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A CROSS-SECTIONAL QUESTIONNAIRE SURVEY OF TOBACCO USE WITH A FOCUS ON E-CIGARETTES AND RELATED FACTORS AMONG DENTISTS AND MEDICAL DOCTORS IN HAMDARD UNIVERSITY MEDICAL AND DENTAL HOSPITAL, KARACHI, PAKISTAN

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SUPERVISOR

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Tez Sahibi : Zohaib ur Rehman Mufti

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Bu çalışma jurimiz tarafından kapsam ve kalite yönünden Yüksek Lisans Tezi olarak kabul edilmiştir.

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ONAY

Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun ...../...../..... tarih ve ..... sayılı kararı ile onaylanmıştır.

Prof. Dr. Bayram YILMAZ

Sağlık Bilimleri Enstitüsü Müdürü

DECLARATION

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree except where due acknowledgment has been made in the text.

18.12.2023

ZOHAIB UR REHMAN MUFTI

DEDICATION

WITH LOVE AND RESPECT

I DEDICATE THIS RESEARCH

TO MY LATE FATHER

RAFAT IQBAL MUFTI

&

HAKIM MUHAMMAD SAID SHAHEED

Founder of Hamdard University

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All praise in the name of Almighty **ALLAH**, the most gracious, the most merciful who guides us in the darkness and helps in difficulties.

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LIST OF SYMBOLS AND ABBREVIATIONS

α	Level of Significance
BDS	Bachelor of Dental Surgery
CA	Cronbach Alpha
CI	Confidence Interval
E-Cigarette	Electronic Cigarette
FDA	Food and Drug Administration
FUMC	Foundation University Medical College
GATS	Global Adult Tobacco Survey
HTPs	Heated Tobacco Products
ICD	International Classification of Disease
IQOS	(I Quit Ordinary Smoking) Device
MBBS	Bachelor of medicines, Bachelor of Surgery
n	Sample Size
NRT	Nicotine Replacement Therapy
P-value	Probability Value
PCA	Principal Component Analysis
SD	Standard Deviation
SLT	Smokeless Tobacco
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization
χ	Chi Test

ABSTRACT

Mufti, Zohaib ur Rehman. (2023). A Cross-Sectional Questionnaire Survey of Tobacco use with a Focus on E-Cigarettes and Related Factors among Dentist and Medical Doctors in Hamdard University Medical and Dental Hospital, Karachi, Pakistan, Yeditepe University, Institute of Health Science, Department of Public Health, MSc thesis, Istanbul.

The aim of this study is to evaluate the prevalence of smoking and e-cigarette consumption among Medical and Dental Doctors of Hamdard University Karachi Pakistan, and analyze the relationship among the distinct demographic characteristics with the consumption of tobacco products. Therefore, a questionnaire was drafted by following a standard protocol. A total of 407 participants among the doctors and dentist (mean age: 40 ± 20 years, M/F=193/214) of the Hamdard University, Karachi, Pakistan were interviewed in this survey. Frequency and percentage of this data was calculated by using descriptive statistics. Chi square of association was also used to analyze the consumption of tobacco with contrasting demographic characteristics. SPSS version 23 was used for statistical analysis. Among 407 responses it was found that 126 males and 28 females were addicted to conventional smoking while, 70 males and 34 females were addicted to e-cigarettes. After applying the Pearson chi square test, it was found that smoking and consumption of e-cigarette have the positive and significant association between gender ($p \leq 0.05$). Whereas, significant difference was also observed according to the department, age, designation ($p \leq 0.05$). It was also found that 118 medical doctors and 80 dentists were addicted to tobacco product. Among them most of the respondents were house officers (n=164) followed by resident medical Officers (n=57). It was also observed that Smoking and e-cigarette have insignificant positive association with the martial status ($p \geq 0.05$). Majority of the respondents report that they started e-cigarette to quit smoking. It is concluded that there is a misconception about e-smoking. Apparently, many individuals believe that e-smoking is safer than conventional smoking. This was concluded that, people are unaware about the harmful effect of e-smoking. Campaign and seminars should be conducted regarding the harmful effects of e-smoking. Furthermore, larger population should be selected that will generalize findings of the current study.

Keywords: E-smoking, tobacco products, Pearson chai square test, dentists, Hamdard University Karachi.

ÖZET (TÜRKÇE)

Mufti, Zohaib ur Rehman. (2023). Hamdard Üniversitesi Tıp ve Diş Hastanesindeki Diş Hekimleri ve Tıp Doktorları Arasında E-Sigaralar ve İlgili Faktörlere Odaklı Tütün Kullanımına İlişkin Kesitsel Bir Anket, Karaçi,Pakistan, Yeditepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Halk Sağlığı Bölümü, Yüksek Lisans Tezi, Istanbul.

Bu çalışmanın amacı,Pakistan, Karaçi'de bulunan Hamdard ÜniversitesiTıp ve Diş Hekimleri arasında sigara içme ve e-sigara tüketimi durumlarını değerlendirmek ve farklı demografik özellikler ile tütün ürünleri tüketimi arasındaki ilişkiyi analiz etmektir. Bu nedenle, standart bir protokol izlenerek bu amaçla bir anket taslağı hazırlanmıştır. Bu ankette Hamdard Üniversitesi, Karaçi, Pakistan'daki doktorlar ve diş hekimleri (ortalama yaş: 40 ± 20 yıl, E/K=193/214) arasından toplam 407 katılımcıyla görüşülmüştür. Bu verilerin frekans ve yüzdesi betimleyici istatistikler kullanılarak hesaplanmıştır. Ki kare testi, zıt demografik özelliklerle tütün tüketimini analiz etmek için de kullanıldı. İstatistiksel analiz için SPSS versiyon 23 kullanıldı. 407 cevap arasından 126 erkek ve 28 kadının konvansiyonel sigara, 70 erkek ve 34 kadının e-sigara bağımlısı olduğu tespit edildi. Pearson ki-kare testi uygulandıktan sonra sigara ve elektronik sigara tüketimi arasında cinsiyet arasında pozitif ve anlamlı bir ilişkinin olduğu bulundu ($p \leq 0,05$). Bununla birlikte bölüm, yaş, unvana göre de anlamlı farklılık gözlendi ($p \leq 0,05$). Ayrıca 118 tıp doktoru ve 80 diş hekiminin tütün ürünü bağımlısı olduğu tespit edildi. Bunlar arasında yanıt verenlerin çoğu stajyer doktorlardı (n=164), ardından asistan doktorlar (n=57) gelmektedir. Sigara ve e-sigaranın medeni durum ile anlamlı pozitif ilişkisinin olmadığı da gözlemlendi ($p \geq 0.05$). Katılımcıların büyük çoğunluğu sigarayı bırakmak için e-sigaraya başladıklarını belirtiyor. Artık e-sigara ile ilgili bir yanılgı olduğu sonucuna varılmıştır. Görünüşe göre, birçok kişi e-sigaranın geleneksel sigaradan daha güvenli olduğuna inanmaktadır. Buradan insanların elektronik sigaranın zararlarından habersiz olduğu sonucuna varılmıştır. Elektronik sigaranın zararları ile ilgili kampanya ve seminerler düzenlenmelidir. Ayrıca, mevcut çalışmanın bulgularını genelleştirecek daha büyük popülasyon seçilmelidir.

Anahtar Kelimeler: E-sigara, tütün ürünleri, Pearson ki-kare testi, diş hekimleri, Karaçi Hamdard Üniversitesi.

1. INTRODUCTION AND AIM OF THE STUDY

The problem of smoking is one of the greatest public health concerns in the world (1). According to the International Classification of Diseases (ICD−10), smoking disorders are regarded as behavior and mental disorders (2). Additionally, according to the World Health Organization, more than seven million people around the world die as a result of smoking each year, and there are approximately a billion smokers worldwide (1). It is also predicted that by 2030, that death toll by smoke will increase up to 7 million in developing countries (3, 4). Several countries have implemented tobacco control programs over the past few years. An international framework convention for the control of tobacco was adopted by the WHO in 2003. The health risks associated with smoking are well known to some physicians, but they still smoke (5, 6). The prevalence of smoking among physicians poses a public health concern, as they play a significant role in preventing tobacco use in their patients and themselves (7). The lack of motivation to quit smoking has been demonstrated to be a significant problem for physicians who smoke (8). In addition, certain medical specialties may be more susceptible to smoking due to their workload or work environment, e.g. The perception of smoking may also be affected by the culture or wealth of a country. Furthermore, smoking has been historically viewed as a rewarding activity, but today there is a negative perception of it (9).

In Pakistan it is very unfortunate that with escalating campaign and awareness program, the rate of smoking ever rising. It is quite obvious that, physician and doctors play a major role in lowering down the rate of smoking among masses (10). Absurdly, it is a fact that individuals associated with health care consultancy also have tendency to smoke. It a global fact, that physicians' doctors and dentists also involved in smoking (4). American survey 2006/2007 (11) indicates that prevalence of smoking in Licensed Practical Nurses (20.55%) are higher than respiratory therapist (19.28%). Prevalence of smoking among Pharmacist (3.25%), dentist (3.01%), Registered Nurses (10.31%) and Physician (2.31%) is also reported (3). It has been demonstrated that quitting smoking reduces risk substantially among established tobacco smokers, with the largest reduction occurring among individuals who quit prior to the age of 40. Globally, high rates of smoking cessation remain elusive despite progress in treatments and services (12). It is estimated that fewer than 10% of smokers who intend to quit successfully do so, and only 32% of smokers worldwide are able to access cessation support services

based on evidence. Tobacco use will continue to cause substantial health problems for many years to come, in particular, countries with low-and middle-incomes, unless substantial reductions in the number of new smokers each year are achieved (13). A strong effort to prevent the initiation of smoking may result in significant long-term health and economic gains as a result of effective policy and targeted interventions. Smoking tobacco is primarily initiated by young people, according to previous studies. Research suggests that young people are more likely to become addicted to nicotine than adults, and that most adult smokers regret their decision to begin smoking. Although there is a substantial amount of evidence that tobacco use is associated with health consequences among adolescents aged 13-15 years in 143 countries, no significant progress has been reported in reducing prevalence in this age group despite all of this evidence (14).

There is an insufficient data available in addressing the prevalence of smoking among healthcare providers and significant cause responsible for their smoking knowing the hazardous effect of smoking. Physician and Doctors who smoke are unlikely advice people to quit smoking. They are also unable to convince patient to refrain smoking. They are not effectively counsel their patients about the hazards of smoking, because they are himself exposed off. It is proved that health care providers who smokes themselves, are not able to educate masses about smoke cessation (15).

There is a demand to conduct a large-scale survey including more than one hospital to determine the prevalence of smoking among physicians and doctors, and to address the reason behind the addiction of smoking knowing all hazards of tobacco. In this regard, it is necessary to assess the level of awareness of tobacco products among Pakistani dentists and medical doctors and despite the mounting evidence for the adverse health effects of e-cigarettes, there is inadequate research on e-cigarettes in Pakistan due to inadequate knowledge and misconceptions. There is a need for further research, therefore, this study conducted in order to determine “A cross-sectional questionnaire survey of tobacco use with a focus on e-cigarettes and related factors among Dentists and Medical Doctors in Hamdard University Medical and Dental Hospital, Karachi, Pakistan”.

OBJECTIVES OF THE STUDY

1. To determine the prevalence of tobacco product among the medical doctors and dentists working at Hamdard University Medical and Dental Hospital, Karachi, Pakistan.
2. To determine the relationships between socio-demographics, work-related variables and consumption of different tobacco products.

2. LITERATURE REVIEW

In Pakistan, tobacco causes the deaths of more than 164,600 people each year, according to the World Health Organization (16). Nearly 31,000 of these deaths are caused by secondhand smoke exposure. A tobacco-related death causes 16.2% of all deaths among males and 4.8% among females. As a whole, tobacco-related deaths account for 10.8% of all deaths. Smoking is responsible for 66.6% of all bronchial, tracheal and lung cancer deaths, chronic obstructive pulmonary disease accounts for 53.1% of all deaths, ischemic heart disease accounts for 21.8% of all deaths, diabetes mellitus causes 15.3% of deaths, and stroke accounts for 16.8% of all deaths (17). It was China that introduced electronic cigarettes, or electronic nicotine delivery systems, for the first time in 2003 (18). The process involves heating a liquid containing a solvent (propylene glycol, vegetable, glycerin, or a combination thereof), nicotine, and flavorings in order to produce aerosol (19, 20). To simulate traditional smoking, some e-cigarettes contain a light-emitting diode at the tip. A study conducted by the American Cancer Society found that smokers from high socioeconomic backgrounds who have attempted to quit smoking in the past year are likely to use e-cigarettes. Moreover, this is still debatable that e-cigarette is significantly used to quit smoking (21). This is the case due to the fact that an electronic cigarette closely mimics the sensory experience of smoking and/or the way nicotine is delivered. Additionally, e-cigarettes have attracted a large number of smokers since they are more cost-effective, perceived to be less toxic, and more convenient to use. E-cigarette users acknowledge that e-cigarettes may not be fully safe and are addictive, but they believe that they are not dangerous and less addictive than cigarettes (22). Different individuals around the globe believe that e-cigarette is a healthier alternative of tobacco. Earlier on it was reported that e-cigarette is a healthier alternative to quit smoking, because there was a misconception that it is nicotine free and due to non-combustibility, it does not cause addiction. Moreover, it has been concluded that nicotine has adverse effect on brain tissues and especially in the teen age. Further, it is concluded that e-cigarette contains toxic chemicals that can damage the tissue of lungs and ultimately a cause of asthma. Researchers are still unaware about the prolong side effect of e-cigarette, it needs further research (23). This epidemic is out of control in Pakistan compared to the rest of the world. Pakistani males die from lung cancer more frequently than from mouth cancer (24). Pakistani youth are also increasingly using

shisha and a study conducted in Karachi in 2008 found that 43% of male university students and 11% of female university students used shisha regularly (25). The Jinnah Postgraduate Medical Center in Karachi, Pakistan, conducted a cross-sectional study in 2016, and published in 2019 in order to estimate the prevalence of lung cancer and association with smoking among house physicians there. It was found that 64 of 200 house physicians (32%) were smokers; 50% (38) were in their twenties when they began smoking, and 44% (26) were in their teens when they began smoking. Among the smokers, 75% (27) were influenced by friends, 20% (14) by cigarette advertisements, and the rest by their parents. There were 95% of employees who smoked during work hours (23). The study was conducted between May 1st and October 31st 2011 at FUMC Rawalpindi as a cross-sectional comparative study. In a study of 500 medical students, a total of 24.24% of male students and 5.02% of female students smoked. In males over the age of 22, smoking has been found to be statistically significant. In the opinion of 54.9% of medical students, doctors do not serve as role models for society, while 13.3% believe the legislation has been successful. It was found that 84.1% of non-smokers and 86.7% of smokers were aware of the health risks associated with smoking. In total, only 26.7% of respondents believed that smoking advice is effective (24). An analysis of five medical colleges located in Sindh (Pakistan's second largest province), was carried out in 2016 between 1st July and 30th September (25). Approximately 500 medical students participated, with the mean age being 21.7 years and the percentage of females being 58%. Sixty-six percent of students are aware of e-cigarettes, 32 (6.5%) report having used e-cigarettes, out of which six (1.2%) report using them daily. A multivariate logistic regression analysis revealed a strong association between E-cigarette use and conventional cigarette consumption (25). This study concluded that a fair number of respondents were aware that e-cigarettes were available, although they were not widely used by those surveyed. According to users, e-cigarettes are generally considered to be relatively safe, and cigarette and smokeless tobacco use are related with higher risk of concomitant use (25). It was reported in January 2017 that a cross-sectional study was conducted at various medical colleges within Karachi, Pakistan, which examined the attitudes, practices and knowledge of 442 young individuals, aged 13 to 19 years. In order to determine the source of the participants' knowledge, they were questioned (26). As a result of the study, the majority of participants understood E-cigarettes (n=277, 68.7%) but were unaware of their hazards (n=226, 55.9%), it was either

through friends or the internet that they had learned about it (n=245, 60%). There was almost half of respondents (n=190, 47.2%) who believed that using an E-cigarette was either a result of peer pressure or a desire to quit smoking conventional cigarettes. There was also a large majority of respondents who indicated that purchasing e-cigarettes was easy (n=277, 68.7%), even if they were recommended by a good friend, smoking e-cigarettes will not be an option for them (n=287, 71.2%), they were not currently using e-cigarettes (n=370, 91.8%), and that they would never promote the use of e-cigarettes (n=371, 92.1%). This study concluded that although most people understood electronic cigarettes, there was still a lack of understanding along with a negative attitude towards e-cigarette use among teenagers, and males and females exhibited significant differences in attitudes towards e-cigarettes, due to patriarchal, familial, and cultural systems, women's opinions and practices are considered taboo by males while males have greater freedom (26). Results from the Global Adult Tobacco Survey (GATS), conducted in Pakistan in 2014, provide a global perspective on adult tobacco usage and key measures of tobacco control (27). An individual was randomly selected from each of the 9856 households sampled. Information regarding tobacco use, cessation, secondhand smoke, knowledge, attitudes, and perceptions was collected using the standard GATS questionnaire (28). As a result, 9856 individuals participated in the survey, of which 7831 completed the interview. There was an 81% response rate. As a whole, 19.1% of adults currently use tobacco products, of which 12.4% smoke tobacco and 7.7% use smokeless tobacco. Eighty-six percent of respondents reported exposure to second-hand smoke while seventy-six percent reported exposure on public transportation. Within the past 12 months, 24.7% of smokers attempted to quit. 37% of adults observed anti-cigarette smoking information, while 29.7% of current smokers considered quitting after reading health warning labels. It was found that 85% of adults favored the prohibition of smoking in public places, while 74.8% supported the increasing of tobacco taxes. On average, current cigarette smokers spend 768.4 Pakistani Rupees ($7.79 USD) per month on manufactured cigarettes, and smoke 4500 cigarettes per year (225 packs) (16). According to the results of this study, in addition to 19.3% tobacco users, large percentage of respondents (86%) who are exposed to secondhand smoke in public places, the ban against tobacco use in public places appears to be not being strictly enforced (27). There are over 23% of men who smoke daily and 3.2% of women who smoke currently, according to the STEPS survey report. In both sexes, smoking

prevalence was higher in older age groups (28). It was found in a 2008 survey that 15.2% of youths aged (12-18 years) residents of two rural districts in Punjab and Sindh smoked cigarettes (7.9% of girls and 20.2% of boys) (29). According to the 2013 Karachi Youth Survey, (42.6%) of adolescents aged 11-16 used smokeless tobacco and/or betel quid, based on a systematic random sample study conducted in 2013 (30). According to the Global Youth Tobacco Survey conducted at the national level in Pakistan in 2013, 10.7% of students are current users of tobacco, boys (13.3%), and girls (6.6%) currently (within 30 days of the survey, at least once) using any tobacco products; students (7.2%), boys (9.2%), and girls (4.1%) also smoked tobacco currently; students (3.3%), boys (4.8%), and girls (0.9%) currently smoked cigarettes, and students (5.3%), boys (6.4%), and of girls (3.7%) used currently smokeless tobacco (31). Based on a survey of Global Health Professions Students conducted in Pakistan in 2011, students (10.8%) were currently smoking and 26.7% experimented with cigarettes (32). A study was conducted in 2013–2014. The purpose of this study was to determine the prevalence of risk factors for chronic diseases in Pakistan's Punjab and Sindh provinces. Men smoked tobacco at a rate of 27.5% and used smokeless tobacco at a rate of 9.8%; while women smoked tobacco at a rate of 4.2% and used smokeless tobacco at a rate of 4.7%. Tobacco products, including cigarettes and smokeless tobacco, used by smokers. There were 68% of smokers who smoked cigarettes and 29% who smoked cigars. There were 60% of those who used snuff by mouth and 23% who chewed tobacco when it came to smokeless tobacco (33). To examine the various demographic determinants of adult smoking among Pakistanis, an in-depth analysis of GATS 2014 is conducted. In Pakistan, it was last conducted in 2014. In this study, Pakistanis aged 15 and above (males and females) were the target population. Approximately 12.4% of the population currently smokes. According to the univariate analysis, the majority of the participants were males “OR: 14.1 CI= 11.2-17.7, p value 0.000”, little or no education “OR: 1.4 CI=1.2-1.6, p-value 0.000”, resident of urban areas “OR: 0.7 CI= 0.6-0.8, p-value 0.000” and preventing young people from starting to smoke up until the age of 25 “OR: 0.2 CI= 0.1-0.2, p value 0.000” were determinants (33).

2.1. Smokeless Tobacco (SLT) Products

Beside smoked tobacco, many other tobacco products available in market that does not produce smoke and are known as smokeless tobacco (SLT) products such as,

Products that can be chewed, sniffed or sucked. Nicotine can be consumed or absorbed through mouth tissues and in some cases, it is swallowed. These variety of tobacco products are available around the globe. In Pakistan smokeless tobacco in a form of sniffing and chewed form is easily available. Loose leaves, compressed leaves (plunge) and braided leaves (twist) are most prominent form of chewed tobacco, which is commonly known as spit or chewed tobacco. These leaves sometimes available with different flavored, placed in between checks and gum in mouth. The resulted saliva of this spit off or swallowed usually. On the contrary finally grounded tobacco called snuff can also be used in dry or moist form (snus) (34, 35). Variety of tobacco products like betel/pan with tobacco, slaked lime (calcium hydroxide and calcium oxide), covered in a betel leaf (Piper betel) including sweetening flavor, catechu (Acacia catechu), a munch blend of areca nut (Areca catechu) are used in Pakistan (36).

South Asian culture is strongly influenced by the use of smokeless tobacco (SLT). There are 100 million smokers of SLT in India and Pakistan combined, according to estimates (30). In India, SLT is consumed at a rate of 35–40% (31), whereas a previous research in Pakistan found that betel quid was used by 21% of males and 12% of women. Additionally, it has been noted that usage is rising among at-risk populations such children, adolescents, women, and South Asian immigrants wherever they have established (37).

Favorableness, it was a widely-held belief that smokeless tobacco (SLT) has medical benefit for treatment of toothache, headache, and stomachache are some of the factors that continue to motivate individuals to use it. Additionally, unlike smoking cigarettes, using SLT is not taboo and government efforts have concentrated more on ending cigarette use than tobacco use in general (30, 33). Various factors, in addition to peer pressure and the notion that smokeless tobacco usage is less dangerous than cigarette smoking, explain why so many people continue to use various types of tobacco (33, 37).

2.1.1. Health Hazards Related to Smokeless Tobacco (SLT)

The eating of areca nuts and their combinations is blamed for emerging 'epidemic' of oral submucous fibrosis. Additionally, there is proof that using smokeless tobacco increases the chance of developing hypertension and dyslipidemia. It has been

shown that pregnant women who chew tobacco have a higher incidence of stillbirths and low birth weight babies. Additionally, chewing betel nut, whether with or without tobacco, might worsen asthma and put users at risk for developing diabetes (38)

It is clear that a nation's social and economic well-being suffers greatly as a result of the costs and effects of tobacco smoking. Policies and awareness campaigns focused at lowering tobacco usage can prevent most of this. One of the finest channels for educating the public is through doctors, who also have enormous ability to impact their patients' tobacco usage. Doctors who use smokeless tobacco, however, are less likely to advise patients against smoking tobacco (37-40).

According to literature SLT is a cause of dyslipidemias and hypertension. Sodium and Nicotine content is a significant root of hypertension. The extract of glycyrrhiza glabra root, which is main ingredient of chewed tobacco has potent mineralocorticoid activity and it drastically increase blood pressure and sometimes, it is a cause of alkalosis, sodium and water retention, hypokalemia and suppressed plasma renin activity. Another survey found that chewing betel quid with tobacco for 15-30 minutes, rise in blood pressure and heart rate was observed, while there is no Blood pressure and heart rate fluctuation were observed after having betel quid without tobacco (41).

2.2. E-Cigarettes

E-cigarettes is considered as a popular alternative to conventional cigarette smoke because of its less hazardous effect, it is first appeared in the market more than a decade ago. It is an electronic device consists of rechargeable battery, e-liquids which is filled in a cartilage, a heating material which heat up the liquid and converts it into aerosol which is inhaled by mouth piece. E- liquids of different flavors and e-cigarettes are easily available in market or shop online (42, 43, 48).

E-liquids mostly consists of humectant and essence of different flavors, which is sometimes with or without nicotine. When it is vaporized by atomizer it produces aerosol with gives sensation exactly similar to tobacco smoke (44). However, it has also been reported that heating can cause to generate decomposition of compounds which could be harmful (45). The proportion of nicotine is the key ingredient which is

addictive, it can also vary in different commercially available e-liquids, but nicotine free options are also available in market. That's why e-cigarettes are considered as a good option for smoking cessation. It is a fact that e- cigarettes exposes to fewer less toxic chemical than conventional smoking tobacco. E-cigarettes can reduce the smoke craving in regular smokers, but its complete impact is still unknown and cannot be fully exhibited (42, 46).

2.2.1. Hazards of E-Cigarette

Nicotine is the major constitute of e-cigarettes, very few nicotine free e-cigarettes is also available in market. Many products do not display correct percentage of nicotine in it, as many misguide to write 0 % nicotine on label. Nicotine have an adverse effect on brain of adolescent (42). Brain keep developing until the age of 25. Usage of nicotine can directly affect different parts of brain that control learning, mood, impulse control and attention. usage of nicotine also increases the risk of addiction for other drugs (42).

2.2.2. Mental Health Risk of Nicotine

When an individual is addicted to (or used to) of nicotine and suddenly stop its use, their brain and body both have to get used to not taking nicotine. This appears symptoms of nicotine oblation. Nicotine ceasing symptoms includes restlessness, depression, problem concentrating, irritability, nicotine craving and trouble sleeping (47). Continuation of using tobacco products may leads to relieve (45).

Apparently, youth have vaping to reduce anxiety or stress, which ultimately develop nicotine dependency, and addition of nicotine also a cause of stress. But quitting nicotine will fade away all the symptoms and brain get used to not having nicotine. Quitting smoking is also bring a positive impact on brain and body and decrease the feeling of depression and stress and brings positive effect on mood (43).

Researcher are still unaware about the long-term hazards of e-cigarettes. There are some components of e-cigarette aerosol that is dangerous for lungs. Like, some e-cigarettes flavoring is safe to eat but hazardous to inhale because gut can deal and process more substance other than lungs (48).

2.2.3. Ingredients of E-cigarette Aerosol

E-cigarette aerosol is injurious “water vapor”. It contains some harmful chemicals which causes serious illness and addiction, including: Nicotine, diacetyl for flavoring, which lead to serious lungs infection, carcinogenic chemicals, Heavy metals like tin, lead and nickel. The vapor that inhale and exhale by the smokers expose both the user and standby to hazardous chemicals (43).

2.2.4. Flavors of E-Cigarette

E-cigarettes available in different flavors, including mint, fruity, methanol and candy. According to survey report 2013-2014 the major reason of attraction of youth towards e-cigarette is its availability in different flavors (49). In 2022 it is reported that majority of the youth (84.9%) is using various flavored e-cigarettes. Most famous flavors among high grade students were mint (29.4%), fruits (69.1%), dessert, candy and other sweets (38.3%), methanol (26.6%) (43).

On January 2, 2022, the enforcement policy was finalized by food and Drug administration (FDA) of US to restrict the sale of e-cigarette in different flavors to attract youth other than methanol and tobacco, unless authorized by FDA. Additional steps have been taken by FDA to sell out the youth attractive flavors of e-cigarette (50). E-cigarettes unveil user to hazardous chemicals fewer than smoking cigarettes (43). Burned tobacco is very dangerous and killing half of the people who are using it for long-term. The use of any tobacco product, either e-cigarette is unsafe for youth.

2.3. Heated Tobacco Product

Heated Tobacco Products (HTPs) (e.g, Eclipse and IQOS) sometimes known as “heat not burn” technology, appear as diverse category of product that produced an inhaled aerosol by heating the tobacco leaf. There is an authorized sale of HTPs in more than 40 countries also in United State it is authorized by FDA. In 2018, were few individuals attracted towards HTPs. Scientist are still unsure about the long term and short-term hazardous effect of HTPs, but all agree on this point that all tobacco containing products, including HTPs, is unsafe. It is important to take the measures and restrict the addition of new tobacco products like HTPs in market (43).

3. MATERIAL AND METHODS

3.1. Type of Research

This research adopted an analytical cross-sectional design. In this research the prevalence of smoking products among the doctors and dentists of Hamdard University Medical and Dental Hospital, Karachi was identified, and the relationship between the various sociodemographic characters (age, gender, marital status etc.) with smoking products were investigated.

3.2. Duration of Research

This research work was carried out over a period of July 2022 to October 2022.

3.3. Sampling Site

A cross sectional study was carried out in city of Pakistan and data were collected from Hamdard University Medical and Dental hospital Karachi. Hamdard University Medical and Dental hospital was founded by Shaheed Hakim Mohammed Said in 1991. This university offers multiple discipline including Health care, Education, Law, Western medicine. There are more than 2000 medical professionals serving Hamdard Medical University that includes, medical doctors, nurses, dentists etc. Hamdard university have a large number of faculty members among the other universities and hospitals of Karachi, Pakistan. Due to diverse cultural background and vast population Hamdard University of Karachi was chosen for sampling in this study. Large population area also helps us to conclude better results.

3.4. Tool for Data Collection

Data was collected with the help of a self-administrated questionnaire. Consent of all participant were taken through a written consent form as they all were participated in this survey independently.

3.5. Development and Validity of the Questionnaire

A questionnaire was developed according to the Taherdoost, 2016 (38) and Fox, 1996 (39) Protocol. The validity of the questionnaire is double checked by first applying the face validity in which questionnaire was cross checked for errors, expert opinion was taken and removed confusing and leading questions. After face validity check, a pilot study was conducted among 60 individuals. Because for the questionnaire that contain 8-25 questions, 60 subjects are enough to conduct a pilot study to check questions validity (40, 51). After collecting data from pilot study, results

were entered into the spread sheet and reversed code negatively phrased questions, this technique is very useful in assessing whether individuals are filling the questionnaire in reckless way. Moreover, to identify the underlying components of the questionnaire Principal component analysis (PCA) was applied. Then question consistency was checked by applying Cronbach's Alpha (CA). Cronbach Alpha values range from 0 – 1.0. In most cases the value should be at least 0.70 or higher although a value from 0.60 to 0.70 is acceptable. The questionnaire was revised according to the result of the PCA and CA.

3.6. Targeted Population and Sampling Technique

Designed questionnaire (given in Appendix1) was randomly distributed among the targeted population. A total of 448 individuals were interviewed directly, and 407 sustainable questionnaires were retrieved (response rate: 90.8%). Data of 407 valid questionnaire were used for further analysis. All doctors and dentist within the sampled university departments were considered as a participant and interviewed.

Data were collected using an English-language self-administered, structured questionnaire. A written, informed consent was obtained from potential interviewed participants before any interview took place. There was a double check of the reliability and validity of the questionnaire. A small demographic section of participants' age, gender, department and academic year were included in the questionnaire. As part of the study, participants were asked a series of questions regarding their self-reported tobacco use, concomitant use of other tobacco products and e-cigarettes, as well as their age at which they look up this habit. Each participant completed the questionnaire for approximately 5 - 10 minutes. After completing the questionnaire, the participants returned it to the data collection team. For the purpose of maintaining the confidentiality of participants and the anonymity of their data, all collected data were de-identified.

3.7. Variables

3.7.1. Dependent Variables

Here in this research, our dependent variables were using any category of tobacco like cigarette, e-cigarette, heated tobacco products, smokeless tobacco, cigar, water pipes, nicotine pouches etc. But the focus was on e-cigarette regarding qualitative question on the factors and conditions that lead to its use.

3.7.2. Independent or Descriptive Variables

Participants were categorized on the basis of gender, age, designation (Medical Doctors & dentist), marital status and year of graduation. The given table (3.1) is elaborating some categories used during the survey.

3.8. Specific Definitions and Criteria for Subject Selection

Current research work was carried out in Hamdard University Medical and Dental Hospital, Karachi territory. Our targeted population included MBBS and BDS doctors. Individuals other than Hamdard University were excluded from the study. No other specific inclusion and exclusion criteria was used. The user of cigarettes and e-cigarettes was classified as follows:

3.8.1. Non- Smokers

Non-smokers who have never smoked were defined as those who reported never used tobacco products before.

3.8.2. Occasional Smokers

Those who are current smokers have consumed at least one cigarette in the past month. Those who smoke less than once a month were considered occasional smokers.

3.8.3. Ex-Smokers

Ex-Smokers were defined as those who had given up smoking and did not smoke for the past three months.

3.8.4. Current Smokers

Those who consumed five or more cigarettes per day for at least a year.

Tobacco or e-smoking exposure can be measured by the number of cigarettes consumed (per day), during the course of a lifetime, duration is the number of years spent in smoking cigarettes, and life time exposure is the accumulation of exposure over a period of time.

Table 3.1. Specific Categories Used During Investigation

Variable	Definition	Source
Gender	Participants were classified according to their gender. i.e.; Male or Female.	Survey
Age	Participants' dates of birth were used to calculate the measurement of their age.	Survey
Department	The answers to the question of 'from which department you are?' were taken into consideration. A dental or medical option was available for this question.	Survey
Marital status	The answers to the question of 'What is your marital status?' were taken into consideration. It consists of three categories: single, married and other.	Survey
Designation	The answer to the question of "what is your current designation" were taken into consideration. Few options were given for this question such as: • Professor • Associate Professor • Assistant Professor • Lecturer • House Officers • Senior House Officers • Senior Registrar • Resident Medical Officer • Resident Dental Officer	Survey

3.9. Statistical Analysis

A descriptive analysis was executed to explain the demographic characteristics and also the knowledge and consumption of e-cigarettes, and use of them. Furthermore, it was aimed to compared the prevalence of smoked tobacco products and SLT products between users and non-users of conventional tobacco products. Statistical Package for Social Sciences (SPSS version 23) were used to analyzed the data. Stratification was carried out on the basis of different variables like age, gender, marital status, department and designation etc. Categorical data were expressed as absolute and relative frequencies. Significant results were determined if a p-value is less than 0.05.

Chi-square test were used to assess the relationships between socio-demographic characteristics and consumption of different tobacco products at Significance level ($\alpha = 0.05$).

4. RESULTS

4.1. Demographic Characteristics and Descriptive Analysis

4.1.1. Sociodemographic Characteristics

A total of 407 responses were analyzed. Table 4.1 Shows the sociodemographic characteristics of population. It was found that mean age of population was 40 years ± 20 SD (n=395; 97.1%). Participants who reported usage of tobacco products, among them n=198 (48.64 %) were current user, n=43 (10.56%) were occasional smokers and n=62 (15.23%) were ex-smokers. while the other n=104 (25.52 %) were non-smoker who did not use any tobacco product. It has also been observed that subjects who were using cigarettes (n=155) were also using other tobacco products (e.g. e-cigarette, pipe etc.) concomitantly. Majority of the participants have started smoking in young age and now they are habitual user of tobacco. Approximately 90 % respondents who reported smoking are below 40 years of age. Besides this, most of the respondents were single (n=246; 60.4%) and 39.6% (n=161) were married. Marital status has no effect on prevalence of smoking, as insignificant result ($P > 0.05$) were observed in Table 4.6.

Furthermore, it was also observed that conventional smoking is high among the participants as compared to e-cigarettes or smokeless tobacco products. Overall n=154 (37.83 %) respondents were of conventional tobacco product user in a form of cigarette, water pipe, cigar etc. Among the medical and dental staff of Hamdard University, it was found that n = 214 (52.6%) respondents were female while remaining 193 (47.4%) were male. Males are more addicted to tobacco products as compared to females. Among tobacco users' males are more likely to use smoked tobacco products, while most proportion of females were addicted to e-cigarettes. Moreover, it was found that majority (n=118; 28.99%) of participants were from the medical department who are currently addicted to tobacco products, while very few participants (n=80; 19.65%) were from the dental department. Doctors with vast range of experts were interviewed. On the basis of their designation it is observed that among the total population mostly individuals (n=164; 40.3 %) were house officer followed by resident medical officers and resident dental officers (n= 57; 14.0%); (42; 10.3%) respectively. Few professors (n=5; 1.2%), associate professors (n=13; 3.2%), assistant professor (n=26; 6.4%), lecturer (n=49; 12.0%), senior house officers (n=29; 7.1%), senior Registrar (n=22; 5.4%) were also participated in the current survey.

Table 4.1. Sociodemographic Characteristics of the Population

Variables	N[a]	%
Gender		
Male	193	47.4%
Female	214	52.6%
Age		
21-40	395	97.1%
41-60	10	2.5%
61 and above	1	0.2%
Marital status		
Single	246	60.4%
Married	161	39.6%
Department		
Medical	209	51.4%
Dental	198	48.6%
Designation		
Professor	5	1.2%
Associate Professor	13	3.2%
Assistant Professor	26	6.4%
Lecturer	49	12.0%
Senior House Officer	29	7.1%
House Officer	164	40.3%
Senior Registrar	22	5.4%
Resident Medical Officer	57	14.0%
Resident Dental Officer	42	10.3%

a=size of population

4.1.2. Categories and Consumption of Tobacco Products

After applying the descriptive analysis separately on smokeless and smoked tobacco products, it was found that among smokeless tobacco (SLT) products high proportion of respondents were used e-cigarette (n=104, 25.55%) followed by traditional smokeless tobacco (SLT) or chewing tobacco (41; 10.07%). It is also noticed

that with e-cigarettes people were also using other tobacco products. On the other hand, small ratios of the participants were used nicotine pouches (n=22; 5.40%) and heated tobacco products (HTPs) (n=5; 1.22%). Detail are depicted in the table 4.2.

Table 4.2. Frequency and Percentage of Smokeless Tobacco (SLT) Products Consumption of Participants

Types of SLT[a] Products	Yes		No	
	n[b]	%	n[b]	%
Electronic cigarette	104	25.55	303	74.44
Traditional SLT[a] or chewing tobacco (e.g. naswar, paan, gutka, chalia)	41	10.07	366	89.92
Nicotine pouches (e.g. velo)	21	5.15	386	94.84
HTPs[c] (e.g. IQOS and Eclipse)	5	1.22	402	98.77

a= Smokeless Tobacco; b= Sample size; c= Heated Tobacco Products

Furthermore, in smoked tobacco products it was found that majority of the respondents were addicted to the cigarette smoking (154; 37.83%) followed by water pipe smoking (53; 13.26%). Very small proportion of the participants roll their own cigarette (17; 4.17%). Details are depicted in the table 4.3.

Table 4.3. Frequency and Percentage of Smoked Tobacco Products Consumption of Participants.

Types of Smoked Tobacco Products	Yes		No	
	N	%	N	%
Cigarette	154	37.83	253	62.16
Water pipe smoking	53	13.02	354	86.97
Cigar	34	8.35	373	91.64
Pipe	19	4.66	388	95.33
Roll your own cigarette	17	4.17	390	95.82

4.2. Cross Tabulation Across Demographic Characteristics and Tobacco Product

4.2.1. Gender and Tobacco Products

After applying cross tabulation, it was found that (126; 65.28%) males smoke cigarette and very few females (28; 13.08%) were involved in cigarette smoking. In case of electronic cigarette, 70 males were recorded and 34 females. Further only few males and females were addicted to heated tobacco products. It was also observed from the given data that females are more prone towards e-cigarette as compared to smoking cigarette. Moreover, from the chi square of association it was found that positive and significant ($p < 0.05$) association were exists between the gender and tobacco products. These variables are dependent of each other, as indicated by the χ^2 value (10.50) Detail is given in the table 4.4.

Table 4.4. Consumption of Different Tobacco Products by Gender

Types of Tobacco Products	Gender				Total	χ^2	P value
	Male		Female				
	n	%	N	%			
Smokeless Tobacco (SLT) Product							
Electronic cigarette	70	67.30	34	32.6	104		
Traditional SLT or chewing tobacco (e.g. naswar, paan, gutka, chalia)	31	75.60	10	24.39	41		
HTPs (e.g. IQOS and Eclipse)	3	60	2	40	5		
Smoked Tobacco Products							
Cigarette	126	81.81	28	18.18	154	10.50	0.044
Water pipe smoking	38	71.69	16	30.18	53		
Cigar	32	94.11	2	5.88	34		
Pipe	16	84.21	3	15.78	19		
Roll your own cigarette	13	76.47	4	23.52	17		

4.2.2. Age and Tobacco Products

From the current study it was found that subjects at young age were thoroughly addicted to smoking compared to the old age. Among those who reported smoking more than 90% of the population are below 40 years. Overall there was a significant relationship were existing between different age groups in both cases cigarette smoking and e- cigarette. Detail is depicted in the table 4.5.

Table 4.5. Consumption of Different Tobacco Products by Age

Types of Tobacco Products	Age				Total	χ^2	P value
	21-40		41-60				
	n	%	n	%			
Smokeless Tobacco (SLT) Product							
Electronic Cigarette	101	97.11	3	2.88	104		
Traditional SLT or Chewing tobacco (e.g. naswar, pan, gutka, chalia)	37	90.24	4	9.75	41		
Nicotine pouches (e.g. velo)	15	71.42	6	28.57	21		
						22.44	0.004
Smoked Tobacco Product							
Cigarette	144	93.5	10	6.49	154		
Water pipe smoke	48	90.56	5	9.42	53		
Cigar	28	82.35	6	17.66	34		
Pipe	15	78.94	4	21.05	19		

4.2.3. Marital Status and Tobacco Products

In case of marital status, it was found that mostly addicted individuals were single (n=117). In term of smoked and smokeless tobacco products individuals were more addicted to conventional smoking rather than e-cigarettes. But there is no significant association were observed between tobacco users and their marital status (P> 0.05). Detail is given in the table 4.6.

Table 4.6. Consumption of Different Tobacco Products by Marital Status

Types of Tobacco Products	Marital Status				Total	χ^2	P value
	Single		Married				
	n	%	n	%			
Smokeless Tobacco (SLT) Products							
Electronic cigarette	62	59.61	42	40.38	104	4.58	0.801
Traditional SLT or chewing tobacco (e.g. naswar, paan, gutka, chalia)	23	56.09	18	43.90	41		
Nicotine pouches (e.g. velo)	11	52.38	10	47.61	21		
HTPs (e.g. IQOS and Eclipse)	4	80	1	20	5		
Smoked Tobacco Products							
Cigarette	91	59.09	63	40.90	154		
Water pipe smoking	29	54.71	24	45.28	53		
Cigar	17	50	17	50	34		
Pipe	9	47.36	10	52.63	19		
Roll your own cigarette	12	70.58	5	29.41	17		

4.2.4. Department and Tobacco Products

Mostly subjects addicted to tobacco products were from the medical department (n=118) as compared to the dental department, where only n= 80 subjects were found to be addicted to variety of smoking products. As compared to e-cigarette, use of cigarette is high among doctors (60.38%). On the other hand, dentists are more addicted to e-cigarettes (45.19%) as compared to cigarettes (39.61%). Detail can be seen in the table 4.7.

Table 4.7. Consumption of Different Tobacco Products by Department

Types of Tobacco Products	Department				Total	χ^2	P value
	Medical		Dental				
	n	%	n	%			
Smokeless tobacco (SLT) products							
Electronic cigarette	57	54.80	47	45.19	104		
Traditional SLT or chewing tobacco (e.g. naswar, paan, gutka, chalia)	20	48.78	21	51.21	41		
Nicotine pouches (e.g. velo)	17	80.95	4	19.04	21		
HTPs (e.g. IQOS and Eclipse)	3	60	2	40	5		
Smoked Tobacco Products						15.807	0.045
Cigarette	93	60.38	61	39.61	154		
Water pipe smoking	38	71.69	15	28.30	53		
Cigar	25	73.52	9	26.47	34		
Pipe	9	47.36	10	52.63	19		
Roll your own cigarette	13	76.47	4	23.52	17		

4.2.5. Designation and Tobacco Products

It was found that subjects from the medical department were mostly addicted to the tobacco product as compared to dental department. According to the given data the prevalence of smoking according to designation were reported as: professor (n=5), associate professors (n=13), assistant professors (n=26), lecturer (n=49), senior House officers (n=29), house officer (n=164), senior registrar (n=22), resident Medical officers (n=57) and resident Dental officers (n=42). These were found to be current users of smoking.

5. DISCUSSION

Globally, tobacco products, including cigarettes and e-cigarettes, are becoming more popular. Though most of the population already aware about the hazards of smoking (1). However, limited data is available on the e-cigarette safety and efficacy. Besides this, there is limited data reported on the perception of the vaping among young population who are most prone to its addiction. Further vaping and smoking prevalence among the medical and dental staff are also very limited particularly in Pakistan. Therefore, current study focuses to evaluate the incidence of smoking and e-cigarette use among dental and medical staff of Hamdard University Karachi Pakistan.

From the demographic characteristics of the subjects in current study it was found that the use of e-cigarette is fairly low than the conventional smoking. Among 407 responses n=198 (48.64%) users were found to be current users. Majority of the respondents are in between 20 to 40 years of age and, the use of e-cigarette is high in young females as compared to males. People who are using conventional smoking are concomitant user of e-cigarette and other tobacco products as well. On the other hand, very, few subjects (n=5; 1.1%) were addicted to Heated tobacco products.

In term of addictions, it was found that (126; 81.81%) Males smoke cigarette and very few females (28; 18.18%) were involved in cigarette smoking while, in case of electronic cigarette 70 (67.30%) males were recorded and 34 (32.6%) females. Majority of tobacco user were found to be dual users of e-cigarette as well as conventional smoking. There are multiple researches around the globe that report mostly males are more addicted to the tobacco products as compared to the females (37, 53,54), such differences may have associated with the combination of cultural, physiological and behavioral factors. Similarly, other addictive, tobacco have nicotine which stimulate gland in brain and ultimately it releases a chemical known as dopamine in the blood, that is responsible for feeling pleasure so it makes the person to feel good and pleasant. Literature supports that inhaled nicotine triggers our hormones faster than other types of chewed and drinking tobacco. (52, 56). Based on neuroimaging investigations, it has been found that tobacco products trigger the reward pathways of men more than they do in women (55). According to this research, male smokers smoke as a result of nicotine's reinforcing effects, while female smokers smoke to regulate mood or as a result of clues related to smoking. Men who relapsed were more likely to have a lower level of the stress hormone cortisol during abstinence than women.

Women with high cortisol levels were, however, more likely to relapse (57). Current study is contrary to the study conducted in America where girls were more addicted to the tobacco products compared to males (58, 59).

Moreover, it was found that subjects at young age (Electronic cigarette:101 and Cigarette:144) have a high proportion of smoking and mostly associated with medical department (n=118), further young population were thoroughly addicted to smoking compared to the old age. Studies suggested that young generation are more prone to smoking compared to old age the smoking initiation occurs prior to 26 years of age, and people are more likely to become addicted to tobacco if they start using it at a young age (60). It has been found that some youth begin to exhibit signs of nicotine addiction within two weeks of starting to use tobacco. Smokers who used to smoke on a sporadic basis may be more inclined to switch to daily use if they do this. Further flavoring addition to the smoke become more appealing to the young generation compared to the old age generation (61) Unfortunately, in Pakistan this ratio is increasing day by day, particularly in the undergraduates conventional smoking followed by naswar (moist snuff) (62, 63). This finding is consistent to the study who report that young generation quickly became addicted to this poison, more than 90% user of current survey are below 40 years of age. However, individuals in this study was using cigarettes as compared to e-cigarette. From the chi square analysis, it was found that smoking addiction is positively and significantly (10.50; p value 0.044) associated with the gender. Males (126; 81.81%) are more likely users of cigarettes than female (28; 18.18%). Current finding supports previously described studies. Females are more intent to use e-cigarette (34; 32.6 %) as compared to cigarettes (28; 18.18%).

Further in case of marital status, it was found that mostly addicted individuals were single (n=117). However, chi square value indicates positive relationship with marital status but result was insignificant (4.58; p value 0.801). This research found that there were relatively lower proportion of people addicted to e-smoking compared to conventional tobacco products. This finding is contrary to the other research findings (64, 65) which report that subjects were more addicted to the e-smoking compared to the conventional smoking because they think e-smoking is less harmful as compared to the conventional smoking. Further they report that individual start e-smoking because they want to quit conventional smoking or its in fashion or status symbol. Here in this study during interview we came to know that most of the subjects were un-aware of e-

smoking while who were addicted to the e-smoking were unaware of its harmful consequences. Sometimes people are adopted e-cigarettes to quit smoking or as a fashion or status symbol.

After analysis of chi square association of smoking with the department it was found that results were positive and significant. But overall use of different tobacco products was more prevalent in the medical department as compared to the dental department such as in medical department 118 individuals were addicted to different tobacco products while in dental department only 80 subjects were addicted to different tobacco products with significance level of 0.045 ($p < 0.05$). Researcher found in some previous studies that, there is a relationship between the education level of the subjects rather than occupation (66). On the other hands, in a survey (67) it was found that long working hours was an important factor for smoking. Most of the research from around the globe declare no relationship between the profession of the subjects with smoking which is contrary to the current study. However, there are several studies that shows positive and significant results between the occupation, designation and smoking (68-70). Current investigation suggests that designations of the subjects were significantly and positively associated with the use of tobacco products. This result might be linked to duty hours and other factors.

In a nutshell, e-cigarette is not widely popular among individuals of the current study sample. People are using e-cigarettes concomitant use of smoking and smokeless tobacco products. Users generally believe that e-cigarette is safer and fairly helpful to quit smoking. Furthermore, periodic surveillance is required for better understanding of e-cigarette effects. Law should be made against the marketing of its safer use.

5.1. Limitations

Current study was developed among medical and dentists' doctors of the developing country Pakistan, but this study has several limitations such as:

1. Our study shows a picture of tobacco products use among medical doctors and dentists of the Hamdard University Medical and Dental Hospital, Karachi only. This result may differ from the other university or hospital doctors and dentists thus this study cannot be generalized for a larger population.
2. Relying on the self-report estimates of the tobacco products therefore misreporting of the usage cannot be ignored.

3. Further biochemical verification of the tobacco should be carried out to gauge the degree of misclassifications. We were unable to follow this because of financial and time limitations.

Future studies should integrate broader study subjects and biochemical verification.

5.2. Conclusion

Current study focuses to evaluate the incidence of smoking and e-cigarette use among dental and medical staff of Hamdard university Karachi Pakistan and it was found that medical doctors, males and young generation were mostly addicted to the use of tobacco products. After applying the Pearson chi square test, it was found that smoking and e-cigarette use have the positive and significant association with gender, age, department, and designation while Smoking and e-cigarette use were insignificant positive association with the martial status. Subjects who were addicted to the e-smoking report that they start e-smoking because it has less health hazards and they want to quit the conventional smoking. This was concluded that respondents who are addicted to e-smoking they were unaware of the harmful effect of e-cigarettes. A proper campaign should be conducted about the harmful effects of e-cigarettes. Further studies are needed with larger population selection that will generalize findings of the current study.

6. REFERENCES

1. Nilan K, McKeever TM, McNeill A, Raw M, Murray RL. Prevalence of tobacco use in healthcare workers: A systematic review and meta-analysis. *PloS one*. 2019;14(7):e0220168.
2. World Health Organization. List of basic sources in English for a medical faculty library. 2013.
3. Zafar M. Prevalence of smoking and associated risk factors among medical professionals in hospitals of Karachi, Pakistan. *International Journal of Preventive Medicine*. 2014;*5*(4):457.
4. Abdullah AS, & Husten, CG. Promotion of smoking cessation in developing countries: a framework for urgent public health interventions. *Thorax*. 2004;*59*(7):623-630.
5. Abdullah AS, Quiming F, Pun V, Stillman FA, and Samet JM. A review of tobacco smoking and smoking cessation practices among physicians in China: 1987–2010. *Tobacco Control*. 2013;22(1):9-14.
6. Smith DR, and Leggat PA. An international review of tobacco smoking in the medical profession: 1974–2004. *BMC Public Health*. 2007;7(1):1-12.
7. Tong EK, Wolf T, Cooke DT, Fairman N, and Chen Jr. MS, The emergence of a sustainable tobacco treatment program across the cancer care continuum: a systems approach for implementation at the University of California Davis Comprehensive Cancer Center. *International Journal of Environmental Research and Public Health.*2020;17(9):3241.
8. Barengo NC, Sandström HP, Jormanainen VJ, and Myllykangas MT. Attitudes and behaviours in smoking cessation among general practitioners in Finland 2001. *Sozial-und Präventivmedizin*. 2005;50(6):355-360.
9. Alebachew W, Semahegn A, Ali, T, and Mekonnen H. Prevalence, associated factors and consequences of substance use among health and medical science students of Haramaya University, eastern Ethiopia, 2018: a cross-sectional study. *BMC Psychiatry*. 2019;19(1):1-9.
10. Sarna L, Bialous, SA, Sinha K, Yang, Q, & Wewers ME. Are health care providers still smoking? Data from the 2003 and 2006/2007 Tobacco Use Supplement-Current Population Surveys. *Nicotine & Tobacco Research*. 2010;12(11):1167-1171.

11. Sarna L, Bialous, SA, Sinha K, Yang, Q, & Wewers, ME. Are health care providers still smoking? Data from the 2003 and 2006/2007 Tobacco Use Supplement-Current Population Surveys. *Nicotine & tobacco research.* 2010;12(11):1167-1171.
12. WHO. WHO report on the global tobacco epidemic 2019: Offer help to quit tobacco use. 2019.
13. Marcon A, Pesce G, Calciano L, Bellisario V, Dharmage SC, Garcia-Aymerich J, Gislasson T, Heinrich J, Holm M, Janson C, Jarvis D. Trends in smoking initiation in Europe over 40 years: a retrospective cohort study. *PloS one.* 2018;13(8):e0201881.
14. Majeed FA, Azeem AR, and Farhan N. Lung cancer in Pakistan, where do we stand. *JPMA*. 2019;69(3):405-8.
15. Asfar T, Al-Ali R, Ward KD, Vander Weg MW, & Maziak W. Are primary health care providers prepared to implement an anti-smoking program in Syria?. *Patient Education and Counseling*. 2011;85(2):201-205.
16. Malik M, Jave D, Hussain A, and Essien EJ. Smoking habits and attitude toward smoking cessation interventions among healthcare professionals in Pakistan. *Journal of Family Medicine and Primary Care*. 2019;8(1):166.
17. Kabbash IA, Awad AE, Farghly AA, Naeem EM, and Saied SM. The era of electronic smoking: perceptions and use of E-Cigarettes among university students, Egypt. *International Journal of Health Promotion and Education*. 2022;17:1-13.
18. Jankowski M, Brozek G, Lawson J, Skoczynski S, and Zejda JE. E-smoking: Emerging public health problem? *International Journal of Occupational Medicine and Environmental Health*. 2017;30(3):329.
19. Al-Balas, Hamzeh, Al-Balas M, Al-Balas HI, Khamees AA, Talafha M, and Nuseir A. Electronic Smoking Behavior Among Adult Males in Jordan. *Journal of Community Health*. 2021;46(4):803-807.
20. Mangaloiu D, Bratu EC, and Minca DG. Smoking Prevalence and Risk Perception among Romanian medical students: tobacco versus E-cigarette. *European Journal of Public Health.* 2018;28(suppl_4):cky214-142.
21. Rodakowska E, Mazur M, Baginska J, Sierpinska T, La Torre G, Ottolenghi L, D'Egidio V, and Guerra F. Smoking prevalence, attitudes and behavior among

dental students in Poland and Italy. *International Journal of Environmental Research and Public Health*. 2020;17(20):7451.

22. Qayyum MA, Farooq Z, Yaseen M, Mahmood MH, Irfan A, Zafar MN, Khawaja M, Naeem K, and Kisa D. Statistical assessment of toxic and essential metals in the serum of female patients with lung carcinoma from Pakistan. *Biological Trace Element Research*. 2020;197(2):367-383.
23. Savul S. Shisha use and trends in Pakistan: A narrative review. *Journal of Shifa Tameer-e-Millat University*. 2018;1(1):37-40.
24. Saeed S, Khan JA, Iqbal N, Irfan S, Shafique A, and Awan S. Cancer and how the patients see it; prevalence and perception of risk factors: a cross-sectional survey from a tertiary care centre of Karachi, Pakistan. *BMC Public Health*. 2019;9(1):1-7.
25. Ashiq H, Khan MW, Zaidi N, and HussainS. Attitudes of Medical Students Towards Smoking. *Pakistan Heart Journal*. 2014;47(2).
26. Nousheen I, Khan ZA, Anwar SMH, Irfan O, Irfan B, Mushtaq A, Bibi M, Siddiqui F, and Khan JA. Electronic cigarettes use and perception amongst medical students: a cross sectional survey from Sindh, Pakistan. *BMC Research Notes*. 2018;11(1):1-6.
27. Shaikh A, Ansari HT, Ahmad Z, Shaikh MY, Khalid I, Jahangir M, Majeed A, et al. Knowledge and attitude of teenagers towards electronic cigarettes in Karachi, Pakistan. *Cureus*. 2017;9(7).
28. Saqib, Nadeem MA, Rafique I, Qureshi H, Munir MA, Bashir R, Arif BW, Bhatti K, Ahmed SAK, and Bhatti L. Burden of tobacco in Pakistan: findings from global adult tobacco survey 2014. *Nicotine and Tobacco Research*. 2018;20(9):1138-1143.
29. Rafique I, Saqib MA, Munir MA, Qureshi H, Rizwanullah KSA, Khan SA, and Fouad H. Prevalence of risk factors for noncommunicable diseases in adults: key findings from the Pakistan STEPS survey. *East Mediterr Health J*. 2018;24(1):33-41.
30. Sami N, Noorani SS, Lakhani LS, Ghouse A, and Valliani S. Smoking practices and nicotine dependence among adolescents in Pakistan. *Journal of Pakistan Medical Association*. 2013; 63(10): 1260.
31. Hussain A, Zaheer S, and Shafique K. Individual, social and environmental determinants of smokeless tobacco and betel quid use amongst adolescents of

Karachi: a school-based cross-sectional survey. *BMC Public Health*. 2017;17(1):1-10.

32. Pakistan 2013 Global Youth Tobacco Survey fact sheet. 2013; Available from:https://nccd.cdc.gov/GTSSDataSurveyResources/Ancillary/DownloadAttachment.aspx?ID=1300
33. Aslam SK, Mehboob B, Zaheer S, and Shafique K. Awareness and support for anti-tobacco policies among health professional students in Pakistan: findings from the Global Health Professional Students Survey, 2011. *Substance Abuse Treatment, Prevention, and Policy*. 2015;10(1):1-7.
34. Carpenter CM, Connolly, GN, Ayo-Yusuf, OA, & Wayne GF. Developing smokeless tobacco products for smokers: an examination of tobacco industry documents. *Tobacco Control*. 2009;18(1):54-59.
35. Gupta PC, & Ray CS. Smokeless tobacco and health in India and South Asia. *Respirology*. 2003;*8*(4):419-431.
36. Zhao, L, Mbulo, L, Twentyman, E, Palipudi, K, & King BA. Disparities in smokeless tobacco use in Bangladesh, India, and Pakistan: findings from the global adult tobacco survey, 2014-2017. *PLoS One*. 2021;16(4):e0250144.
37. Bashir F., Saqib MA, Rafique I, Naz S, and Naz S. Determinants of Smoked Tobacco Consumption among Pakistani Adults: An Analysis from GATS Pakistan 2014. *JPMA. The Journal of the Pakistan Medical Association*. 2018;68(5):S18-S22.
38. Taherdoost H. How to design and create an effective survey/questionnaire; A step by step guide. *International Journal of Academic Research in Management (IJARM)*. 2016;5(4):37-41.
39. Fox C. Questionnaire development. *Journal of Health & Social Policy*. 1996;8(1):39-48.
40. Boparai JK, Singh S, and Kathuria P. How to design and validate a questionnaire: a guide. *Current Clinical Pharmacology*. 2018;13(4):210-215.
41. Ali SA. Use of smokeless tobacco in medical students and hypertension 2016.
42. Sanchez S, Kaufman P, Pelletier H, Baskerville B, Feng P, O'Connor S, Schwartz R, & Chaiton, M. Is vaping cessation like smoking cessation? A qualitative study exploring the responses of youth and young adults who vape e-cigarettes. *Addictive Behaviors*. 2021;*113:*106687.

43. Kids, T. Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults. 2021.
44. American Lung Association. NOT: Not on tobacco–proven teen smoking and vaping cessation program. 2020.
45. Scott, P. *Nonprofit Organizations' Program Evaluation of Education Toward Prevention of Teens Using Electronic Cigarettes and Vaping* (Doctoral dissertation, Walden University). 2021.
46. Mitchko, J., Lewis, S., Marynak, K. L., Shannon, C., Burnette, D., & King, B. A. E-cigarettes and young people: communicating an emerging public health risk. *American Journal of Health Promotion*. 2019;*33*(6):955-957.
47. Simonavicius E, McNeill A, Shahab L, & Brose, L. S. Heat-not-burn tobacco products: a systematic literature review. *Tobacco control*. 2019;*28*(5):582-594.
48. Summerlin-Long, SK, Goldstein, AO, Davis J, & Shah V. Promoting tobacco-free school policies through a statewide media campaign. *Journal of School Health*. 2009;*79*(4):184-192.
49. Cuccia, AF, Patel, M, Amato MS, Stephens DK, Yoon SN, & Vallone DM. Quitting e-cigarettes: Quit attempts and quit intentions among youth and young adults. *Preventive Medicine Reports*. 2021;*21101287*.
50. Lazaro, A., Ceballos, R., Fischer, M., Smuin, S., & Halpern-Felsher, B. A novel approach to training educators to conduct school-based adolescent e-cigarette education and prevention: Using the Tobacco Prevention Toolkit. *Addictive Behaviors*. 2021;118:106858.
51. Del Greco L, Walop W, and McCarthy RH. Questionnaire development: 2. Validity and reliability. *CMAJ: Canadian Medical Association Journal*. 1987;136(7):699.
52. Le Houezec, J. Role of nicotine pharmacokinetics in nicotine addiction and nicotine replacement therapy: a review. *The International Journal of Tuberculosis and Lung Disease*.2003;7(9):811-819.
53. Chinwong D, Mookmanee N, Chongpornchai J, Chinwong S. A comparison of gender differences in smoking behaviors, intention to quit, and nicotine dependence among Thai university students. Journal of addiction. 2018.
54. Tosun NL, Allen SS, Eberly LE, Yao M, Stoops WW, Strickland JC, Harrison KA, al'Absi M, Carroll ME. Association of exercise with smoking-related

symptomatology, smoking behavior and impulsivity in men and women. Drug and alcohol dependence. 2018;192:29-37.

55. Kim SW, Kim HJ, Min K, Lee H, Lee SH, Kim S, Kim JS, Oh B. The relationship between smoking cigarettes and metabolic syndrome: A cross-sectional study with non-single residents of Seoul under 40 years old. PloS one. 2021;16(8):e0256257.
56. Cosgrove KP, Wang S, Kim S-J, et al. Sex differences in the brain's dopamine signature of cigarette smoking. *J Neurosci Off J Soc Neurosci.* 2014;34(50):16851-16855. doi:10.1523/JNEUROSCI.3661-14.2014.
57. al'Absi M, Nakajima M, Allen S, Lemieux A, Hatsukami D. Sex differences in hormonal responses to stress and smoking relapse: a prospective examination. *Nicotine Tob Res Off J Soc Res Nicotine Tob*. 2015;17(4):382-389. doi:10.1093/ntr/ntu340.
58. Jemal A, Miller KD, Ma J, Siegel RL, Fedewa SA, Islami F, Devesa SS, Thun MJ. Higher lung cancer incidence in young women than young men in the United States. New England Journal of Medicine. 2018;378(21):1999-2009.
59. Reitsma MB, Fullman N, Ng M, Salama JS, Abajobir A, Abate KH, Abbafati C, Abera SF, Abraham B, Abyu GY, Adebiyi AO. Smoking prevalence and attributable disease burden in 195 countries and territories, 1990–2015: a systematic analysis from the Global Burden of Disease Study 2015. The Lancet. 2017;389(10082):1885-906.
60. Villanti AC, Niaura RS, Abrams DB, Mermelstein R. Preventing smoking progression in young adults: the concept of prevescalation. Prevention Science. 2019;20:377-84.
61. Warner KE, Mendez D. E-cigarettes: comparing the possible risks of increasing smoking initiation with the potential benefits of increasing smoking cessation. Nicotine and Tobacco Research. 2019;21(1):41-7.
62. Basit A, Younus BB, Waris N, Fawwad A. Prevalence of tobacco use in urban and rural areas of Pakistan; a sub-study from second National Diabetes Survey of Pakistan (NDSP) 2016-2017. Pakistan Journal of Medical Sciences. 2020;36(4):808.
63. House JS, Goesling B. Education, social status, and health. Contemporary Sociology. 2005;34(2):205.

64. Jane Ling MY, Abdul Halim AF, Ahmad D, Ahmad N, Safian N, Mohammed Nawi A. Prevalence and associated factors of e-cigarette use among adolescents in Southeast Asia: a systematic review. International journal of environmental research and public health. 2023;20(5):3883.
65. Murgia N, Gambelunghe A. Occupational COPD—The most under-recognized occupational lung disease?. Respirology. 2022;27(6):399-410.
66. Oh H, Boo S. Smoking in the workplace: A study of female call center employees in South Korea. Plos one. 2022;17(7):e0267685.
67. Yang, Young Joon, Young Hoon Moon, Sang Yoon Do, Chul Gab Lee, and Han Soo Song. Effects of work-related factors on self-reported smoking among female workers in call centers: a cross-sectional study. *Annals of Occupational and Environmental Medicine*. 2019;31(1):1-6.
68. Wang Q, Shen JJ, Sotero M, Li CA, and Hou Z. Income, occupation and education: Are they related to smoking behaviors in China? *PloS one*. 2018;13(2):e0192571.
69. Chatdokmaiprai K, Kalampakorn S, McCullagh M, Lagampan S, and Keeratiwiriyaporn S. Factors predicting the provision of smoking cessation services among occupational health nurses in Thailand. *Workplace Health & Safety*. 2017;65(6):253-261.
70. Ryu H, Moon J, and Jung J. Influence of health behaviors and occupational stress on prediabetic state among male office workers. *International Journal of Environmental Research and Public Health*. 2018;15(6):1264.

APPENDIXES

APPENDIX 1 (Ethical Approval)

YEDITEPE UNIVERSITY

No : E.83321821-805.02.03-46
Subject : Non Interventional Clinical Research Ethics Board Decision

To Prof. Dr. Recep Erol Sezer

Yeditepe University Non-Interventional Clinical Research Ethics Board has reviewed the research proposal placed upon ethical approval for the project as the research title, the researchers, the application number, the ethics board meeting details, and the provided documents have been outlined below. This research proposal has been evaluated by the members of the ethics board and full ethical **APPROVAL** has been granted.

Research Title:	**A cross-sectional questionnaire survey of tobacco use with a focus on E-cigarettes and related factors among Dentists and Medical Doctors in Hamdard University Medical and Dental Hospital, Karachi, Pakistan**
Researchers:	**Zohaib ur Rehman Mufti, Prof. Dr. Recep Erol Sezer**
Application Number:	**202206Y0263**

ETHICS BOARD MEETING DETAILS			
Meeting Date:	8th July 2022	**Meeting Place:**	Online (Google Meet)

PROVIDED DOCUMENTS
Wet signed application file, file uploaded to a CD or USB media, and electronic submission
Title of research and the names of the researchers
Letter of application
Application Form
Nature of the Research;
• Type
• Significance and distinctive value
• Aims and objectives
• Method
• Management of the research
• Widespread impact
• Pertinence of the budget and reason (if applicable)
• Timeframe and convenience
• References
Informed consent form (uniquely prepared for the research)
Letter of Undertaking-1 A commitment to undertake the responsibility of obtaining institutions permission from where the data collection will be made
Letter of Undertaking-2

Yeditepe Üniversitesi 26 Ağustos Yerleşimi, İnönü Mahallesi Kayışdağı Caddesi 34755
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For Info: Sinem ARI
Profession: Uzman Yardımcısı
Phone Number:

A commitment to read the latest version of the World Medical Association Declaration of Helsinki and all relevant guidelines of the Ministry of Health
Letter of Undertaking-3 A commitment on whether there are previous ethical board applications
Letter of Undertaking-4 A commitment that no action will be taken during the research that is not included in the research budget and that will bring additional burden to the volunteer or the Social Security Institution
Letter of Undertaking-5 A commitment to reading the circular on treatment approaches and scientific research in COVID-19 patients
Letter of Undertaking-6 A commitment to reading the document of Research Application Permissions that is published by Ministry of Education
'Resume Forms' filled separately by all the researchers and signed
Additional documents (Scale permissions used, if any, etc.)

Prof. Dr. Didem ÖZDEMİR ÖZENEN
Başkan

Doç. Dr. Gökhan ERTAŞ
Başkan Yardımcısı

Doç. Dr. Elif SUNGURTEKİN EKÇİ
Raportör

Doç. Dr. Mehmet Engin CELEP
Üye

Doç. Dr. Binnur OKAN BAKIR
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Dr. Öğr. Üyesi Elif Çiğdem KELEŞ
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APPENDIX 2 (Questionnaire)

A CROSS-SECTIONAL QUESTIONNAIRE SURVEY OF TOBACCO USE WITH A FOCUS ON E-CIGARETTES AND RELATED FACTORS AMONG DENTISTS AND MEDICAL DOCTORS IN HAMDARD UNIVERSITY MEDICAL AND DENTAL HOSPITAL KARACHI, PAKISTAN

1. **GENDER**

   Male ☐ Female ☐

2. **YEAR OF BIRTH ……...**
3. **MARITAL STATUS**

   Single ☐ Married ☐ Other ☐

4. **DEPARTMENT**

   Medical ☐ Dental ☐

5. **DESIGNATION**

   Professor ☐ Associate Professor ☐ Lecturer ☐

   Assistant Professor ☐ Senior registrar ☐ Resident Medical officer ☐

   Resident Dental officer ☐ Senior house officer ☐ House officer ☐

6. **When did you start medical or dental education? …….**
7. **Year of Graduation (Faculty of Medicine or Dentistry) ……**
8. **Have you ever tried the following tobacco products even a puff?**

Electronic cigarette	YES ☐	NO ☐
Cigarette	YES ☐	NO ☐
Water pipe smoking	YES ☐	NO ☐
Traditional smokeless tobacco or chewing tobacco (e.g. naswar, paan, gutka, chalia)	YES ☐	NO ☐
Nicotine pouches (e.g. velo)	YES ☐	NO ☐
Cigar	YES ☐	NO ☐
Pipe	YES ☐	NO ☐
Roll your own cigarette	YES ☐	NO ☐
HTPs (e.g. IQOS and Eclipse)	YES ☐	NO ☐

9. **Which tobacco product you tried first?**

Electronic cigarette ☐ Cigarette ☐ Water pipe smoking ☐ Traditional smokeless tobacco or chewing tobacco (e.g.naswar, paan, gutka, chalia) ☐ Nicotine pouches (e.g. velo) ☐ Cigar ☐ Pipe ☐ Roll your own cigarette ☐ heated tobacco products(e.g. IQOS and Eclipse) ☐

10. **Have you had, at least, 100 times of tobacco use during your entire life? (no matter which tobacco products you have used)**. YES ☐ NO ☐

11. **When did you reach that 100 times of tobacco use level? Age…….**

12. **What is your current use of the following tobacco products mentioned in the table?**

Please answer every row

	CURRENT USE			
	Tobacco Products	YES		No
		Everyday	Someday	
1.	Electronic-cigarettes			
2.	Cigarettes			
3.	Water pipe			
4.	Traditional chewing tobacco (e.g.naswar, gutka)			
5.	Nicotine pouches (e.g. velo)			
6.	Cigar			
7.	Pipe			
8.	Roll your own cigarettes			
9.	heated tobacco products (e.g. IQOS and Eclipse)			

13. **Among the tobacco products you have been using, which one do you use most?**

Electronic cigarette ☐

Cigarette ☐

Water pipe smoking ☐

Traditional smokeless tobacco or chewing tobacco (e.g.naswar, paan, gutka, chalia) ☐

Nicotine pouches (e.g. velo) ☐

Cigar ☐

Pipe ☐

Roll your own cigarette ☐

Heated tobacco products (e.g. IQOS and Eclipse) ☐

14. **What is your total approximate frequency of use (Including all TOBACCO products) a day? (One time refers to one cigarette or one water pipe session etc.) ……...times / a day.**
15. **If you don't use daily what is your total approximate frequency of use (including all products) a day? ……..……times / a week.**
16. **Which of the following statements describes your intention to tobacco use cessation?**

I have NO intention to quit all kinds of tobacco use completely in the next 6 months. ☐

I seriously consider quitting all kinds of tobacco use completely in the next 6 months. ☐

I have decided to quit all kinds of tobacco use completely in the next 30 days. ☐

If the above-mentioned statements do not fit your intention to quit, please specify your intention to quit:

……

……

…….…☐

Currently, I do not use any tobacco product ☐

17. **Did you try to quit smoking AND succeed in not using all forms of tobacco products for at least 24 hours? YES ☐ NO ☐**

18. **For former tobacco users who gave up tobacco use completely: Time passed since your last tobacco use.**

    Less than one week ☐

    Longer than 1 week but less than one month ☐

    Longer than one month but less than six months ☐

    Longer than six months less than one year. ☐

    Five years or longer than 5 years. ☐

19. **(For those who have vaped-cigarettes at least once): Could you tell us what was your intention in trying your first e-cigarette and how it happened?**

    ……

    ……

    ……

    ……

20. **When did you first try vaping E-cigarettes: ……. months ago. ……? years ago.**

21. **(For those who currently vapes e-cigarette) Why do you, currently use e-cigarettes?**

    ……

    ……

    ……

    ……

    ……

22. **Which e-cigarette brand(s) do you use?**

    Type…….

    Brand(s): .....

23. **Could you describe how many times a day you vape e-cigarettes?**

    ……

    ……

24. **How likely is it for you to be a user of e-cigarette five years from now?**

    Extremely likely ☐ Likely ☐ I am not sure ☐

    Unlikely ☐ Extremely unlikely ☐

25. Has any change happened in your smoking status during the pandemic?

YES ☐ NO ☐

26. If YES, could you please specify?

I have increased my tobacco use ☐

I have decreased my tobacco use ☐

I stopped completely all my tobacco use ☐

I have started tobacco use ☐

If the above-mentioned statements do not fit the change you have experienced specify it:

……

……

……

……

CURRICULUM VITAE

Personal Information

Name	Zohaib ur Rehman	**Sir Name**	Mufti

Education Status

Degree	Department	Name of the Institution Graduated from	Graduation year
Post Graduate	Department of Public Health	Yeditepe University	2019-Now
Graduate	Bachelors in Dental Surgery	Hamdard University	2013-2017
Undergraduate	Pre- Medical	Govt. degree Science & Commerce College Gulshan e Iqbal, Karachi	2009-2011

Working Experience

Position	Institution	Duration
Dental Officer	Hamdard University Dental Hospital, Karachi Pakistan	2017- 2018
Lecturer in Department of Oral Medicines	Hamdard University Dental Hospital, Karachi Pakistan	2019
Dental Consultant	Tower Dental Clinic, Istanbul Turkey	2021-Present
Dental Specialist	Vitrine Clinic, Istanbul, Turkey	2023-Present

Computer Knowledge

Ms Office	Good
SPSS	Moderate

Scientific Work

Pakistan Journal of Medical and Health Sciences (IF 2.34).

Publication	Year
Knowledge, Attitude and Practices of Healthcare Providers Regarding Infection Control at Tertiary Care Hospital.	2022
Comparative Masticatory Performance of Bilateral Balanced Occlusion and Lingualized Occlusion in complete Denture Patients	2022