreover, older women may omit grown and separately living children. Overall, misclassification biases were reported to occur in DHS data (358), it is complex and hard to measure magnitude of such biases.

DHS household decision index is limited to women empowerment. It is measured with only three questions regarding women's ability in household decision making; this measure does not necessarily reflect actual participation, moreover for instance embracement associated to expose low or no decision making capacity, responders might be reluctant to answer correctly. Computation of household economical status is also limited to a list of some durable goods.

Pakistan is a male dominant society, where husband is head of the family. Considering all social norms, it might be possible that woman in her own opinion honored her husband by misreport of his education level and employment in white color jobs.

Although spousal communication about family planning as well as approval for contraceptive use are important variables as used in demographic and health literature (359) yet information for these variables were not collected in PDHS 2012-13; therefore, these were not considered in the present analysis.

Reply for ideal number of children is cumbersome and pragmatic reply requires rational thinking. In view of greater proportion of non-educated women, it might be possible that the answer was just guess sub consciously.

With regard to contraceptive calendar section, switching to other method of contraception was measured just in next month. Whereas, it might be possible that woman switch to other method after one month, yet leaving herself at the risk of pregnancy. However, in order to make consistency with other DHS studies, one month is used as switching time. Another limitation is that, instead of separate analysis for each method of contraception, all reversible methods of contraception are combined and analyzed together to examine differentials in reason for discontinuation and switching behavior by background characteristics of the

respondent. In reality, reason for discontinuation and switching behavior vary by method types. This approach was adapted for simplicity and to prevent large standard error associated with few segments of use of pills, IUD and injectable. It is recognized that this analysis is likely oversimplified but it was unavoidable to highlight reason for discontinuations and method switching behavior among different sub-groups.

There are some methodological limitations as well in the dynamics of contraceptive use study. For instance, right-censored episodes of contraceptive use were included in the life table analysis, but it was not possible to include left-censored episodes that began before the calendar period started. Additionally, due to low contraceptive prevalence as well as low segment of use, the results for Baluchistan might have high standard error or wide confidence interval associated with them.

It is also critical to note that secondary analysis of information collected through standardized questionnaire provided limited opportunity to explore association of many relevant variables with family planning use behavior. This approach has limitations, and might cause endogeneity bias in the estimation of some exposure variables due to lack of covariates that might have potential determinative or confounding effect with contraceptive use and unmet need for family planning.

Finally, being a cross-sectional study design, a causal relationship could not be established here. Accordingly, it is suggested that the results should be interpreted with these caveats in mind.

Nevertheless, this study has its strengths too. The study used nationally representative data that comes from survey conducted by reputable organizations that have collected data from many developed and developing countries since decades. Moreover, interview instruments were designed by inputs from national and international experts and continuous evaluation of data quality was monitored at all levels to obtain the best and the most robust information from the respondents. Hence, the findings of the study could be a true representation of the family planning and contraceptive use situation in Pakistan.

Rather than establishing causal inferences, in fact owing to nationally representative study sample, the estimates endorse the population based correlation.

Demographic and health surveys provide population based data of key family planning indicators. These indicators can be disaggregated to find differentials due socio-demographic characteristics of respondents as well as disparities among geo-political regions of a country. Moreover, long term trends in contraceptive use and unmet need for family planning can be assessed and used to challenge or support opinion about success of family planning services.

Lastly, international comparisons of results are possible because Demographic and Health surveys design and survey questionnaires are similar across the countries. The comparative results of analysis are powerful tools to discover commonalities, oddities or exceptionalities with prior national, international and regional studies.

7.3. Recommendations (Implications of the Findings)

The results of this study have considerable implications for the Pakistan Family Planning Programs, Population Welfare Policy and future research. The results highlight the fact that progress in contraceptive prevalence is very slow in Pakistan and that unmet need for family planning accounts for a very large percentage currently married women in the country.

To this end,

- The widening gap between ever-use and current-use of contraception along with greater dropout rate implies for both policies and research. First, the policy point of view approaches are needed to prevent drop out of those who had accepted and adopted contraception in the past. Family planning campaigns are required to be reoriented in such a way that along with attracting new users it also maintains motivation of client for prolong use of contraception in accordance with their reproductive intentions. Second, studies are needed for identifying the barriers, particularly social and cultural for the prolonged use of contraceptives in Pakistan, furthermore, how to prevent abandonment of contraceptive use in Pakistan.
- The evidence of contraceptives utilization among family planning users mostly for the purpose of limiting the birth, strongly suggest for behavior change campaigns via mass media to stress the health benefits of birth spacing. This will likely result in shifting the focus of men and women to the health benefit of spacing fertility by

family planning, furthermore the national contraceptive prevalence will increase. Literature also shows that the Pakistani woman's assurance in the advantage of spacing the birth for her own health was an important predictor of her future intention to use contraceptive method. (192).

- The finding of negative trend in intention for future use of contraception among nonusers necessitate further investigation to determine the reasons for decreasing popularity of family planning among currently married women in Pakistan. Moreover, this pattern has extremely important impulse for policies and program of action for increasing family planning efforts.
- Since ideal number of children desired by currently married women is stagnant at the figure of four, there is a great demand to launch behavioral change communication campaign to lower the desired ideal number of children and to generate demand for family planning services, in such a way that people of Pakistan can enjoy reproductive rights of deciding the size and timing of their offspring.
- Taking into account that nature of need for contraception varies over reproductive life span of women in Pakistan. Reliance of users of family planning mainly on sterilization has indication for promotion of contraceptive method mix in Pakistan so that woman might adopt preferred method according to her need. Broad consensus exists in literature that the success of family planning program depends on number of method introduced in family planning services (251). In family planning policies and programs women's reproductive needs are required to be understood individually and thereby addressed in differentiated manners. For instance availability of, temporary methods for younger and long lasting permanent methods for older women will better fulfil the needs for family planning across all age groups.
- Lower current-use of contraception among women age 40 and above highlight that national family planning program must consider both the younger and older women. Likewise, additional research is needed to identify barriers to access family planning by older women in Pakistan, so the family planning program managers might address them accordingly.
- Recognizing direct and indirect affect of female education on fertility and contraceptive use behavior, fostering female education in Pakistan is indispensable.

This will not only increase social empowerment, but also brings behavioral changes needed for attaining replacement fertility.

- In addition to education, if female employment will expand in Pakistan and more importantly women employment is supported by social welfare and labor policies then efficiency and effectiveness of family planning programs will increase, and Pakistan will experience fertility decline. This calls for economic revolution in female employment in Pakistan.
- The higher unmet need for limiting among women engaged in agricultural, domestic, household and unskilled manual work is indication for the need of policies and programs beyond the healthcare sector alone. It enlightens the law makers and legislature authorities, and calls for the need of implementation of labor policy taking account of women's reproductive health issues and their fertility needs. Additionally, it is indispensable to invest in women's education in Pakistan, so that they have autonomous and better quality of employment as well as they can recognize and demand their reproductive rights given to them by labor laws. This will contribute to greater uptake of family planning and thus reduction in unmet need.
- The low contraceptive prevalence and higher unmet need especially among Barauhi, Sindhi and Balochi communities calls for implementation of family planning services that overcomes socio-cultural barriers in communities. More innovative approaches that are different from those implemented for other social welfare services are needed. Apart from this, most of the Barauhi and Sindhi women are residing in the areas that are underprivileged and most neglected (280); as a result, elimination of socio-cultural barriers is only an initial step of creating access to family planning services for these women. There are numerous other issues to tackle in order to scale-up contraceptive use such as providing reproductive health facilities, providing adequate information and elimination misconception about contraceptive use as well as continuation of supplies and services.
- Considering ethnic disparity in contraceptive use and unmet need for family planning, additional studies are needed to examine the extent to which ethnic inequality in health, education and empowerment of women, exist in Pakistan. Despite the sensitivity of this issue, since country is moving to achieve sustainable development goals, this will be necessary to guide efforts to address disparities.

- In order to eliminate the impact of male child preference on family planning behavior as well as reproductive health of women concrete efforts are needed in Pakistan, for removing gender inequality and broadening the focus of equality.
- The higher unmet need for spacing among women with no children calls for pre-marital family planning counseling of couples regarding family planning and reproductive health. Case study from Iran confirms the optimistic impact of pre-marital counseling on utilization of family planning (257).
- Taking into account that unintended pregnancies as well as abortions impose socio-economical and healthcare cost on family and society, and remembering the social and religious context of Pakistan, sustained efforts to improve easy access to family planning services as well as availability of emergency contraceptive pills are needed so that there will be no demand for induce abortions as method of fertility control. Moreover, considering the responder biasedness due to social stigma, and legislatorial consequences regarding history of abortion, future investigation using rigorous methods and innovative approaches is required for evidence based answer with reference to pre and post abortion contraceptive use behavior.
- The positive effect of knowledge of fertility period on family planning use behaviors strongly suggests that better sexual and reproductive health education could help to increase family planning utilization in Pakistan. Moreover, in view of the fact that one out of four current users depend solely on traditional method of contraception, the precise knowledge of fertile period will improve the effectiveness of traditional methods among those couples.
- In the present situation of youthful demographic profile of the country, the argument in support of reproductive health education is bigger and broader than ever before. Since, Pakistan is signatory to ICPD-1994 that puts the issues of reproductive health on top (41), these findings emphasizes promotion of reproductive health education in the country with socially acceptable approaches. Finally, there is a great need to implement reproductive health policies and programs that focus the couples as well as individuals. Studies from developing countries recommend that reproductive health education through peer educators are effective for improving the knowledge of youth on the issues of sexual and reproductive health (299).

- In view of the dominant role of husband fertility intention and the greater use of male controlled methods of family planning in Pakistan, it can be concluded that targeting men in addition to women, in family planning awareness raising activities and behavioral change campaigns will be fruitful for raising the contraceptive prevalence and scaling up family planning programming in Pakistan. Efforts are needed to support ‘men as clients’ to receive family planning as well as male reproductive health services (277). Programs are needed to involve ‘men as agents of change’ for shifting underlying socio-cultural norms and attitudes that derives low contraceptive use in communities (277). Approaches are needed to address ‘men as supportive partner’ so that they actively communicate and negotiate fertility desires and contraceptive use with their partners. (277). However considering social context of Pakistan, it is recommended that policies that aim to increase male involvements in family planning must be sensitive to religious values as well as cultural norms and must be applied after considering cost and benefits of changing behavioral values. Along with all schematic issues, sizeable investment will be needed for distribution of family planning information and methods of contraception. One suggestion is that in the same vein that LHWs serve their communities, ‘male community based workers’ should be introduced to visit males in their community and provide them information and method of contraception as well as organize men’s meetings to discuss family planning issues and conduct group counseling. Despite this, neither ‘National Health Vision Pakistan 2016-2025’ (86) nor provincial ‘Health Sector Reform Strategy Papers’ (119-121) include any firm strategies and strong policies to expand male engagement in national family planning programs.
- In view of the fact that women’s need for family planning is considerably higher if women were not aware of husband’s fertility goal, appropriate behavior change and motivational strategies are needed to be tailored to promote husband and wife communication about fertility intentions and contraceptive use.
- Acknowledging success of LHW program, it is recommended that through appropriate and adequate training programs, their skills and scope of services should be enhanced. Yet, they cannot replace professional health workers but they can deal with minor reproductive health problem and childhood illnesses in their

communities. Additionally, in the context of higher maternal death with pregnancy related complication in Pakistan (54), they can work as a channel for referring patients timely and relevantly especially from far-flung rural communities with limited health care services. In summary, they can reduce the overwhelming burden on feeble public healthcare services. Effectiveness and cost effectiveness studies from Sub-Saharan Africa show that they can mobilize their community for health promotion and environmental sanitation activities and improving health outcomes in their service areas (279). In this post devolution period, provincial political support is central to the overall goal and sustainability of LHW program.

- The remarkable gap between knowledge of family planning and practice of contraceptive method among currently married women signal that the classical mass media messages about family planning should be revised. And along with the benefit of family planning, the content should offer knowledge about full range of contraceptive methods, source of their supply, correct use and side effects. Studies for other developing countries proved that dissemination of the above message, help to encourage engagement, promote sustained use and reduce drop-out in these countries (221,278). Yet, the behavioral transformation through mass media should be take careful consideration of social and cultural norms, otherwise negative perception of campaign in conservative societies in the country will cost more than benefit of this. In addition to this, prior studies in Pakistan had found that women's intention to use contraception depends upon whether her in-laws support family planning or not (192). This finding emphasizes the importance of involving auxiliary target audiences as for example, husbands and mothers-in-law in family planning mass media campaign used in the country. Unquestionably, education is a vital element for success of any behavior change campaign. There is need for improvement in female education in Pakistan as this will help them to understand the theme of family planning media messages while at the same time delay their age at marriage as well as at first birth. It is important to know that, more widespread and effective mass media family planning message coverage and a greater contact with LHW should be the important short-term objectives. Whereas, improvement of the literacy level with direct and indirect effect of female education on reproductive health as well as on family planning (258,268) is a long-term goal.

- Based on the findings of urban versus rural contraceptive use disparity, it is thought that the existing national LHW Program could provide solution to bridge this gap. A systematic review of community-based family planning workers in Africa concluded that this approach was effective in increasing the contraceptive use in rural population (279). In the post devolution era, LHW program is needed to be tailored in the provincial context. Along with proper resource allocation, monitoring and feedback at all level, this approach will likely to increase contraceptive prevalence in rural areas of Pakistan. Understanding that the rural population constitutes more than one-third of the total population of Pakistan, apart from LHW program, concrete steps are need to increase human development facilities in the rural areas such as education, employment and health. Moreover, it is necessary to develop infrastructure such as roads, public transport, safe water supply, sanitation, electricity and marketing facilities, which can make betterment in the living conditions of rural population. Human development, gender equality and women's empowerment are not only linked with one another but also linked with family planning indices. Provincial governments are needed to adopt long term policies considering the additional and specific requirements of rural settings, a close-up look of 'Health Sector Reform Strategy Papers' (119-121) demonstrate that adhocism permeates in the policy processes of Provincial Governments.
- In view of noticeable regional differences in family planning indicators Provincial Family planning programmes should be tailored according to level of unmet need, contraceptive use and demand for family planning. For instance, considering need for more children along with higher level unmet need for spacing in Baluchistan, offering modern short-term methods of contraception for example injectables and pills, along with emergency contraceptives as a backup method, would be more welcomed by these women.
- The differentials in contraceptive use and unmet need among women living in the same country but from different socio-economic classes discloses that other than monetary cost of contraceptive methods, there are other reasons responsible for such differential and this calls for further investigating of this finding. Additionally, this

finding has important impulse for implementation of strong and better focused family planning program in Pakistan

- Based on the observations further well planned studies are needed for identifying the barriers, particularly social and cultural barriers for the prolonged use of contraceptive in Pakistan. Additionally researches are required to identify strategies for preventing abandon of contraceptives use in Pakistan.
- Reasoning from the fact that greater discontinuation of modern and effective methods of contraception by reason of side effect and health concern in Pakistan than regional and similar demographic profile countries, it is important to expend the scope of reproductive health services (that deal with the side effect and support contraceptive continuation) along with family planning services in Pakistan, and efforts should be made that these services are available and accessible for poverty-stricken women specially in rural areas of the country so that contraceptive users in case of side effect get professional advices and alternated methods of contraception instead of quitting the use. Finally additional research is needed to explore higher frequencies of adverse effect among Pakistani women.
- In conjunction with lower utilization of modern contraceptives, the greater abandonment draws a picture of declining importance of IUDs and hormonal family planning methods in the contraceptive method mix in Pakistan. Additionally, this also demands for urgent attention to know what is the level and quality of contraceptive method mix provided in Pakistan family planning program and how it can be improved.
- The finding of higher discontinuation of condom and withdrawal emphasize that family planning programs in Pakistan, should encourage women to talk with their husbands for alternated choice of method before making decision to discontinue these methods.
- The relatively higher failure rate of hormonal methods specialty pill in Pakistan impose urgent attention of policy makers as well as necessitate further evidence based qualitative studies to uncover the cause of this higher failure rate. Additionally in view of decentralization of family planning and social welfare program, it is recommended that regional stake holder should invest in training of contraceptive providers so that they can transfer the knowledge of correct use to their client.

- The lesser and internationally comparable gross failure rates of IUD call for promotion of IUD and implants in the Pakistan family planning program. Meanwhile national guidelines for family planning should encourage withdrawal user to switch for more effective modern methods contraception.
- The observed correlation between effectiveness of contraception and education suggests investment in education, especially the female education would not only reduce the contraceptive failure but also the social and economical cost of unintended pregnancy in Pakistan. Considering demographic dividend and it is critical era to make supportive policies and political commitments to provide nationwide quality female education as well as job creation.
- Given the importance to the slowly increasing trend of contraceptive prevalence in Pakistan, contraceptive discontinuation, switching as well as failure will possibly become important determinants of contraceptive prevalence in the country. If the Pakistan Family Planning Program wants to build success, the dropout of women due to various reasons must be addressed. Follow-up visits by Lady Health Worker to address problems experienced with these methods are extremely important. Alternative methods need to be available and accessible for those who find a particular method unsuitable for them. Such services will enable the family planning program to better meet the needs of individual women.

Family planning is a validated cost effective intervention that can result in long term positive impact on population structure and developmental process. This will grant Pakistan to bridge the developmental gap and take the advantage of current demographic dividend to achieve the Sustainable Development Goal. If robust population and developmental policies will not be taken timely, the demographic dividend will become demographic disaster. Of concern is the slow fertility transition, if family planning program will not be scaled up, and unintended pregnancies are not prevented the country will become in demographic trap or might fall back to the original demographic stage, of higher death and birth rates.

9. REFERENCES.

1. Cohen JE. Population growth and Earth's human carrying capacity. *Science*; 1995 Jul 21;269(5222):341-6.
2. Population Reference Bureau. Human Population: Population Growth [Internet]. Washington, DC: Population Reference Bureau; c2017 [Access 2017 Feb 7]. Available from: <http://www.prb.org/Publications/LessonPlans/HumanPopulation/PopulationGrowth.aspx>
3. United State Census Bureau. U.S. and World Population Clock [Internet]. Washington, DC: U.S. Census Bureau; [updated 2017 June; Access 2017 Feb.]. Available from: <https://www.census.gov/popclock/>
4. Max R. and Esteban O. World Population Growth. *Our World in Data*. [Internet]. 2013. [Access 2017 Feb 7]. Available from: <https://ourworldindata.org/world-population-growth>
5. Population Reference Bureau. How Many People Have Ever Lived on Earth?: [Internet]. Washington, DC: Population Reference Bureau; c2017 [Access 2017 Feb 9]. Available from: <http://www.prb.org/Publications/Articles/2002/HowManyPeopleHaveEverLivedonEarth.aspx>
6. United Nations. World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. New York: Department of Economic and Social Affairs, Population Division United Nation. 2017. Working Paper No. ESA/P/WP/248.
7. The World Bank. Population growth (annual %). [Internet]. Washington, DC. The World Bank Group; c2017[Access 2017 Feb 18]. Available from: <http://data.worldbank.org/indicator/SP.POP.GROW>
8. United Nations. World Population Prospects [Database]: The 2015 Revision, DVD Edition (Medium Variant) [Internet]. New York: Department of Economic and Social Affairs, Population Division; 2015 [Access 2017 Feb7]. Available from: <https://esa.un.org/unpd/wpp/Download/Standard/Population/>
9. Charles R, Editors. Mohenjo-daro: The History and Legacy of the Ancient Settlement of the Indus Valley Civilization. CreateSpace Independent Publishing Platform; July 2016.
10. Murray T. Titus. *Islam in India and Pakistan (A Religious History of Islam in India and Pakistan)*. India: Munshiram Manoharlal Publishers; June 2005.
11. Hugh, Edward Egerton. *A Short History of British Colonial Policy*. London: Methuen & co.; December 2010.
12. Muniruddin Chughtai. *Historic Struggle for Pakistan (1857-1947)*. Lahore: Nazria-i-Pakistan Trust. Ltd.; October 2009.

13. Country Profile: Pakistan [Internet]. Washington, DC: Library of Congress, Federal Research Division; [updated 2005 February; Access 2017 March 5]. Available from: <https://www.loc.gov/rr/frd/cs/profiles/Pakistan.pdf>
14. One World - Nations Online. Countries of the World by Area. [Internet]. Thailand: Nations Online. Org.; c2015. [Access 2017 Feb 7]. Available from: http://www.nationsonline.org/oneworld/countries_by_area.htm
15. Karachi Metropolitan corporation. Karachi the Gateway to Pakistan. [Internet]. Karachi: Karachi Metropolitan Corporation; 2012. [Access 2017 March 10]. Available from <http://www.kmc.gos.pk/Contents.aspx?id=14>
16. Syed AR, Yasir A. Role of Agriculture in Economic Growth of Pakistan. International Research Journal of Finance and Economics: 2012; (83).
17. The World Bank. Country and Lending Groups. [Internet]. Washington, DC. The World Bank Group; c2017[Access 2017 Feb 7]. Available from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country- and-lending-groups>
18. The World Bank. GDP per capita (current US\$); World Bank National Accounts Data. [Internet]. Washington, DC. The World Bank Group; c2017 [Access 2017 Feb 7]. Available from: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>
19. World Health Organization. [Internet]. Geneva: WHO.org. [Access 2017 March 6]. Available from: http://www.who.int/gho/health_financing/total_expenditure/en/
20. United Nations Educational, Scientific and Cultural Organization. Country Profile Pakistan. [Internet]. France: UNESCO. Org. [Access 2017 March 2]. Available from: <https://en.unesco.org/countries/pakistan>
21. John Bongaart. Human population growth and the demographic transition. Phil.Trans.R. Soc.B. 2009 Oct; 364(1532): 2985–2990.
22. Population Reference Bureau staff. Transitions in World Population. Population Bulletin; 2004; 59(1).
23. Bhakta G. Fertility Decline in Asia: Opportunities and Challenges. The Japanese Journal of Population. March 2007;5(1).
24. Keyfitz, N. On The Momentum of Population Growth. Demography .1971; 8(71).
25. United Nations Department of Economic and Social Affairs. World Population Prospects: Methodology of the United Nations Population Estimates and Projections. New York: United Nations; 2017. Available from: http://data.un.org/Resources/Methodology/PopDiv.htm#_D_Eleven_Projections.
26. Mehran A, Saeed A, and Seyed AM. Correlation Between Human Development Index and Infant Mortality Rate Worldwide. Biotech Health Sci. 2016 February; 3(1):e35330.

27. Bloom DE and Jeffrey GW. Demographic Transitions and Economic Miracles in Emerging Asia. World Bank Economic Review. 1998; 12(3).
28. United Nations, Department of Economic and Social Affairs. Trends in Contraceptive Use Worldwide 2015. Estimates of contraceptive prevalence (median variant). New York: Population Division United Nations; 2015.
29. E. Grebenik. World Population Conference in Rome; Rome. Nature November 1954; 174 (1): page 904-905.
30. World Population Conference. Belgrade 1965 . Journal of the Institute of Actuaries. June 1966; 92(1): pp. 91- 96.
31. Singh, JS. 1974: World Population Year. Intereconomics. 1974; 9(2):51-53
32. Parker M, Nazli C, Frank WN, Michael TW. The World Population Conference and The Population Tribune 1974. Studies in Family Planning. December 1974; 5(12):357-358.
33. Parker M, Nazli C, Frank WN, Michael TW. The World Population Conference and The Population Tribune 1974. Studies in Family Planning. December 1974; 5(12):357-358. Appendixes Pg 381 (Principles and Objectives Para. 14).
34. Parker M, Nazli C, Frank WN, Michael TW. The World Population Conference and The Population Tribune 1974. Studies in Family Planning. December 1974; 5 (12):357-358. Appendixes Pg 388 (Principles and Objectives Para. 43).
35. Warren CR. Family Planning In Pakistan: 1955-1977 A Review. Pakistan Developmental review. Summer 1978;17(2):233-47.
36. Report of the International Conference on Population, 1984. New York: United Nation Publication, United Nation; 1984.
37. United Nations Population Information Network. Recommendations for implementation of World Pop. Plan of Action. New York: UN Population Division, Department of Economic and Social Affairs, and UN Population Fund (UNFPA); 1983.
38. Ayesha Khan. Policy-making in Pakistan's population programme. Health Policy and Planning. March 1996; 11(1): Pages 30–51.
39. The National Institute of Population Studies. [Internet]. Islamabad Pakistan: NIPS Pakistan; [updated 2017 June; Access 2017 July 09]. Available from: <http://www.nips.org.pk/>
40. United Nation. Report of the International Conference on Population and Development, Cairo September 1994. New York: United Nation Publication. Sales No.95.XIII.18; 1994.
41. The Programme of Action: adopted at the International Conference on Population and Development Cairo, 1994. New York: United Nations Population Fund; 2004.

42. Oppenheim, K. Contribution of the ICPD Programme of Action to Gender Equality and the Empowerment of Women. Proceedings of the Seminar on the Relevance of Population Aspects for the Achievement of the Millennium Development Goals; 2004 November 17-19; New York: UN Department of Economic and Social Affairs; 2005.
43. United Nations Population Information Network. Statement of Pakistan at ICPD: H.E. Mohtarma Benazir Bhutto. New York: UN Population Division, Department of Economic and Social Affairs & UN Population Fund (UNFPA); 07 September 1994.
44. National Health Survey of Pakistan: Health Profile of the People of Pakistan, 1990–94. Islamabad, Pakistan: Pakistan Medical Research Council; 1998.
45. National Institute of Population Studies, Pakistan and Macro International Inc. Pakistan Demographic and Health Survey 1990-91. Islamabad Pakistan: NIPS and Macro International Inc; 1992.
46. World Health Organization. Pakistan's experience in Lady Health Workers Programme. Cairo: Regional Committee for the Eastern Mediterranean (51st session); 2004.
47. Oxford Policy Management. Lady Health Worker Programme: Third party evaluation of performance. Oxford, UK: Oxford Policy Management; 2009.
48. First Women Bank. [Internet]. Pakistan: First Women Bank Ltd.; [updated 2017 June; Access 2017 June]. Available from: <http://www.fwbl.com.pk/about-us/history/>
49. Government of Pakistan. Statement of the Minister of Population Welfare for Plenary Session of ICPD+5. Islamabad: Ministry of Population Welfare Gov. of Pakistan; February 1999.
50. The World Bank. Pakistan- Social Action Program project. Washington, DC: World Bank Group; 1998.
51. World Health Organization. Health Systems Profile-Pakistan. Cairo: WHO Regional Health Systems Observatory- EMRO; 2007
52. Government of Pakistan. Draft Reproductive Health Policy for Pakistan. Islamabad: Planning Division Government of Pakistan; 2000.
53. United Nations. Key actions for the further implementation of the Programme of Action of ICPD. Resolution Adopted by the General Assembly, Twenty-first special session; 1999 Nov 8; New York: 1999.
54. WHO Global Health Observatory Data. PAKISTAN: Maternal mortality in 1990- 2015. Geneva: WHO. Maternal Mortality Estimation Inter-Agency Group; 2015. Available from: http://www.who.int/gho/maternal_health/countries/pak.pdf
55. The World Bank. Mortality rate, infant [Internet]. Washington, DC: The World Bank Group; c2017 [Access 2017 March 12]. Available from: <http://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=PK>

56. United Nations. UN Women: Fourth World Conference on Women, 04 September [Internet]. Beijing: 1995; [Access 2017 April 1]. Available from: <http://www.un.org/womenwatch/daw/beijing/fwcwn.html>
57. Beijing Declaration and Platform for Action: Report of the Fourth World Conference on Women, September 1995. Beijing: United Nations Division for the Advancement of Women; 1995.
58. United Nations. Statement of Pakistan at Fourth World Conference on Women, 1995: H.E. Mohtarma Benazir Bhutto. Beijing: UN Women; 04 September 1995. Available from: <http://www.un.org/womenwatch/daw/beijing/govstatements.html>
59. Government of Pakistan. Response to the Questionnaire on Implementation the Beijing Declaration and Platform for Action 1995 & Outcome of the 23rd Special Session of the General Assembly 2000. Islamabad: Ministry of Economic Affairs and Statistics Gov of Pakistan; 2009.
60. Government of Pakistan. National Policy for Development and Empowerment of Women. Islamabad: Ministry of Women Development Government of Pakistan; 2002.
61. United Nations. United Nations Millennium Declaration. Resolution Adopted by the General Assembly, Fifty-fifth session; 2000 September 18; New York: 2000 [accessed 6 August 2017].available at: <http://www.refworld.org/docid/3b00f4ea3.html>
62. United Nations. Official list of MDG indicators. 2000. [Internet] New York: [updated 2017 June; Access 2017 June]. Available from : <https://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm>
63. Campbell-White A, Merrick TW, Yazbeck SA: Reproductive Health: The Missing Millennium Development Goal. Washington DC: World Bank Publications; 2006.
64. Sarah E.K. Bradley, John B. Casterline. Understanding Unmet Need: History, Theory, and Measurement. Stud Fam Plann. June 2014; 45(2): 123–150.
65. Moreland S. Talbird S. Achieving the Millennium Development Goals: The contribution of fulfilling the unmet need for family planning. Washington, DC: U.S. Agency for International Development; May 2006.
66. John C, Stan B, Alex E,et al. Family Planning: The Unfinished Agenda. The lancet. November 2006; 18; 368(9549): 1810-1827.
67. Health Policy Initiative. Family Planning and the MDGs: Saving Lives, Saving Resources. Washington, DC: United States Agency for International Developing; 2009.
68. Frost JJ, Finer LB, Tapales A. The impact of publicly funded family planning clinic services on unintended pregnancies and government cost savings. J Health Care Poor Underserved. 2008; 19(3):778-796.
69. Wire T. Fewer emitters, lower emissions, less cost. London School of Economics Operational Research. London: Optimum Population Trust; 2009.

70. Government of Pakistan. Population Policy of Pakistan. Islamabad: Ministry of Population Welfare Government of Pakistan; 2001.
71. Government of Pakistan. National Health Policy 2001: The Way Forward: Agenda for Health Sector Reform. Islamabad: Ministry of Health Government of Pakistan; 2001.
72. Nishtar S. Health System in Pakistan – a Way Forward. The Gateway Paper. Islamabad Pakistan: Pakistan’s Health Policy Forum and Heartfile; 2006.
73. Ministry of Planning Development & Reform [Internet] Islamabad Pakistan: [updated 2017 June; Access 2017 July]. Available from: <http://pc.gov.pk/web/ministry>
74. Poverty Reduction Strategy Paper Secretariat. Poverty Reduction Strategy Paper 2003. Islamabad: Ministry of Finance Government of Pakistan; 2003.
75. Mumtaz K. Reducing the Gender Gap/Engendering PRSP 2. Support to PRSP-II Formulation Project. Islamabad: Ministry of Finance Government of Pakistan; 2008.
76. Government of Pakistan. National Health Policy 2009. Islamabad: Ministry of Health Government of Pakistan; 2009.
77. Family Planning 2020. London Summit on Family Planning [Internet] Washington, DC: [updated 2017 June; Access 2017 June]. Available from: <http://www.familyplanning2020.org/about>
78. Family Planning 2020. Commitment: Government of Pakistan at the London Summit on Family Planning. London: Family Planning 2020; 11July 2012.
79. Family Planning 2020. Commitment: Government of Pakistan at Family planning summit July 2017. [Internet] Washington, DC: [Access 2017 June]. Available from: <http://www.familyplanning2020.org/entities/97>
80. Anderson FW, Morton SU, Naik S, Gebrian B. Maternal Mortality and the Consequences on Infant and Child Survival in Rural Haiti. Maternal and child health journal. 2007; 11(4):395-401.
81. M. Kamrul Islam, Ulf-G. Gerdtham. The costs of maternal-newborn illness and mortality. Issues in maternal–newborn health and poverty. Geneva: World Health Organization; 2006.
82. Harold A, Jere R.B, Victor L, Rekha M. Child Health and School Enrollment: A Longitudinal Analysis. The Journal of Human Resources. Winter, 2001; 36(1):185-205.
83. K.A.S. Wickrama Frederick O. Lorenz. Women’s Status, Fertility Decline, and Women’s Health in Developing Countries: Direct and Indirect Influences of Social Status on Health. Rural Sociology. 2002;67(2):255–277.
84. National Institute of Population Studies, Pakistan and ICF International. Pakistan Demographic and Health Survey 2012-13. Islamabad Pakistan & Maryland USA: NIPS and ICF International; 2013.

85. United Nations. Transforming our world: The 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly, Seventieth session; 2015 September 25; New York; 2015. [Access 2017 June]. Available at: https://www.unfpa.org/sites/default/files/resourcepdf/Resolution_A_RES_70_1_EN.pdf
86. Government of Pakistan. National Health Vision Pakistan 2016-2025. Islamabad: Ministry of National Health Service Government of Pakistan; 2016.
87. United Nations Population Fund. Family planning [Internet]. New York: [updated 2017 July; Access 2017 August 19]. Available from <http://www.unfpa.org/family-planning>
88. Countdown to 2030. Countdown to 2015 maternal, newborn and child survival: Pakistan [Internet]. US: UNICEF, WHO and partners; 2013. [Access 2017 July]. Available from: http://countdown2015mnch.org/documents/2013Report/Pakistan_Accountability_profile_2013.pdf
89. United Nations Development Programme. Infographic on Pakistan's MDGs Status for 2012. [Internet]. Islamabad. UNDP Pakistan; 2013. [Access 2017 June]. Available from: <http://www.pk.undp.org/content/pakistan/en/home/post2015/mdgoverview.html>
90. World Health Organization. WHO and UNICEF estimates of immunization coverage: 2016 revision: Pakistan: [Internet]. Geneva: WHO and UNICEF; July 2017. [Access 2017 August 12]. Available from: http://www.who.int/immunization/monitoring_surveillance/data/pak.pdf?ua=
91. United Nations. The UN Inter-agency Group for Child Mortality Estimation released the latest estimates on child mortality [Internet]. New York: United Nations; 2017. [Updated 2017 October; Access 2017 June]. Available from. <http://www.childmortality.org/index.php?r=site/index>
92. Centre for Research on Poverty Reduction and Income Distribution. Pakistan Millennium Development Goals Report 2005. Islamabad: Planning Commission, Gov of Pakistan; September 2005.
93. Centre for Research on Poverty Reduction and Income Distribution. Pakistan Millennium Development Goals Report 2010. Islamabad: Planning Commission, Gov of Pakistan; September 2010.
94. Ministry of Planning, Development and Reform. Pakistan Millennium Development Goals Report 2013. Islamabad: Ministry of Planning, Development and Reform, Gov of Pakistan; 2013.
95. UNESCO Institute for Statistics. Country: Pakistan [Internet]. Quebec, Canada: UNESCO Institute for Statistics; c2017. [Access 2017 June]. Available from: <http://uis.unesco.org/en/country/PK>

96. National Institute of Population Studies, Pakistan and Macro International Inc. Pakistan Demographic and Health Survey 2006-07. Islamabad Pakistan: NIPS and Macro International Inc; 2008.
97. United Nations. Trends in Contraceptive Use Worldwide 2015. New York. UN Department of Economic and Social Affairs, Population Division; 2015. (ST/ESA/SER.A/349).
98. Howard SF. 10 Countries with the Largest Projected Population Growth: American Exceptionalism. News Paper [Online]. DATE [Access 2017 Feb 7]. Available from: http://www.huffingtonpost.com/howard-steven-friedman/population-growth-worldwide_b_1245202.html
99. Ayesha Khan, Adnan Khan. Family Planning In Pakistan: An Overview. Islamabad: Research and Development Solutions; January 2012.
100. Rahnuma-Family Planning Association of Pakistan. Program and Governance [Internet]. Lahore: Family Planning Association of Pakistan; c2017. [Access 2017 March 10]. Available from: <http://www.fpapak.org/about-us.html>
101. Rahnuma-Family Planning Association of Pakistan. Program evolution [Internet]. Lahore: Family Planning Association of Pakistan; c2017. [Access 2017 March 5]. Available from: <http://www.fpapak.org/about-us/rahnuma-fpap-evolution.html>
102. Leslie Corsa. Family Planning In Pakistan. American Journal of Public Health. March 1965; 55(3).
103. Population Welfare Department government of Punjab. History. [Internet] Lahore Pakistan: [updated 2017 June; Access 2017 June]. Available from: <http://www.pwd.punjab.gov.pk/history#11>
104. Warren C. Robinson. Family Planning in Pakistan's Third Five Year Plan. Pakistan Institute of Development Economics, Pakistan Developmental review. 1966;2(1):255-281.
105. United Nation. Report on an Evaluation of Family Planning Program of Government of Pakistan. New York: UN-WHO Advisory Mission; April 1969. (Report TAO/PAK/28).
106. Government of Pakistan. Pakistan Fertility Survey: First Report. Islamabad: Population Planning Division Gov of Pakistan; 1976.
107. Abdul Razaque C. Women and Education under Zia. The Express Tribune [Newspaper Online]. December 2012 [Access 2017 April 9]. Available from: <https://tribune.com.pk/story/484226/women-and-education-under-zia/>
108. National trusts for population welfare. [Internet] Islamabad Pakistan: [updated 2017 June; Access 2017 June]. Available from: <http://www.natpow.org.pk/home.html>
109. Anita MW. Benazir Bhutto and the Future of Women in Pakistan. Asian Survey. May1990; 30(5): 433-445.

110. Vincent Ferraro. The Life and Assassination of Benazir Bhutto - The First Woman to be Prime Minister of A Muslim Country [Internet]. Massachusetts. USA: Mount Holyoke College, South Hadley; 2009. Access 2017 April 9]. Available from: [http://www.mtholyoke.edu/~ahmad22e/Benazir Bhutto/Womens Reforms.html](http://www.mtholyoke.edu/~ahmad22e/Benazir_Bhutto/Womens_Reforms.html)
111. Syed RH. Credit Bhutto for Transforming Pakistan. The New York Times [Newspaper Online]. February 25, 1995 [Access 2017 April 9]. Available from: <http://www.nytimes.com/1995/02/25/opinion/1-credit-bhutto-for-transforming-pakistan-869195.html>
112. Mehboob S, John GC, and Mohamed MA. Assessment of a New Approach to Family Planning Services in Rural Pakistan. Am J Public Health. 2002 July; 92(7): 1168–1172
113. Government of Pakistan. Reproductive Health Services Package. Islamabad: Social Action Programme, Ministry of Health and Ministry of Population Welfare Gov. of Pakistan; 1999.
114. Tauseef Ahmed. State of Family Planning in Pakistan: Targeting the Missing Links to Achieve Development Goals. Pakistan: Pathfinder International and UNFPA; June 2013.
115. Case study Authors. Pakistan's Lady Health Worker Programme. Geneva: Global Health Workforce Alliance, World Health Organization; 2008.
116. Zeba Sathar, Batool Zaidi. Status of Family Planning in Pakistan. paper presented at: the UNFPA/ ICOMP Regional Consultation on “Family Planning in Asia and the Pacific: addressing the Challenges”; 2010 December 08-10; Bangkok. (Unpublished report).
117. Government of Pakistan. The 18th Amendment to the Constitution of the Islamic Republic of Pakistan. Islamabad: Government of Pakistan; 2011. Available from: http://na.gov.pk/uploads/documents/1333523681_951.pdf
118. Government of Pakistan. National Finance commission: biannual report January-June 2011. Islamabad: Ministry of finance Government of Pakistan; 2011.
119. Government of Punjab. Punjab Health Sector Strategy 2012-2020. Lahore: Technical Resource Facility Department of health Gov of Punjab; 2012.
120. Government of Khyber Pakhtunkhwa: Khyber Pakhtunkhwa Health Sector Strategy 2010-2017. Peshawar: Technical Resource Facility Department of Health Gov of KPK; April 2010.
121. Government of Sindh. Sindh Health Sector Strategy 2012-2020. Karachi: Technical Resource Facility Department of health Gov of Sindh; 2012.
122. Finch BE, Green H. In: Contraception through the Ages. London: Peter Owen Ltd; 1964.
123. McLaren, Angus. A history of contraception: from antiquity to the present day. Oxford, UK; Cambridge B. Blackwell; 1990.

124. Religions, Contraception. BBC. London: [Online]. August 3, 2009. [Access 2017 Feb 19]. Available from: <http://www.bbc.co.uk/ethics/contraception/>
125. Brought to Life, Exploring history of medicine: Early methods of birth control [Internet]. London: Science Museum, [Access 2017 Feb 19]. Available from: <http://www.sciencemuseum.org.uk/broughttolife/techniques/earlymethodsofbirthcontrol>
126. Kirsten M.J. A brief history of birth control in the US [Internet]. USA: Our Bodies Ourselves; December, 2013. [Access 2017 Feb 19]. Available from: <http://www.ourbodiesourselves.org/health-info/a-brief-history-of-birth-control>.
127. Description of the Demographic and Health Surveys, Individual Recode Data File. DHS VI. Maryland USA: ICF International; March, 2013.
128. Griswold v. Connecticut, (1965) 381 U.S. 479 Available from: <https://supreme.justia.com/cases/federal/us/381/479/case.html>
129. United Nations. Human Rights Aspects of Family Planning: Resolution XVIII. International Conference on Human Rights, 22 April to 13 May 1968; Tehran, Republic of Iran. Available at: <http://www.un.org/en/development/desa/population/theme/rights/>
130. Global Strategy for Women's, Children's and Adolescents' Health. [Internet]. New York: Every Woman Every Child; c2016.[Access 2017 March]. Available from: <http://www.everywomaneverychild.org/about/#sect>.
131. Starbird E, Norton M, Marcus R. Investing in Family Planning: Key to Achieving the Sustainable Development Goals. Global Health: Science and Practice. 2016;4(2):191-210.
132. Shea Oscar Rutstein, Guillermo Rojas. Guide to DHS statistics. Maryland, USA: Demographic and Health Surveys ORC Macro; September, 2006.
133. Bradley, Sarah E.K., Trevor N. Croft, Joy D. Fishel, et al. Revising Unmet Need for Family Planning. DHS Analytical Studies No. 25. Maryland, USA: ICF International; 2012.
134. Gribble, J. N. Fact Sheet: Unmet Need for Family Planning. World Population data Sheet 2012 [Internet]. Washington, DC: Population Reference Bureau. [updated 2012; Access 2017 June]. Available from: <http://www.prb.org/Publications/Datasheets/2012/world-population-data-sheet/fact-sheet-unmet-need.aspx>
135. Maher M, Fatma H. El-Zanaty, Ann A.W. Results of further analysis of the 1992 Egypt Demographic and Health Survey. Cairo, Egypt: National Population Council; 1995.
136. Bongaarts, J. The KAP-gap and the unmet need for contraception. Population and Development Review, June, 1991; 17 (2): 293-313.
137. Casterline, J. B., Sinding ,S. W. Unmet Need for Family Planning in Developing Countries and Implications for Population Policy. Population and Development Review, 2000; 26 (4):691–723.

138. W. Parker Mauldin. Fertility Studies: Knowledge, Attitude, and Practice. *Studies in Family Planning* June, 1965; 1(7): pp. 1-10.
139. Freedman, R., Coombs, L. C., & Chang, M. C. Trends in family size preferences and practice of family planning: Taiwan, 1965-1970. *Studies in Family Planning*. December, 1972; 3(12): pp. 281-296 .
140. Bogue DJ. Population perspectives: Some views from a sociologist. *Population Dynamics Quarterly*.1974; 2(2):2.
141. Entwisle B. The suitability of early KAP surveys for comparative analysis (Research Report No. 85-84). Michigan, USA: University of Michigan, Population Studies Center; July, 1985.
142. Charles F.W. Is the KAP-gap real? *Population and Development Review*. June, 1988; 14(2):225-232.
143. Westoff, CF. The unmet need for birth control in five Asian countries. *International Family Planning Perspectives and Digest*. Spring, 1978; 10(3): 173-81.
144. Sarah E.K., Bradley, John B., Casterline, Robert T. Understanding Unmet Need: History, Theory, and Measurement. *Stud Fam Plann*. 2014 Jun; 45(2): 123–150.
145. Lightbourne R.Jr, Singh S., Green C.P.,. The World Fertility Survey: charting global childbearing. *Popul Bull*. Mar, 1982; 37(1):1-55.
146. Westoff, C.F., Pebley A.R. Alternative measures of unmet need for family planning in developing countries. *International Family Planning Perspective*.1981;7 (4): 126-136.
147. Charles F.W. The Potential Demand for Family Planning: A New Measure of Unmet Need and Estimates for Five Latin American Countries. *International Family Planning Perspectives*. June, 1988; 14(2):45-53.
148. Charles F.W., Akinrinola B. Unmet Need: 1990-1994, (DHS Comparative Studies No.16). Maryland, USA: Macro International;1995.
149. Charles F.W. Ochoa, L. H. Unmet need and the demand for family planning (DHS Comparative Studies No. 5). Columbia, Maryland: Institute for Resource Development; 1991.
150. Charles F.W. New estimates of unmet need and the demand for family planning. (DHS Comparative Reports No. 14). Calverton, Maryland, USA: Macro International Inc.; 2006.
151. Nortman, D.L. Measuring the unmet need for contraception to space and limit births; *International Family Planning Perspectives*. December, 1982; 8(4): 125-134.
152. Demographic and Health Surveys Methodology - Questionnaires: Household, Woman's, and Man's. MEASURE DHS Phase III. Maryland, USA: ICF International; 2011. Available from: <http://www.measuredhs.com/publications/publication-DHSQ6-DHS-Questionnaires-and-Manuals.cfm>

153. Demographic and Health Surveys (DHS) Program; what we do: [Access 2018 February 16]. Available from: <http://www.dhsprogram.com/What-We-Do/index.cfm>
154. Banu Akadlı ERGÖÇMEN, Alanur Çavlin BOZBEYOĞLU. An alternative approach to measure unmet need for family planning in Turkey. *Turkish Journal of Population Studies*. 2005; 27: 3-16.
155. MacQuarrie, Kerry L.D. 2015. Unmet Need for Modern Contraception among Young Women: (Supplement to DHS Comparative Reports No. 34). Maryland, USA: ICF International; May 2015.
156. Amir Erfani and Ilknur Yuksel Kaptanoglu. The Use of Withdrawal among Birth Limiters in Iran and Turkey. *Studies in Family Planning*. March, 2012; 43(1):21-32.
157. Dude A., Neustadt A., Martins S., Gilliam M. Use of withdrawal and unintended pregnancy among females 15-24 years of age. *Obstet Gynecol*. September 2013;122(3):595-600.
158. Marston C.A., Church K. Does the evidence support global promotion of the calendar-based Standard Days Method of contraception? *Contraception*. June 2016; 93(6):492-497
159. Freundl G., Sivin I., Batár I. State-of-the-art of non-hormonal methods of contraception: Natural family planning. *Eur J Contracept Reprod Health Care*. April 2010; 15(2):11323.
160. Alkema L., Kantorova V., Menozzi C. Biddlecom A. National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *The Lancet*. May, 2013; 381(9878):1642-52.
161. Segal S.J. Trends in population and contraception. *Ann Med*. February 1993;25(1):51-6.
162. Andreea A Creanga , Duff Gillespie , Sabrina Karklins, Amy O Tsui. Low use of contraception among poor women in Africa: an equity issue. *Bulletin of the World Health Organization*. 2011;89:258-266.
163. Family planning/Contraception WHO Fact sheet Updated July 2017. <http://www.who.int/mediacentre/factsheets/fs351/en/>
164. Amy O.Tsui, Raegan McDonald-Mosley, Anne E. Burke. Family Planning and the Burden of Unintended Pregnancies. *Epidemiol Rev*. April, 2010; 32(1):152–174.
165. The World Bank. Health [Internet]. Washington, DC: The World Bank Group; c2017 [Access 2017 September]. Available from: <http://data.worldbank.org/topic/health>
166. Canning D. Schultz T.P. The economic consequences of reproductive health and family planning; *The Lancet*. July, 2012; 380(9837):165-71.

167. Wulifan J.K., Brenner S., Jahn A., De Allegri M. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health*. January, 2016; 16:2.
168. Jacqueline E. et al. *Adding It Up: Investing in Contraception and Maternal and Newborn Health*. New York: The Guttmacher Institute; December, 2017.
169. Jacqueline E. Darroch, Gilda Sedgh, and Haley Ball, *Contraceptive Technologies: Responding to Women's Needs*. New York: Guttmacher Institute; April, 2011.
170. Susheela Singh, Jacqueline E. Darroch, Lori S. Ashford , Michael Vlassoff. *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health*. New York: The Guttmacher Institute; December, 2009.
171. Ayesha Khan, Adnan Khan. What unmet need for family planning means in Pakistan. Islamabad: Research and Development Solutions, Policy Briefs Series No. 6; March 2012.
172. Bulatao R.A. Toward a framework for understanding contraceptive method choice. In: R.A. Bulatao, J.A. Palmor, S.E. Ward. Editors. *Choosing a contraceptive. Method choice in Asia and the United States*. Boulder, Colorado: Westview Press; 1989.
173. Verma RK; Baburajan PK. Determinants of contraceptive choice in India. *Journal of Family Welfare*. 1994 Sep; 40(3):1-8.
174. Mannan, Haider Rashid (2002). Factors in Contraceptive Methods Choice in Bangladesh: Goals, Competence, Evaluation, and Access. *Contraception*. 2002 May;65(5):357-64.
175. Jimmy Ronald Andi, Robert Wamala, Bruno Ocaya, and Allen Kabagenyi Modern contraceptive use among women in Uganda: An analysis of trend and patterns (1995-2011). *Etude Popul Afr*. July 2014; 28(2): 1009–1021.
176. Iqramul Haq, Saifullah Sakib, Ashis. Sociodemographic Factors on Contraceptive Use among Ever-Married Women of Reproductive Age: Evidence from Three Demographic and Health Surveys in Bangladesh *Taluk Med. Sci*. 2017; 5(31).
177. Enock Ngome, Clifford Odimegwu. The social context of adolescent women's use of modern contraceptives in Zimbabwe: a multilevel analysis *Reproductive Health* 2014, 11:64.
178. Thomas W. Carton, Sohail Agha, *Changes in Contraceptive Use And The Method Mix in Pakistan 1990-91 TO 2006-07: Pakistan*. Greenstar Research Department Working Paper No. 3; 2009.
179. Nguyen Minh Thang, Vu Thu Huong. Changes in Contraceptive Use in Vietnam. *biosoc. Sci*. 2003; 35:527–543.

180. Ejembi, Clara Ladi, Tukur Dahiru, Alhaji A. Aliyu. Contextual Factors Influencing Modern Contraceptive Use in Nigeria. DHS Working Papers No. 120. Maryland, USA: ICF International; 2015.
181. Rob Stephenson, Angela Baschieri, Steve Clements, Monique Hennink, Nyovani Madise. Contextual Influences on Modern Contraceptive Use in Sub-Saharan Africa. *Am J Public Health*. 2007;97:1233–1240.
182. Dainah W. Kariuki, James Ntozi, Gideon Rutaremwa. Determinants of Intention to Use Contraceptives in Postpartum Period among First Time Mothers in Nairobi, Kenya. Paper to Be Presented at the Sixth African Population Conference of December 2011 in Ouagadougou, Burkina Faso
183. Assefa Hailemariam, Fikrewold Haddis. Factors Affecting Unmet Need for Family Planning In Southern Nations, Nationalities and Peoples Region, Ethiopia. *Ethiop J Health Sci*. July, 2011;21(2).
184. Dereje Habte1 and Jane Namasasu. Family planning use among women living with HIV: knowing HIV positive status helps - results from a national survey. *Reproductive Health*. 2015; 12:41
185. Joseph K. Wulifan, Stephan Brenner, Albrecht Jahn, Manuela De Allegri. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health*. 2016; 16:2.
186. Ndola Prata, Ashley Fraser, Megan J. Huchko, et al. Women's Empowerment and Family Planning: A Review of the Literature. *J Biosoc Sci*. November, 2017; 49(6): 713–743.
187. Ahmed S, Khan A, Khan AA. Policy and programme implications of unmet need for family planning in Pakistan. *J Pak Med Assoc*. April, 2013;63(3)S:16-20.
188. Teresa Castro, Martin Fatima. The Impact of Women's Education on Fertility in Latin America: Searching for Explanations. *International Family Planning Perspectives*. June 1995; 21(2).
189. Anrudh K. Jain. The Effect of Female Education on Fertility: A Simple Explanation. *Demography*. November, 1981; 18 (4): 577-595
190. Naushin Mahmood, Karin Ringheim. Factors Affecting Contraceptive Use in Pakistan The Pakistan Development Review. Spring 1996; 35 (1):1—22
191. Fariyal F. Fikree, Amanullah Khan, Muhammad Masood Kadir, Mohammad Rahbar. What Influences Contraceptive Use among Young Women in Urban Squatter Settlements of Karachi, Pakistan?. *International Perspectives on Sexual and Reproductive Health*. September 2001; 27(3):130-136.
192. Sohail Agha. Intentions to use contraceptives in Pakistan: implications for behavior change campaigns. *BMC Public Health*. 2010, 10:450.
193. Ayele, Wondimu, Habtamu Tesfaye, Roman Gebreyes, Tesfayi Gebreselassie. Trends and Determinants of Unmet Need for Family Planning and Programme Options, Ethiopia. Further Analysis of the 2000, 2005, and

- 2011 Demographic and Health Surveys. DHS Further Analysis Reports No. 81. Maryland, USA: ICF International. 2013.
194. Ahmed Zohirul Islam, Golam Mostofa, Mohammad Amirul Islam. Factors affecting unmet need for contraception among currently married fecund young women in Bangladesh. *The European Journal of Contraception & Reproductive Health Care*. 2016; 21(6):443–448.
 195. Westoff, Charles F. Unmet Need for Modern Contraceptive Methods. DHS Analytical Studies No. 28. Maryland, USA: ICF International; 2012.
 196. MacQuarrie, Kerry L.D. Marriage and Fertility Dynamics: The Influence of Marriage Age on the Timing of First Birth and Birth Spacing. DHS Analytical Studies No. 56. Maryland, USA: ICF International; 2016.
 197. Joshua Amo-Adjei, Eugene K.M. Darteh. Unmet/met need for contraception and self-reported abortion in Ghana. *Sexual & Reproductive Healthcare*. 2017;13:118–124.
 198. Nawal M. Nour. Health Consequences of Child Marriage in Africa. *Emerg Infect Dis*. November 2006; 12(11): 1644–1649.
 199. Prusty RK. Use of Contraceptives and Unmet Need for Family Planning among Tribal Women in India and Selected Hilly States. *Journal of Health, Population, and Nutrition*. 2014;32(2):342-355.
 200. Bachan L., Frye, M. 2013. The Decline in Non-Numeric Ideal Family Size: A Cross- Regional Analysis. USA: The Pennsylvania State University (Research article); August, 2013
 201. Yeatman S, Sennott C, Culpepper S. Young Women's Dynamic Family Size Preferences in the Context of Transitioning Fertility. *Demography*. 2013;50(5):1715-1737.
 202. Feyisetan B., Casterline, J. B. Fertility Preferences and Contraceptive Change in Developing Countries. *International Family Planning Perspectives on Sexual and Reproductive Health*. 2000; 26 (3), 100–109.
 203. Hussain, R and Bittles, RJ, Consanguineous marriage and differentials in age at marriage, contraceptive use and fertility in Pakistan, *Journal of Biosocial Science*, 31, 1999, 121-138.
 204. Anuja Jayaraman, Vinod Mishra, Fred Arnold. The Relationship of Family Size and Composition to Fertility Desires, Contraceptive Adoption and Method Choice in South Asia *International Perspectives on Sexual and Reproductive Health*. 2009; 35(1):29–38.
 205. Tiziana Leone, Zoe Matthews, Gianpiero Dalla Zuann. Impact and Determinants of Sex Preference in Nepal. *International Family Planning Perspectives*. 2003; 29(2):69–75.
 206. Laurence M. Grummer-Strawn, Paul W. Stupp, and Zuguo Mei Chapter 2. Effect of a Child's Death on Birth Spacing: A Cross-National Analysis. In: Montgomery MR, Cohen B, editors. *From Death to Birth: Mortality Decline and Reproductive Change*. Washington (DC): National Research Council (US) Committee on Population, National Academies Press; 1998.

207. Dieudonne Ndaruhuye Muhoza, Annelet Broekhuis, Pieter Hooimeijer. Demand and Unmet Need to Space Births in Rwanda: A Two-Step Analysis of Determinants. *Journal of Population and Social Studies*. January 2015; 23(1):57-72.
208. Westoff, Charles F., Florina I. Serbanescu. *The Relationship between Contraception and Abortion in the Republic of Georgia: Further Analysis of the 1999 and 2005 Reproductive Health Surveys*. Maryland, USA: Macro International Inc.; 2008.
209. Kotb Sultan M, Bakr I, Ahmed Ismail N, Arafa N. Prevalence of unmet contraceptive need among Egyptian women. A community-based study. *J Prev Med Hyg*. 2010;51:62–6.
210. Pakistan Penal Code (XLV OF1860). Article 312 of the Penal Code; 6th October, 1860.
211. Bongaarts S., Bruce J. The Causes of Unmet Need for Contraception and the Social Content of Services. *Studies in Family Planning*. 1995;26 (2), 57-75.
212. Agatha Kafuko. *A Qualitative Study on Factors Affecting Unmet Need and Demand for Family Planning in Uganda*. (Study Report). Uganda: Health Communication Partnership, Ministry of Health; 2010.
213. *Factors Affecting Contraceptive Use in Sub-Saharan Africa*. National Research Council Working Group on Factors Affecting Contraceptive Use. Washington (DC): National Academies Press (US); 1993.
214. Link CF. Spousal communication and contraceptive use in rural Nepal: an event history analysis. *Stud Fam Plann*. 2011;42(2):83–92.
215. Salway S. How attitudes toward family planning and discussion between wives and husbands affect contraceptive use in Ghana. *Int Fam Plan Perspect*. 1994;20(2):44–47.
216. MacQuarrie, Kerry L.D., Jeffrey Edmeades, Mara Steinhaus, Sara K. Head. *Men and Contraception: Trends in Attitudes and Use*. DHS Analytical Studies No. 49. Maryland, USA: ICF International; 2015.
217. Rana Ejaz Ali Khan, Khadija Malik Bari. Revealing Ideal Number of Children by Women: A Socioeconomic Analysis Using Pakistan Demographic and Health Survey. *Pak J Commer Soc Sci* 2014; 8 (3): 887-899.
218. Ramos Mboane and Madhav P Bhatta. Influence of a husband's healthcare decision making role on a woman's intention to use contraceptives among Mozambican women. *Reproductive Health*. 2015; 12:36
219. Gebreselassie, Tesfayi, Pav Govindasamy. *Levels and Trends in Unmet Need for Family Planning among Adolescents and Young Women in Ethiopia*. Maryland, USA: ICF International; 2013.
220. Karen Oppenheim Mason, Herbert L. Smith. Husbands' Versus Wives' Fertility Goals and Use of Contraception: The Influence of Gender Context in Five Asian Countries. *Demography*. August 2000; 37(3):299–311.

221. Chukwuedozie K.A, Clifford Odimegwu, Ijeoma D. Ajaero, Chidiebere A. Nwachukwu. Access to mass media messages, and use of family planning in Nigeria: a spatio-demographic analysis from the 2013 DHS. *BMC Public Health*; 2016. 16:427
222. Megan Douthwaite, Patrick Ward. Increasing contraceptive use in rural Pakistan: an evaluation of the Lady Health Worker Programme, *Health Policy and Planning*. March 2005; 20 (2):117–123.
223. Hussain R, Bittles AH. Assessment of association between consanguinity and fertility in Asian populations. *J Health Popul Nutr*. 2004 Mar;22(1):1-12.
224. MEASURE Evaluation. Family Planning and Reproductive Health Indicators Database: Participation of women in household decision-making index [Internet].US: MEASURE Evaluation project, by USAID. [Access 2017 June]. Available from: https://www.measureevaluation.org/prh/rh_indicators/gender/wgse/participation-of-women-in-household-decision
225. Sunita Kishor, Lekha Subaiya. Household Decision Making As Empowerment: A Methodological View. Paper presented at: Meeting of the International Union for the Scientific Study of Population (IUSSP); 2005; Tours, France.
226. Ly Phan. Measuring Women's Empowerment at Household Level Using DHS Data of Four Southeast Asian Countries. *Social Indicators Research*. March 2016; 126(1):359–378.
227. Yohannes Dibaba Wado. Women's Autonomy and Reproductive Healthcare-Seeking Behavior in Ethiopia; DHS Working Papers No. 91. Calverton, Maryland, USA: MEASURE DHS, ICF International; February 2013.
228. Pakistan Bureau of Statistics. Results of 6th Population & Housing Census 2017: Block Wise Provisional Summary [Internet]. Islamabad: Pakistan Bureau of Statistics. [updated 2018 January 03 ; Access 2018 March]. Available from: <http://www.pbscensus.gov.pk>
229. Howe L.D., Hargreaves J.R., Gabrysch S, Huttly S.R. Is the wealth index a proxy for consumption expenditure? A systematic review. *J Epidemiol Community Health*. 2009;63:871–880.
230. Stephen A Adebawale, Sunday A Adedini, Latifat D Ibisomi, Martin E Palamuleni. Differential effect of wealth quintile on modern contraceptive use and fertility: Evidence from Malawian women. *BMC Women's Health* 2014; 14:40.
231. Rutstein, Shea O. Kiersten Johnson. The DHS Wealth Index. DHS Comparative Reports No. 6. Calverton, Maryland: ORC Macro; 2004.
232. IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.
233. Beth Dawson, Robert G. Trapp. Basic & Clinical Biostatistics, 4e. USA: McGraw-Hill Companies; March 2004.

234. D.G. Kleinbaum and M. Klein, Logistic Regression, Statistics for Biology and Health. New York: Springer Science & Business Media LLC; 2010.
235. Habshah Midi, S.K. Sarkar, Sohel Rana. Collinearity diagnostics of binary logistic regression model, Journal of Interdisciplinary Mathematics. 2010; 13(3):253-267.
236. Nagelkerke, N. J. D. 1991. A note on the general definition of the coefficient of determination. Biometrika, 78:3, 691-692.
237. Tom Pullum. Using weights in regression analysis. 2013 February 20. [Access 2017 September]. In: The DHS Program User Forum [Internet]. USA: DHS Program User Forum by USAID. Available from: <https://userforum.dhsprogram.com/index.php?t=msg&th=50&start=0&http://userforum.dhsprogram.com/index.php?t=msg&goto=72&>
238. Central Statistics Organization (CSO), Ministry of Public Health (MoPH), Afghanistan Demographic and Health Survey 2015. Kabul, Afghanistan: Central Statistics Organization and ICF; 2017.
239. International Institute for Population Sciences (IIPS) and Macro International. National Family Health Survey (NFHS-3), 2005–06: India: Volume I. Mumbai: IIPS; 2007.
240. National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ICF International. 2016. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, Mitra and Associates, and ICF International.
241. Ministry of Health and Population (MOHP) [Nepal], New ERA, and ICF International Inc. Nepal. Demographic and Health Survey 2011. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland; 2012.
242. WHO, Emergency contraception, Fact Sheet No. 244, Geneva: WHO Reviewed; February 2018.
243. WHO Model List of Essential Medicines 20th List Geneva: WHO; March 2017.
244. Andreea A Creanga, Duff Gillespie, Sabrina Karklins & Amy O Tsui. Low use of contraception among poor women in Africa: an equity issue. Bull World Health Organ. 2011 Apr 1;89(4):258-66. doi:
245. Overcoming barriers to family planning in Pakistan Lessons from Stories of Change and a literature review; Oxfam Novib; June 2016.
246. Mahmood, N, & Ringheim, K. Factors affecting contraceptive use in Pakistan. The Pakistan Development Review. 1996; 22.
247. Fikree F, Saleem S, Sami N.A. quality of care issue! Appropriate use and efficacy knowledge of five contraceptive methods: Views of men and women living in low socioeconomic settlements of Karachi, Pakistan. JPMA-Journal of the Pakistan Medical Association. 2005; 55(9): 363

248. World Health Organization Department of Reproductive Health and Research (WHO/RHR) and Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (CCP), Knowledge for Health Project. Family Planning: A Global Handbook for Providers (2018 update). Baltimore and Geneva: CCP and WHO; 2018.
249. Sathar Z, Singh S, Rashida G, Shah Z, Niazi R. Induced Abortions and Unintended Pregnancies in Pakistan. *Studies in family planning*. 2014;45(4):471-491.
250. Robey, B., P.T. Piotrow, and C. Salter. Family planning lessons and challenges: Making programs work. Population Reports, Series J, Number 40. Baltimore, Maryland USA: Johns Hopkins School of Public Health, Population Information Program; 1994.
251. Hardee K, Kumar J, Newman K, Bakamjian L, et al. Voluntary, human rights-based family planning: a conceptual framework. *Stud Fam Plann*. 2014 Mar;45(1):1-18
252. Elias C, Sherris J. Reproductive and sexual health of older women in developing countries: Women and their healthcare providers face unique needs and challenges. *BMJ : British Medical Journal*. 2003;327(7406):64-65
253. Henshaw SK, Forrest JD. Women at Risk of Unintended Pregnancy, 1990 Estimates: The Need for Family Planning Services, Each State and County. New York, NY: The Guttmacher Institute; 1993.
254. Barbara Luke, Morton B. Brown. Elevated risks of pregnancy complications and adverse outcomes with increasing maternal age, *Human Reproduction*, May 2007;22(5)1:1264–1272.
255. Government of Pakistan. Pakistan Social and Living Standards Measurement Survey (2013- 14) National / Provincial Report. Islamabad: Gov of Pakistan: Statistics Division, Pakistan Bureau of Statistics; May 2015.
256. Aftab hussain. Education System of Pakistan: Issues, Problems and Solutions. IPRI Review. Islamabad Policy Research Institute. Islamabad. March 2015.
257. United Nations. Women's education and fertility behavior. Recent evidence from the Demographic and Health Surveys. United Nations. Department for Economic and Social Information and Policy Analysis. Population Division New York, New York, United Nations, 1995. viii, 113 p. (ST/ESA/SER.R/137).
258. Alaka Malwade Basu. Why does Education Lead to Lower Fertility? A Critical Review of Some of the Possibilities. *World Development*. 2002;30(10):1779-1790.
259. Pakistan Employment Trends. Pakistan Bureau of Statistics. Statistics Division Government of Pakistan. Islamabad. January 2014. [Access 2018 Feb 7]. Available from: http://www.pbs.gov.pk/sites/default/files/Labour%20Force/publications/Pakistan_Employment_2013.pdf.

260. Illango Patchamuthu and Caren Grown. Women in the Work Force Business Recorder. News Paper [Online]. DATE Feb 17th, 2017. [Access 2018 March 12]. Available from: <https://fp.brecorder.com/2017/02/20170217142782/>
261. Matysiak A, Vignoli D. Diverse Effects of Women's Employment on Fertility: Insights from Italy and Poland: *European Journal of Population*. 2013;29(3):273-302.
262. Aassve A, Burgess S, Propper C, Dickson M. Employment, family union and childbearing decisions in Great Britain. *Journal of the Royal Statistical Society*. 2006;169(4):781–804.
263. Abbott J. The employment of women and the reduction of fertility: Implications for development. *World Dev*;1974;2(2):23–26.
264. Paolo Mefalopulos. The Role of Social Norms in Achieving Behaviour Change. December 12, 2011. Blog World Bank. People, Spaces, Deliberation [Access 2018 March 7]. Available from: <https://blogs.worldbank.org/publicsphere/role-social-norms-achieving-behaviour-change>
265. Fourcroy JL. Customs, Culture, and Tradition: What Role Do They Play in a Woman's Sexuality? *J Sex Med*. Nov 2006;3(6):954-959.
266. Abedin, S. Identification of Fertility Enhancing and Inhibiting Factors: A Study on Married Adolescents in Bangladesh. *Asian Social Science*. 2011; 7(5):191.
267. Ertem, M., G. Saka, A. Ceylan, V. Değer, and S. Çiftçi. The Factors Associated with Adolescent Marriages and Outcomes of Adolescent Pregnancies in Mardin Turkey. *Journal of Comparative Family Studies*. 2008; 229-239.
268. MacQuarrie, Kerry L.D. Marriage and Fertility Dynamics: The Influence of Marriage Age on the Timing of First Birth and Birth Spacing. DHS Analytical Studies No. 56. Rockville, Maryland, USA: ICF International; 2016.
269. Almond D, Edlund L, Milligan K. Son preference and the persistence of culture: Evidence from South & East Asian Immigrants to Canada. *Popul Dev Rev*. 2013;39(1):75–95.
270. Jayaraman A, Mishra V, Arnold F. The relationship of family size and composition to fertility desires, contraceptive adoption and method choice in South Asia. *Int Perspect Sex Reprod Health*. 2009 Mar; 35(1):29-38.
271. Atif K, Ullah MZ, Afsheen A, Naqvi SAH, Raja ZA, Niazi SA. Son Preference in Pakistan; A Myth or Reality. *Pakistan Journal of Medical Sciences*. 2016;32(4):994-998.
272. Rajarethanm T, Desphande RV. Gender Preference an India's Missing Girls: Evidence from same selected states of India. Boston, USA: Population Association of America; 1994.

273. Rahman M. The effect of child mortality on fertility regulation in rural Bangladesh. *Stud Fam Plann.* 1998 Sep;29(3):268-81.
274. Cicely Marston, John Cleland. Relationships between Contraception and Abortion: A Review of the Evidence. *International Family Planning Perspectives.* 2003; 29(1):6–13.
275. Mahamed F, Parhizkar S, Shirazi AR. Impact of Family Planning Health Education on the Knowledge and Attitude among Yasoujian Women. *Global Journal of Health Science.* 2012;4(2):110-118.
276. Ashfaq, Seemin and Maqsood Sadiq. Engaging the Missing Link: Evidence from FALAH for Involving Men in Family Planning in Pakistan: Case Study. Washington, DC: Population Council, The Evidence Project; 2015.
277. Bridgit Adamou, Brittany S. Iskarpatyoti, Chris B.O. Agala, and Carolina Mejia. Male Engagement in Family Planning: Gaps in Monitoring and Evaluation. Chapel Hill, USA: MEASURE Evaluation and University of North Carolina; September 2017.
278. Bankole, Akinrinola. The Role of Mass Media in Family Planning Promotion in Nigeria. DHS Working Papers No. 11. Calverton, Maryland, USA: Macro International;1994.
279. World Health Organization. Community Health Worker Programmes in the WHO African Region: Evidence and Options policy brief. World Health Organization. Regional Office for Africa; 2017.
Phillips JF, Greene WL, Jackson EF. Lessons of community-based distribution of family planning in Africa. New York: Population Council. Policy Research Division Working Papers ; 1999.
280. Government of Pakistan. Multidimensional Poverty in Pakistan. Islamabad, Pakistan: Planning Commission of Pakistan, Ministry of Planning, Development and Reform; Jun 2016.
281. Jin Rou New, Niamh Cahill, John Stover, Yogender Pal Gupta, Leontine Alkema. Levels and trends in contraceptive prevalence, unmet need, and demand for family planning for 29 states and union territories in India: a modelling study using the Family Planning Estimation Tool. *Lancet Glob Health.* 2017; 5: e350–58.
282. Trends and Determinants of Unmet Need for Family Planning in Bihar (India): Evidence from National Family Health Surveys. *SciRes.* 2013; 3(2): 157-163.
283. Why Unmet Need for Family Planning Remains High in Bangladesh: A Community Level Analysis. *J Women's Health Care.* 2015; 4(8):290.
284. Paudel IS, Budhathoki SS. Unmet Needs for Family Planning in Sunsari. Eastern Nepal. *Health Renaiss.* 2011;9:148–151.
285. Imasiku ENS, Odimegwu CO, Adedini SA, Ononokpono DN. Variations in unmet need for contraception in Zambia. Does ethnicity play a role? *J Biosoc Sci.* 2014;46:294–315.

286. David Ojaka. Trends and Determinants of Unmet Need for Family Planning in Kenya. ICF, Calverton, Maryland, USA: Macro International. DHS Working Papers No.56; 2008.
287. Magure, Tsitsi M., Tov Manene, Stephen P. Munjanja, Sarah E.K. et al. Trends in Unmet Need and the Demand for Family Planning in Zimbabwe. Calverton, Maryland, USA: ICF Macro. Zimbabwe Working Papers, No.6; 2010.
288. Ahmed S, Khan A, Khan AA. Policy and Programme Implications of Unmet Need for Family Planning in Pakistan. *J Pak Med Assoc.* Apr 2013;63(4 Suppl 3):16-20.
289. Shaikh, Babar. Unmet need for family planning in Pakistan PDHS 2006-2007: It's time to re-examine deja vu. *Open Access Journal of Contraception*; 2010.
290. Begum Sadaquat, Mahpara Ali Sheikh, Qurra-tul-ain. Employment situation of women in Pakistan. *International Journal of Social Economics.* 2011;38(2):98-113
291. The West Pakistan Maternity Benefit Ordinance. W.P. Ordinance XXXII of 1958; 1958 .
292. Van de Walle E. Fertility Transition, Conscious Choice, and Numeracy Demography. *Nov 1992*;29 (4):487-502.
293. Aryal, Ram Hari, Ram Sharan Pathak, Bhogendra Raj Dattel, and Prakash Dev Pant. A Comparative Analysis of Unmet Need in Nepal: Further Analysis of the 2006. *Nepal Demographic and Health Survey.* Calverton, Maryland, USA: Macro International Inc; 2008.
294. Rai P, Paudel IS, Ghimire A, Pokharel PK, Rijal R, Niraula SR. Effect of gender preference on fertility: cross-sectional study among women of Tharu community from rural area of eastern region of Nepal. *Reproductive Health.* 2014;11:15.
295. R. Hussain, FF. Fikree, HW. Berendes. The role of son preference in reproductive behaviour in Pakistan. *Bulletin of the World Health Organization*; 2000,78(3).
296. Qadir, F., Khan, M. M., Medhin, G., & Prince, M. Male gender preference, female gender disadvantage as risk factors for psychological morbidity in Pakistani women of childbearing age: a life course perspective. *BMC public health.* 2011;11(1):745.
297. Busari, A.O. Menstrual Knowledge and Health Care behavior among Adolescent Girls in Rural, Nigeria. *International Journal of Applied Science and Technology.* April 2012; 2(4).
298. Pyper C. Reproductive health awareness: an important dimension to be integrated into existing sexual and reproductive health programs. *Adv Contracept.* Jun-Sep 1997;13 (2-3):331-8.

299. Price N, Knibbs S. How effective is peer education in addressing young people's sexual and reproductive health needs in developing countries? *Child Soc.* 2009;23:291–302.
300. Casterline JB, Sathar ZA, Huque UM. Obstacles in contraceptive use in Pakistan: a study in Punjab. *Stud Fam Plann.* 2001;32:95–110
301. Bankole A, Singh S. Couple's fertility and contraceptive decision – making in developing countries: hearing the man's voice. *Int Fam Plan Perspect.* 1999;24:15–28.
302. Dodoo F.N. Men matter: additive and interactive gendered preferences and reproductive behavior in Kenya. *Demography.* 1998, 35(2):229–242.
303. Center for Communication Programs, Johns Hopkins School of Public Health: Reaching Men Worldwide: Lessons Learned from Family Planning and Communication Projects - 1986-1996. Working Paper Series No.3. Baltimore, Maryland: Johns Hopkins University School of Public Health, Center for Communication Programs; 1997.
304. Greene ME, Mehta M, Pulerwitz J, Wulf D, Bankole A, Singh S: Involving men in reproductive health: contributions to development. UN Millennium Project; 2006.
305. Kim YM; Marangwanda C; Kols A. Involving Men in Family Planning: The Zimbabwe Male Motivation and Family Planning Method Expansion Project, 1993-1994. Maryland, USA: Johns Hopkins School of Public Health, Center for Communication Programs; 1996.
306. Yadav K, Singh B, Goswami K: Unmet family planning need: differences and levels of agreement between husband-wife, Haryana, India. *Indian J Community Med.* 2009, 34(3):188.
307. Clifton D. The urban-rural divide in health and development. Data sheet. Washington, D.C: Population Reference Bureau; 2015. [Access 2018 March 19]. Available from: <https://www.prb.org/wp-content/uploads/2015/05/urban-rural-datasheet.pdf>
308. Muhammad Mushtaq. Regional Identities in Quest of Separate Provinces: A New Challenge for the Pakistani Federation. *Journal of Political Studies.* 2016; 23(1): 289-307
309. Abiba Longwe, Janine Huisman, Jeroen Smits. Effects of knowledge, acceptance and use of contraceptives on household wealth in 26 African Countries. NiCE Working Paper. HK Nijmegen, Netherlands: Nijmegen Center for Economics (NiCE) Institute for Management Research Radboud University Nijmegen;2012
310. Kabagenyi A, Jennings L, Reid A, Nalwadda G, Ntozi J, Atuyambe L. Barriers to male involvement in contraceptive uptake and reproductive health services. A qualitative study of men and women's perceptions in two rural districts in Uganda. *Reprod Health.* 2014;11:21

311. Mosha I, Ruben R, Kakoko D. Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania. A qualitative study. *BMC Public Health*. 2013;13:523.
312. Curtis Sian, Charles Hammerslough. Model further analysis plan: Contraceptive use dynamics. Calverton, Maryland: Macro International Inc; 1995.
313. Family Planning 2020. Data and measurement hub. Core Indicators. [updated 2018; Access 2018 March]. Available from: <http://www.familyplanning2020.org/microsite/measurement-hub/whatwemeasure>.
314. Curtis Sian L, Ann K. Blanc. Determinants of contraceptive failure, switching, and discontinuation: An analysis of DHS contraceptive histories. DHS Analytical Reports No. 6. Calverton, Maryland: Macro International Inc; 1997.
315. DHS Contraceptive Calendar Tutorial. The Demographic and Health Surveys Program. MD, USA: ICF International; No date
316. D.G. Kleinbaum and M. Klein, *Survival Analysis – A Self-Learning Text*, 3rd Edition. New York: Springer Science & Business Media LLC; 2011.
317. Tayfun Enunlu and Bahar Guciz Dogan. Contraceptive use Dynamics in Turkey. In. Akin Ayse and Munevver Bertan, Editors. *Contraception, Abortion, and Maternal Health Services in Turkey*. Calverton, Maryland: Ministry of Health Turkey and Macro International Inc; 1996.
318. Ayse Akin and Tayfun Enunlu. Contraceptive use Dynamics in Turkey. In. Ayse Akin, Bahar Guciz Dogan, Sevkati Bahar Ozvaris and Tayfun Enunlu Editors. *Contraception, Abortion, and Maternal Health Services in Turkey. Further Analysis of 1998 Turkish Demographic and Health Survey*. Ankara, Turkey: Department of Public Health Hacettepe University and UNFPA; January 2002.
319. Aurora E. Perez, Tita L. Tabije. Contraceptive discontinuation, failure and switching behavior in the Philippines. DHS Working Papers No. 18. Calverton, Maryland: Macro International Inc; 1996.
320. Bradley, Sarah E.K., Hilary M. Schwandt, and Shane Khan. Levels, Trends, and Reasons for Contraceptive Discontinuation. DHS Analytical Studies No. 20. Calverton, Maryland, USA: ICF Macro; 2009.
321. Fathonah, Siti. Patterns of Contraceptive Use in Indonesia. Maryland, USA: State Ministry of Population/National Family Planning Coordinating Board and Macro International Inc.; 2000.
322. Contraceptive Use Dynamics in Kenya. Further Analysis of Demographic and Health Survey Data. Maryland, USA: African Population and Health Research Center Nairobi, Kenya and Macro International Inc; June 2001.
323. Laguna, Elma P., Anna Liza C. Po., and Aurora E. Perez. Contraceptive Use Dynamics in the Philippines: Determinants of Contraceptive Method Choice and Discontinuation. Calverton, Maryland: ORC Macro; 2000.

324. Mohamed Ali, John Cleland, Iqbal H. Shah. Causes and consequences of contraceptive discontinuation: evidence from 60 demographic and health surveys. Department of Reproductive Health and Research .World Health Organization; 2012.
325. Sambisa, William. Contraceptive Use Dynamics in Zimbabwe: Discontinuation, Switching, and Failure. Zimbabwe Further Analysis. Calverton, Maryland: Macro International Inc; 1996.
326. S.N. Mitra, Ahmed Al-Sabir. Contraceptive Use Dynamics in Bangladesh. DHS Working Papers No. 21. Calverton, Maryland: Macro International Inc; October 1996.
327. Fengyu Zhang, Amy O. Tsui, C. M. Suchindran. The Determinants of Contraceptive Discontinuation in Northern India: A Multilevel Analysis of Calendar Data. North Carolina, USA: University of North Carolina and Carolina Population Center; December 1999.
328. Joyce N. Mumah, Kazuyo Machiyama, Michael Mutua, Caroline W. Kabiru, and John Cleland. Contraceptive Adoption, Discontinuation, and Switching among Postpartum Women in Nairobi's Urban Slums Studies in Family Planning 2015; 46(4): 369–386.
329. Chelsea B. Polis, Sarah E.K. Bradley, Akinrinola Bankole, Tsuyoshi Onda, Trevor Croft and Susheela Singh. Contraceptive Failure Rates in the Developing World: An Analysis of Demographic and Health Survey Data in 43 Countries. New York: Guttmacher Institute; 2016.
330. Manas R. Pradhan, H. Reddy, N. Mishra, H. Nayak. Contraceptive Use Dynamics in South Asia: The Way Forward. Poster Session Presented at the 27th IUSSP Conference; 26-31 August 2013, Busan, South Korea.
331. Wang, Wenjuan, and Rathavuth Hong. Contraceptive Discontinuation, Failure, and Switching in Cambodia. Further Analysis of the 2014 Cambodia Demographic and Health Survey. DHS Further Analysis Reports No. 105. Rockville, Maryland, USA: ICF; 2017.
332. Hacettepe University Institute of Population Studies. 2013 Turkey Demographic and Health Survey. Ankara, Turkey: Hacettepe University Institute of Population Studies, T.R. Ministry of Development and TÜBİTAK; 2014.
333. Statistics Indonesia. Indonesia Demographic and Health Survey 2012. Jakarta, Indonesia: National Population and Family Planning Board, Kementerian Kesehatan, and ICF International; 2013.
334. Ministry of Health and Sports (MoHS) and ICF. Myanmar Demographic and Health Survey 2015-16. Nay Pyi Taw, Myanmar and Maryland USA: Ministry of Health and Sports and ICF; 2017.
335. Asian Development Bank. Poverty in Pakistan. [Internet]. Manila, Philippines: Poverty Data Pakistan, Asian Development Bank; c2018 [Access 2017 March 25]. Available from: <https://www.adb.org/countries/pakistan/poverty>

336. Adebowale SA, Palamuleni ME. Influence of gender preference and sex composition of surviving children on childbearing intention among high fertility married women in stable union in Malawi. *African Health Sciences*. 2015;15(1):150-160.
337. Mason, K., & Smith, H. Husbands' versus Wives' Fertility Goals and Use of Contraception: The Influence of Gender Context in Five Asian Countries. *Demography*. 2000; 37(3), 299-311.
338. Sabatini R, Cagiano R, Rabe T. Adverse Effects of Hormonal Contraception. *J. Reproduktionsmed. Endokrinol*. 2011;8(1):130-156.
339. Hubacher D, Chen P-L, Park S. Side effects from the copper IUD: do they decrease over time?. *Contraception*. 2009;79(5):356-362.
340. National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International; 2014.
341. Petitti DB, Sidney S. Four Decades of Research on Hormonal Contraception. *The Permanente Journal*. 2005;9(1):29-34.
342. Rama Rao S, Lacuesta M, Costello M, Pangolibay B, Jones H. The link between quality of care and contraceptive use. *Int Fam Plan Perspect*. 2003 Jun;29(2):76-83.
343. Adapted from World Health Organization (WHO) Department of Reproductive Health and Research, Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (CCP). Knowledge for health project. Family planning: a global handbook for providers (2011 update). Baltimore, MD; Geneva, Switzerland: CCP and WHO; 2011; and Trussell J. Contraceptive failure in the United States. *Contraception* 2011;83:397–404.
344. Ani Jilozian. The impact of male labor migration on contraception and abortion dynamics among women married to migrants in rural Armenia. Yerevan, Armenia: Yerevan State University, Center for Gender and Leadership Studies; 2015
345. Ministry of Labour and Employment. Labor Migration for Employment. A Status Report for Nepal: 2014/2015. Nepal: Government of Nepal Ministry of Labour and Employment; June 2016.
346. Ministry of Overseas Pakistanis and Human Resource Development. Labour migration from Pakistan: 2015 status report. Islamabad, Pakistan: Ministry of Overseas Pakistanis and Human Resource Development Government of Pakistan; 2016.
347. Hussain, Sabahat. Reasons for Low Modern Contraceptive Use – Insights from Pakistan and Neighboring countries. Islamabad, Pakistan: Population Council; January 2015.
348. Mahmood A, Arshad MJ, Sadiq M. Situation Analysis of Health Facilities with Special Reference to Family Planning Services in Pakistan. Islamabad, Pakistan: Population Council; 2012.

349. Fathonah, Siti. Contraceptive Use Dynamics in Indonesia. Maryland, USA: DHS Working Paper No.20. Macro International Inc.; July 1996.
350. Barden O Fallon JL, Speizer LS and White J, The association between contraceptive discontinuation and pregnancy intentions in Guatemala, *Revista Panamericana de Salud Publica*, 2008, 23(6):410–417.
351. Davidson AR et al., Injectable contraceptive discontinuation and subsequent unintended pregnancy among low-income women, *American Journal of Public Health*, 1997, 87(9):1532.
352. Azmat SK, Hameed W, Mustafa G, Hussain W, Ahmed A, Bilgrami M. IUD discontinuation rates, switching behavior, and user satisfaction: findings from a retrospective analysis of a mobile outreach service program in Pakistan. *International Journal of Women's Health*. 2013;5:19-27.
353. Hameed, Shaikh & Azmat, Syed Khurram & Ali, Moazzam & Temmerman, Marleen. Determinants of Method Switching among Social Franchise Clients Who Discontinued the Use of Intrauterine Contraceptive Device. *The Journal of reproductive medicine*. 2015; 8.
354. Y. Mumtaz, Problems faced by Pakistani women. *Daily Umat [Newspaper]*, 2010 July 04.
355. James Trussell. Contraceptive failure in the United States. *Contraception*. 2011 May;83(5):397-404.
Trussell J. Understanding contraceptive failure. *Best practice & research Clinical obstetrics & gynaecology*. 2009;23(2):199-209.
356. Amir Erfani. The Use of Withdrawal among Birth Limiters in Iran and Turkey. Maryland, USA: DHS Working Papers No. 71. ICF Macro; 2010.
357. Banu Akadli Ergocmen, Ismet Koc, Elif Kurtulus Yigit, Pinar Senlet, and Elaine Roman. An Analytical Insight into a Traditional Method: Withdrawal Use in Turkey. DHS Further Analysis of 1998 Turkish Demographic and Health Survey Maryland, USA: Institute of Population Studies, Hacettepe University, Ankara and ORC Macro; December 2001.
358. J. Ties Boerma & A. Elisabeth Sommerfelt. Demographic and health surveys (DHS): contributions and limitations. *World Health Stat Q*. 1993;46(4):222-6.
359. Gebreselassie, Tesfayi, Vinod Mishra. Spousal Agreement on Family Planning in Sub-Saharan Africa. Maryland, USA: DHS Analytical Studies No. 11. Macro International; 2007.

9. APPENDICES

Appendix-1. DHS Contraceptive Calendar.

INSTRUCTIONS:

ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
COLUMN 1 REQUIRES A CODE IN EVERY MONTH.

INFORMATION TO BE CODED FOR EACH COLUMN

COLUMN 1: BIRTHS, PREGNANCIES, CONTRACEPTIVE USE**

B BIRTHS

P PREGNANCIES

A ABORTION

C MISCARRIAGE

S STILL BIRTH

0 NO METHOD

1 FEMALE STERILIZATION

2 MALE STERILIZATION

3 IUD

4 INJECTABLES

5 IMPLANTS

6 PILL

7 CONDOM

8 SDM

9 LACTATIONAL AMEN. METHOD

L RHYTHM METHOD

M WITHDRAWAL

X OTHER MODERN METHOD

Y OTHER TRADITIONAL METHOD

COLUMN 2: DISCONTINUATION OF CONTRACEPTIVE USE

0 INFREQUENT SEX/HUSBAND AWAY

1 BECAME PREGNANT WHILE USING

2 WANTED TO BECOME PREGNANT

3 HUSBAND DISAPPROVED

4 WANTED MORE EFFECTIVE METHOD

5 SIDE EFFECTS/HEALTH CONCERNS

6 LACK OF ACCESS/TOO FAR

7 COSTS TOO MUCH

8 INCONVENIENT TO USE

F UP TO GOD/FATALISTIC

A DIFFICULT TO GET PREGNANT/MENOPAUSAL

D MARITAL DISSOLUTION/SEPARATION

X OTHER

(SPECIFY)

Z DON'T KNOW

			1	2
12	DEC	01		
11	NOV	02		
10	OCT	03		
09	SEP	04		
2	08	AUG	05	2
0	07	JUL	06	0
1	06	JUN	07	1
3	05	MAY	08	3
	04	APR	09	
	03	MAR	10	
	02	FEB	11	
	01	JAN	12	
12	DEC	13		
11	NOV	14		
10	OCT	15		
09	SEP	16		
2	08	AUG	17	2
0	07	JUL	18	0
1	06	JUN	19	1
2	05	MAY	20	2
	04	APR	21	
	03	MAR	22	
	02	FEB	23	
	01	JAN	24	
12	DEC	25		
11	NOV	26		
10	OCT	27		
09	SEP	28		
2	08	AUG	29	2
0	07	JUL	30	0
1	06	JUN	31	1
1	05	MAY	32	1
	04	APR	33	
	03	MAR	34	
	02	FEB	35	
	01	JAN	36	
12	DEC	37		
11	NOV	38		
10	OCT	39		
09	SEP	40		
2	08	AUG	41	2
0	07	JUL	42	0
1	06	JUN	43	1
0	05	MAY	44	0
	04	APR	45	
	03	MAR	46	
	02	FEB	47	
	01	JAN	48	
12	DEC	49		
11	NOV	50		
10	OCT	51		
09	SEP	52		
2	08	AUG	53	2
0	07	JUL	54	0
0	06	JUN	55	0
9	05	MAY	56	9
	04	APR	57	
	03	MAR	58	
	02	FEB	59	
	01	JAN	60	
12	DEC	61		
11	NOV	62		
10	OCT	63		
09	SEP	64		
2	08	AUG	65	2
0	07	JUL	66	0
0	06	JUN	67	0
8	05	MAY	68	8
	04	APR	69	
	03	MAR	70	
	02	FEB	71	
	01	JAN	72	
12	DEC	73		
11	NOV	74		
10	OCT	75		
09	SEP	76		
2	08	AUG	77	2
0	07	JUL	78	0
0	06	JUN	79	0
7	05	MAY	80	7
	04	APR	81	
	03	MAR	82	
	02	FEB	83	
	01	JAN	84	

Appendix-2. Ethical approval form from Hacettepe University.



T.C.
HACETTEPE ÜNİVERSİTESİ
Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu

Sayı : 16969557 - 852

30.07/2015

Prof.Dr. Bahar Güçiz DOĞAN
Tıp Fakültesi
Halk Sağlığı Anabilim Dalı
Öğretim Üyesi

Sayın Prof.Dr. DOĞAN,

Kurulumuza değerlendirilmek üzere sunduğunuz GO 15/531 kayıt numaralı ve “*Aile Planlaması Yöntem Kullanma Prevalansının Belirleyicileri, Dinamikleri ve Eğilimler ile Karşılanmamış İhtiyacın Değerlendirilmesi, (Pakistan Nüfus ve Sağlık Araştırmalarının İleri Analizi)*” başlıklı proje önerisi Kurulumuzun 29.07.2015 tarihli toplantısında değerlendirilmiş olup, çalışmanın Pakistan Nüfus ve Sağlık araştırması (PNSA) verilerinin ileri analizine yönelik olduğu görülmüştür. Klinik Araştırmalar Yönetmeliği gereği gönüllü insanlar üzerinde gerçekleştirilecek nitelikte olmayan bu tip çalışmalar Etik Kurulların kapsamı dışında kalmaktadır.

Bu yazı Etik Kurul kararı yerine geçmek üzere hazırlanmıştır.

Prof. Dr. Nurten AKARSU
Başkan

Appendix-3. Approval from ICF International to use DHS dataset.



May 11, 2018

FAHAD AHMED
HACETTEPE UNIVERSITY INSTITUTE OF PUBLIC HEALTH
Turkey
Phone: 0090-5076874321
Email: drfahadahmed@yahoo.com
Request Date: 11/18/2015

Dear FAHAD AHMED:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: " Analysis of the Prevalence, Trends, Determinants and Dynami":

Pakistan

To access the datasets, please login at: https://www.dhsprogram.com/data/dataset_admin/login_main.cfm. The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Please reference the complete terms of use at: <https://dhsprogram.com/Data/terms-of-use.cfm>.

The data must not be passed on to other researchers without the written consent of DHS. Users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: archive@dhsprogram.com.

Sincerely,

Bridgette Wellington

Bridgette Wellington
Data Archivist
The Demographic and Health Surveys (DHS) Program



APPENDIX 4

T.C
HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES
THESIS ORIGINALITY REPORT



To the Hacettepe University
Graduate School of Health Sciences

Date: 16/8/2018

Name Surname: Fahad Ahmed

Student No:

Department: Public Health

Program: Epidemiology

Status: ☐ Master ☒ Ph.D. ☐ Integrated Ph.D.

Thesis Title : Analysis of the Prevalence, Trends, Determinants and Dynamics of Contraceptive Use
and Estimate of Unmet Need for Family Planning in Pakistan
(Further Analysis of the Pakistan Demographic and Health Surveys)

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Prof. Dr. Bahar Güçüz Doğan

Ödevler

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Tartışma

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GÖRÜNTÜLENİYOR

ANALYSIS OF PREVALENCE, TRENDS, DETERMINANTS AND DYNAMICS OF CONTRACEPTIVE USE AND ESTIMATE OF UNMET NEED FOR FAMILY PLANNING IN PAKISTAN

Gönder: Tek Dosya Yüklemesi

ADIM 1/1

Tebrikler! Gönderiminiz tamamlandı. Bu sizin dijital makbunuzdur. Bu makbuzu Doküman Görüntüleyicide yazdırabilirsiniz.

Yazar:

Fahad Ahmed

«

Sayfa 1

»

Ödev başlığı:

Analysis of the Prevalence, Trends, Determinants and Dynamics of Contraceptive Use and Estimate of Unmet Need for Family Planning in Pakistan

Gönderi başlığı:

Analysis of the Prevalence, Trends, Determinants and Dynamics of Contraceptive Use and Estimate of Unmet Need for Family Planning in Pakistan

Dosya adı:

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Dosya boyutu:

1.76M

Sayfa sayısı:

371

Kelime sayısı:

102176

Karakter sayısı:

575381

Gönderim Tarihi:

15-Ağu-2018 02:33ÖS (UTC+0300)

Gönderim Numarası:

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CHAPTER 1 INTRODUCTION

1.1 Background of Research Problem

1.1.1 Global Population Expansion

Population growth is a major concern for many countries in the world. The rapid increase in the world population has led to a number of problems, including environmental degradation, resource scarcity, and social inequality. The rapid increase in the world population has led to a number of problems, including environmental degradation, resource scarcity, and social inequality.

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Gizliliğinizi çok ciddiye alıyoruz. Bilgilerinizi pazarlama amaçlarıyla hiçbir harici şirket ile paylaşmayız. Bilgileriniz YALNIZCA hizmetimizi sunabilmemiz için üçüncü taraf iş ortaklarımız ile paylaşılabilir.

Başka bir dosya gönder

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www.fastexas.org

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Ngalinda, Innocent(Fassmann, Heinz and Münz, Rainer). "Age at First Birth, Fertility, and Contraception in Tanzania", Philosophische Fakultät III, 1998.

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www.dhsprogram.com

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lambda.gsfc.nasa.gov

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7

Hailemariam, A, and F Haddis. "Factors

<% **1**

Affecting Unmet Need for Family Planning In
Southern Nations, Nationalities and Peoples
Region, Ethiopia", Ethiopian Journal of Health
Sciences, 2011.

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10. CURRICULUM VITAE

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Trained in Basic Surgical Skills and Trauma Management, (Dept. Emergency Medicine Aga
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Certified Trainer in Directly Observed Therapy (DOT) For TB Control, (WHO).

