



Çankırı Karatekin University
Graduate School of Health Sciences



Master of Science Thesis

DETERMINATION OF THE FACTORS AFFECTING THE
DEPRESSION LEVEL OF ELDERLY WOMEN DIAGNOSED
WITH BREAST CANCER AT KIRKUK ONCOLOGY CENTER

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Çankırı 2023

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**The Institute of Health Sciences
The Department of Nursing**

The Degree of Master of Science

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Asst. Prof. Dr. Tahsin Barış DEĞER**

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ACCEPTANCE AND APPROVAL

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ETHICS STATEMENT

The thesis entitled “Determination of the Factors Affecting the Depression Level of Elderly Women Diagnosed with breast cancer at Kirkuk Oncology Center” which was prepared and presented as a thesis, was written by myself and in accordance with scientific, academic rules and ethical conduct. The idea/hypothesis of my thesis solely belongs to my supervisor and to me. The research pertaining to the thesis was conducted by myself and therefore, all of the sentences and interpretations used in the work belongs to me.

I declare the aforementioned issues to be correct.

Signature

27/ 02 /2023

Najdat Taqi Hama KAKI

ABSTRACT

DETERMINATION OF THE FACTORS AFFECTING THE DEPRESSION LEVEL OF ELDERLY WOMEN DIAGNOSED WITH BREAST CANCER AT KIRKUK ONCOLOGY CENTER

Najdat Taqi Hama KAKI

Master of Science in Nursing

Advisor: Asst. Prof. Dr. Tahsin Barış DEĞER

February 2023

Aim: The objective of the current study is the determination of the factors affecting the depression level of elderly women diagnosed with breast cancer at the Kirkuk Oncology Center

Method: A descriptive, non-probability (purposive sample) study including 250 elderly women with breast cancer was conducted at Kirkuk Oncology Center, Iraq. Their treatment continued for the period February 10, 2022, and August 10, 2022. The data were collected by face to face interview using questionnaires. These questionnaires consisted of questions on the sociodemographic data of the elderly women and factors which could affect their depression level. In addition, the Beck Depression Inventory was used to determine depression level. Frequency analysis, mean comparison tests, correlation analysis and ordinal logistic regression analysis were applied.

Results: Depression level in the participants was significantly higher in those who lived in the city, had graduated from high school, worked, had given birth multiple times, walked regularly, had a family history of breast cancer, had a previous psychiatric diagnosis and used psychiatric drugs. There was no depression in 52.8% of the participants, but mild depression in 17.60%, moderate depression in 23.2%, severe depression in 5.6% and extreme severe depression in 0.8%. In the regression analysis, the variables of living in the city, working and walking increased the level of depression. In addition, there was a low negative correlation between the total depression scale score and the age at which breast cancer was first diagnosed.

Conclusion: According to the results of the study, policies can be made to raise the level of education of women. Improving the social security system can prevent elderly and women with cancer from having to work. Early diagnosis with a family history with routine nursing screenings is useful in disease management. These policies will lower depression in older women with breast cancer.

2023, 63 pages

Keywords: Depression , Elderly women , Breast cancer , Nursing



ÖZET

KERKÜK ONKOLOJİ MERKEZİNDE MEME KANSERİ TANISI ALAN YAŞLI KADINLARIN DEPRESYON DÜZEYİNİ ETKİLEYEN FAKTÖRLERİN BELİRLENMESİ

Najdat Taqi Hama KAKI

Hemşirelik, Yüksek Lisans

Tez Danışmanı: . Dr. Öğr. Üyesi Tahsin Barış DEĞER

Şubat 2023

Amaç: Bu çalışmanın amacı, Kerkük Onkoloji Merkezi'nde meme kanseri tanısı alan yaşlı kadınların depresyon düzeylerini etkileyen faktörlerin belirlenmesidir.

Yöntem: Irak, Kerkük Onkoloji Merkezi'nde, 10 Şubat 2022 ve 10 Ağustos 2022 tarihleri arasında tedavisi devam eden meme kanserli (250) yaşlı kadından oluşan tanımlayıcı, , olasılık dışı (amaçlı örneklem) bir çalışma yapılmıştır. Veriler görüşme tekniği (yüz yüze) ile toplanmış ve ve anket kullanılmıştır. Bu anketler, yaşlı kadınların sosyodemografik verileri ve depresyon düzeylerini etkileyebilecek içeren sorulardan oluşmakta olup, ayrıca depresyon düzeyini belirlemek için "Beck Depresyon Envanteri" kullanılmıştır. Frekans analizi, ortalama karşılaştırma testleri ve sıralı lojistik regresyon analizi uygulanmıştır.

Bulgular: Meme kanserli yaşlı kadınlardan oluşan katılımcılarda; kentte yaşayan, lise mezunu olan, çalışan, çok doğum yapmış olan, düzenli yürüyen, ailesinde meme kanseri öyküsü olan, daha önce psikiyatrik bir tanı konulmuş olan ve psikiyatrik ilaç kullananlarda depresyon seviyesi anlamlı olarak yüksekti. Katılımcıların % 52.8'inde depresyon yoktu, ancak, % 17.60'ında hafif, %23,2'sinde orta derece, %5,6'sında şiddetli ve %0,8'inde ise çok şiddetli depresyon vardı. Regresyon analizinde, kentte yaşama, çalışıyor olma ve yürüyüş yapma değişkenleri depresyon düzeyini artırdı. Ayrıca, toplam depresyon ölçeği puanı ile meme kanserinin ilk tanı konduğu yaş arasında düşük bir negatif korelasyon konusu olmuştur.

Sonuç: Bu çalışmanın sonuçlarına göre; kadınların eğitim düzeyinin artırılmasına yönelik politikalar üretilebilir. Sosyal güvenlik sisteminin iyileştirilmesi, yaşlı ve kanserli kadınların çalışmak zorunda kalmasını önleyebilir. Rutin hemşirelik taramaları

ile erken tanı, aile öyküsü olanlarda hastalık yönetiminde faydalıdır. Bu politikalar, meme kanseri olan yaşlı kadınlarda depresyonu azaltacaktır.

2023, 63 sayfa

Anahtar Kelimeler: Depresyon, Yaşlı kadınlar, Meme kanseri, Hemşire



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Najdat Taqi Hama KAKI

Çankırı-2023



CONTENTS

ACCEPTANCE AND APPROVAL	i
ETHICS STATEMENT	ii
ABSTRACT	iii
ÖZET.....	v
PREFACE AND ACKNOWLEDGEMENTS	vii
CONTENTS.....	viii
INDEX OF ABBREVIATIONS AND SYMBOLS	x
LIST OF ABBREVIATIONS	11
LIST OF FIGURES	xii
LIST OF TABLES	xiii
1. INTRODUCTION	1
1 .1. GENERAL INFORMATION.....	2
1.1.1. Breast cancer (BC)	2
1.1.2. Sign and symptoms of breast cancer	5
1.1.3. Breast cancer in Iraq.....	5
1.2. Depression.....	6
1.2.1. Define of depression	6
1.2.2. Type of depression	7
1.2.3 Symptoms of depression.....	7
1.3 Elderly.....	7
1.3.1 Depression in the elderly.....	8
1.4. Nursing care(screening and assessment).....	8
1.5. Previous study.....	10
1.6. Importance of study	11
1.7. Objectives of the study	13
1.8 Problem of the study.....	13
1.9 Research questions.....	13
1.10 Limitations.....	13

2.	MATERIAL METHODS.....	14
2.1	Study design.....	14
2.2	Study preparation	14
2.3	Study Sample	14
2.4	Eligibility criteria.....	14
2.5	Pilot study.....	15
2.6	Reliability.....	15
2.7	Data collection tools	15
2.8	Data analysis.....	16
2.9	The Ethical Dimension.....	18
3.	RESULTS.....	19
4.	DISCUSSION.....	33
5.	CONCLUSION	37
5.1	Recommendations	37
	REFERENCES.....	41
	APPENDIX	49
	APPENDIX 1. Questionnaire.....	50
	CURRICULUM VITAE.....	62

INDEX OF ABBREVIATIONS AND SYMBOLS

%	Percentage
F	Frequencies
Max.	Maximum
Min.	Minimum
SD	Standard deviation
B	Beta
N	Number of question
X	Even
Y	Odd
Σxy	Summation of even and odd
SPSS	Statistical package for social sciences

LIST OF ABBREVIATIONS

BC	Breast Cancer
BDE	Beck Depression Inventory
BSE	Breast self examination



LIST OF FIGURES

Figure 1.1 BC cancer	3
Figure 3.1 Power values for different number of samples	17



LIST OF TABLES

Table 3.1	Socio-demographic characteristic	19
Table 3.2	General lifestyle & habits	21
Table 3.3	History of breast cancer	22
Table 3.4	Medical & Psychological history	24
Table 3.5	Summary statistics for quantitative variables.....	25
Table 3.6	Summary statistics for quantitative variables.....	25
Table 3.7	Comparison of depression total score according to independent variables	26
Table 3.8	Parallel lines assumption test result.....	30
Table 3.9	Goodness of fit for ordinal logistic regression analysis.....	30
Table 3.10	Ordinal logistic regression models results.....	30
Table 3.11	The relationship between the ages at which the participants were first diagnosed with breast cancer and their total depression scale scores.....	32

1. INTRODUCTION

Breast cancer is one of the most frequently diagnosed malignancies and the fifth biggest cause of cancer-related deaths, with an expected 2.3 million new cases globally each year, as reported by GLOBOCAN (Global Cancer Statistics, 2020) (Łukasiewicz *et al.*, 2021). Depression was shown to affect 32.2% of breast cancer patients worldwide (Pilevarzadeh *et al.*, 2019). Feelings of despair are a common component of the depressive syndrome that may contribute to a patient's decision to forego cancer therapy, which is most prevalent during the first stages of treatment (Krebber *et al.*, 2014).

The incidence of breast cancer among women is the highest of any malignant tumor in the globe. The prevalence of breast cancer is increasing at an exponential rate over the world. An estimated 2,1 million women will be diagnosed with breast cancer in 2018, making it the most common disease among women. Incidence rates of breast cancer are greatest in Australia and New Zealand, Europe, and North America. Almost half of all cases of breast cancer occur in the industrialized world, despite the fact that these nations only account for a tiny percentage of the global population. The rate of occurrence in India is growing. More than half of the world's population lives in developing nations, and as a result, these countries bear a disproportionate share of the disease's burden. Breast cancer is the second most frequent malignancy among women in these countries. Breast carcinoma is the main cancer in urban India and the second highest cause of death in rural India (after uterine cancer), according to the National Cancer Registry Project report (Khan *et al.*, 2022)

There will be more than twice as many instances of invasive breast cancer in the United States by 2030, as the population ages, according to the most current available data. The percentage of women diagnosed is growing (now 35%), although the percentage of women between the ages of 50 and 69 is decreasing (from 24%). (44 percent, down from 55 percent in 2011), (Hurria, 2021).

With an expected 2.3 million new cases (11.7%), breast cancer in women has overtaken lung cancer as the most often diagnosed cancer. This is followed by malignancies of the colon (10.0%), the lining of the large intestine (11.4%), the prostate (7.3%), and the stomach (5.6%). According to research (Sung et al., 2021). Around 297,790 American women are expected to be diagnosed with aggressive breast cancer in 2023. In 2023, it is predicted that 43,700 people (43,170 females) would lose their lives to breast cancer (American Cancer Society, 2023). Regional differences in breast cancer incidence rates were substantial (Sung et al., 2021). Breast cancer is more common in women in countries with a high or very high Human Development Index (HDI) (54.9 per 100,000) than in those with a low or medium HDI (29.5 per 100,000), with the highest rates seen in Australia/New Zealand (95.5 per 100,000), Western Europe (90.7 per 100,000), Northern America (89.4 per 100,000), and Northern Europe (86.4 per 100,000), and the lowest seen in South-Eastern Asia (41.2 per 100,000), Central America (39.5 per 100,000), Eastern Africa (34.0 per 100,000), (Sung *et al.*, 2021).

The rate of new cases of cancer in Iraq has climbed steadily between 2000 (52.00/100,000) and 2019 (91.66/100,000). Around one-third of all cancer cases diagnosed in Iraq this year have been diagnosed as breast cancer (Iraqi Cancer Board, 2019). Breast cancer had the greatest percentage and incidence rate among the top ten malignancies in 2019 (34.08 percent and 35.95 per 100,000 cases), as well as the highest fatality rate (22.58 percent and 6.22 per 100,000 cases) (Iraqi Cancer Board, 2019). Much with the vast majority of malignancies, breast cancer is associated with becoming older. The Surveillance, Epidemiology, and End Results registry reports that 62-year-olds make up the median age for a breast cancer diagnosis, with over 20% of patients being over 75 years old (Al-Alwan *et al.*, 2019).

1.1. GENERAL INFORMATION

1.1.1. Breast cancer (BC)

Breast cancer occurs when cells in the breast grow and divide out of control. Many distinct subtypes of breast cancer have been identified. Which breast cells

become malignant determines the subtype of breast cancer. Cancer of the breast may originate in any of the breast's tissues. Lobules, ducts, and connective tissue make up the breast's three main structural elements. The lobules are the glands responsible for lactation. The milk reaches the nipple through ducts. Everything is wrapped up and held together by connective tissue (fibrous and fatty tissue). Figure 1.1 depicts the typical site of breast cancer initiation, which is in the ducts or lobules (Cleveland Clinic, 2022).

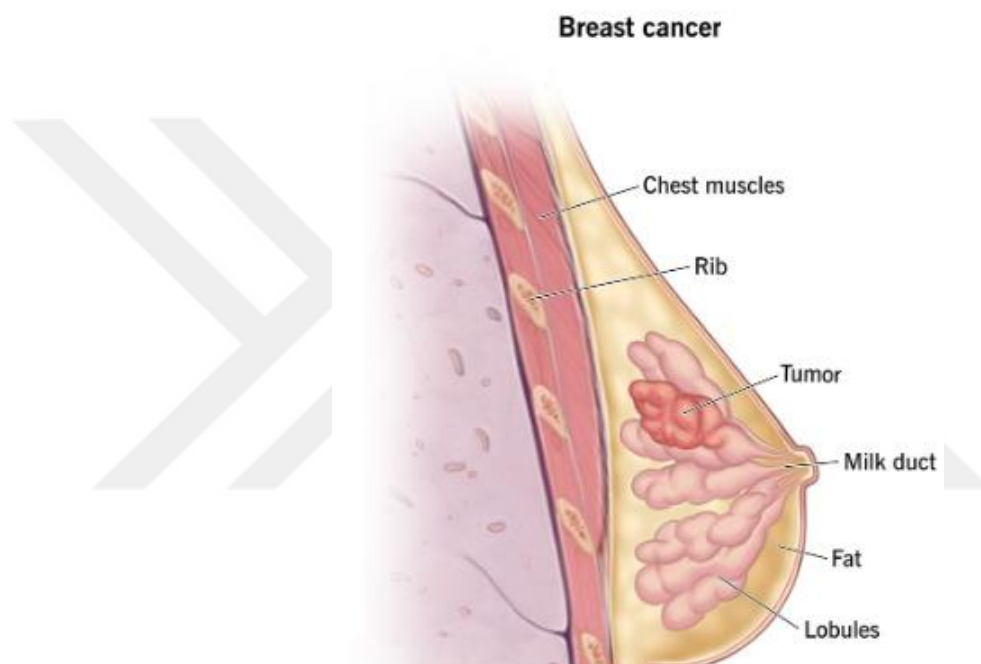


Figure 1.1 BC cancer (Cleveland Clinic, 2021).

The lymphatic system and the circulatory system both have a role in the metastasis of breast cancer. When breast cancer metastasizes, or meets other parts of the body, it is said to have spread (Cleveland clinic, 2022). DNA and RNA in cancer cells are similar to (but not exactly the same as) those in the organ from whence they originated. This is why the immune system, particularly if it is compromised, may fail to recognize them (Sharma *et al.*, 2010).

If there is a change or mutation in DNA or RNA, cancerous cells might emerge from healthy ones. Radiation (both nuclear and electromagnetic), viruses,

bacteria, fungi, parasites, heat, chemicals in the air, water, and food, and mechanical cell-level injury are all potential triggers for these mutations and alterations. All of these have the potential to trigger alterations that may lead to cancer. As cancer is linked to an excessive rise in entropy in the body to the point that the body cannot remedy the situation on its own, it is called an entropic sickness. It need help from outside for the body to reach an entropic equilibrium again (Mieszkowski, 2006).

Cancer develops when the immune system is unable to properly clear abnormal cells, or when the body produces an excessive amount of cells that the immune system cannot successfully destroy. An unfavorable environment (from radiation, toxins, etc.), a poor diet (an unhealthy cellular environment), and a genetic propensity to mutations may all lead to cancer (Sharma *et al.*, 2010), and the mutation rate of DNA and RNA may be very high in those over the age of 80 (Ershler, 2005).

The greatest vulnerability to breast cancer is age, followed by being born a woman. Postmenopausal breast cancer risk factors include weight gain after age 18 and/or being overweight, menopausal hormone treatment (combined estrogen and progestin), formerly known as hormone replacement therapy, alcohol intake, and physical inactivity. A reduction in risk is shown after breastfeeding for a year or more. A personal or family history of breast cancer, particularly when caused by inherited genetic mutations in breast cancer susceptibility genes, is a non-modifiable risk factor. A report from the American Cancer Society in the year 2023. Certain benign breast disorders, such as atypical hyperplasia, high breast tissue density (the amount of glandular and connective tissue relative to fatty tissue determined on a mammogram), and high-dose radiation to the chest before the age of 30 are additional medical risk factors (e.g. for treatment of lymphoma). A lengthy menstrual history (menstrual cycles that start early and/or finish late in life), no children or children beyond the age of 30, high levels of natural estrogen or testosterone, and the use of hormonal contraceptives within the last decade are all reproductive and hormonal risk factors (American Cancer Society, 2023). The prevalence of depression in breast cancer patients was found to be 25% in an Addis Abeba, Ethiopia research (Wondimagegnehu *et al.*, 2019), while the prevalence of

depression and anxiety in cancer patients was found to be 58.8% and 60%, respectively, in a study done in Southern Ethiopia (Ayalew *et al.*, 2022). There is a lack of information on breast cancer in Ethiopia. One of them is the mental sequel. Hence, research on the extent of mental anguish experienced by breast cancer patients is warranted. However, the causes of the issues have not been determined. This is why we're doing this research: to learn more about the prevalence of anxiety and depression in women in central Ethiopia who have breast cancer, as well as the variables that contribute to their development.

1.1.2. Signs and symptoms of breast cancer

The most typical indicator of breast cancer is a lump in the breast or armpit. Doing a breast self-examination (BSE) once a month is a great way to get to know your breasts and their unique feel, size, shape, and skin condition throughout time. Breast cancer symptoms include a lump or enlargement in the breast, swelling in the armpit (lymph nodes), a discharge or pain from the nipple, an inverted or retracted nipple, scaly or pitted skin on the nipple, persistent tenderness of the breast, and abnormal pain or discomfort in the breast. In the later stages of the disease, underarm lymph nodes appear alongside other symptoms like bone pain (metastases in the bones), shortness of breath (metastases in the lungs), lack of appetite (metastases in the liver), unintentional weight loss, migraines, neurological discomfort or weakness, and so on (Stephan, 2007).

1.1.3. Breast cancer in Iraq

In Iraq, 19.8 percent of women who presented with palpable breast lumps to a large screening facility for early detection of breast cancer were diagnosed with breast cancer. Surprisingly, 90.6 percent of those individuals identified the tumors on their own; nevertheless, only 32 percent sought medical treatment during the first month, while 16 percent did so one year later. One-third of the patients presented in the age group 40-49 years, 16% had a positive family history, and 47% were diagnosed at an advanced stage (Al Awan *et al.*, 2015).

1.2. Depression

1.2.1. Definition of depression

Clinical depression is a mood disorder characterized by persistent feelings of sadness and a lack of interest in formerly pleasurable activities. It's different from the normal ups and downs of human emotion. Trusted source depression may develop after a major life tragedy, such as a death in the family or the loss of a job. In contrast, medical professionals include grief in the category of depression only if it lasts more than two weeks (Goldman, 2019).

Depression is not a passing mood but a long-term medical illness. It occurs in cycles, each of which lasts for two weeks or more. Chronic depression may last for a long time, even years (Goldman, 2019). As the field of clinical behavior analysis develops, it will benefit from studies of increasingly complex and broad clinical phenomena, especially those with significant public health implications. One such condition is clinical depression, which is like the "common cold" among people who see a doctor in an outpatient setting. There are as many as 25 million persons in the US who meet the criteria for major depression in any one year. Financial costs associated with depressive diseases include lost wages and higher medical bills. Based on broad criteria including job absenteeism, treatment expenses, and other factors, the annual economic burden of depressive disorders in the United States may approach \$40 billion. Suicide is the last price to pay (Kanter *et al.*, 2008).

Depression, and major depressive disorder in particular, is one of the primary causes of disability worldwide (Friedrich, 2017). One of the clinical criteria used to diagnosis serious depressive disorder is anhedonia, or a loss of interest in enjoyable activities (American Psychiatric Association, 2013).

1.2.2. Types of Depression

- Major depression, which involves depressed symptoms for at least two weeks, affects one's productivity, sleep, learning, and eating habits.
- Dysthymia (chronic depressive condition), which is typically less severe, involves depression symptoms that remain longer, generally for at least two years (NIH, 2021).

1.2.3. Symptoms of depression

- Having difficulty concentrating, recalling information, and making judgments
- Fatigue
- Feelings of guilt, worthlessness, and a sense of helplessness
- Hopelessness and pessimism
- Insomnia, waking up early in the morning or sleeping too much
- Irritability or crankiness
- Restlessness
- Loss of interest in previously pleasant activities such as sex, overeating or appetite loss
- Aches, pains, headaches, or cramps that persist
- Consistent melancholy, nervous or "empty" sensations that do not improve after therapy
- Suicidal ideation or suicide attempts (Casarella, 2021).

1.3. Elderly

Those above the age of 65 are termed "elderly," while those between the ages of 65 and 74 are classified as "early elderly," and those beyond the age of 75 are classified as "late elderly." Chronological age is a frequent way to quantify the unavoidable process of aging, and those 65 and above are usually categorized as "the old" due to this tradition (Orimo *et al.*, 2006).

The world's population is becoming older, and the WHO estimates that by 2050, the number of people aged 60 and above will quadruple, and the number of people aged 80 and up will reach 400 million (World Health Organisation, 2012). The use of pharmacotherapy is often seen as the primary contribution to this improvement in life expectancy, which in turn is seen as a victory of medical advancements due to improved access to treatment and a greater emphasis on preventative remedies. (Cherubini, *et al.*, 2012). 2 In general, more individuals are taking more medications than ever before, and although pharmacotherapy has undoubtedly contributed to an increase in life expectancy, its usage is more difficult and dangerous among the elderly (Nyborg *et al.*, 2012).

1.3.1 Depression in the elderly

While elderly people are less likely to experience depression than younger ones, the effects of this illness are no less severe. In almost half of these occurrences, the onset is in adulthood or later. The elderly have a greater suicide rate than younger generations, although this is due in large part to the fact that they are more prone to depression. Cognitive impairments, physical symptoms, and a loss of interest are more common in depressed older people than emotional symptoms. Potential risk factors for late-life depression include a tangled web of genetic predispositions, cognitive impairments, neurobiological changes associated with aging, and life events that have been emotionally or psychologically traumatic (Amy *et al.*, 2009).

1.4. Nursing care (Screening and Assessment)

Screening and evaluation come first in the nursing procedure for treating depression in women with cancer.

A. Screening: Several different patterns of thought and action might result after a cancer diagnosis. A person's unique reaction to hearing they have cancer cannot be predicted by factors like its severity, duration, or kind (Mehnert *et al.*, 2018). Having a sense of humor is only one attribute that helps some people handle terminal disease with strength and dignity (Buiting *et al.*, 2020). Others have a hard time adjusting, and they battle with emotions of anger, worry, and

pessimism even when confronted with a curable illness with a decent prognosis (Levenson, 2018).

Spending a lot of time with women throughout the diagnosis procedure allows oncology nurses to look for signs of sadness (NCCN, 2021). Self-reported depressed symptom intensity is a strong predictor of whether or not a patient's symptoms would go from normal sorrow to a diagnosis of severe depression (Erim *et al.*, 2019). An reliable evaluation of depression intensity requires a patient who is willing to talk about their feelings and who asks pointed questions regarding the severity of their symptoms. Nurses who specialize in oncology are experts at asking probing questions and listening attentively. By using a technique called "checking in with," the nurse may make sure she and the woman being cared for have a shared understanding of the conversation. The nurse does not just repeat the patient's words, but instead pays close attention and speaks up to make sure everyone is on the same page (Arnold *et al.*, 2014). Patients may be better able to process the overwhelming range of feelings associated with the life-altering occurrence of a cancer diagnosis if they are allowed to listen to themselves recount their story to trusted and involved nurses. The patient's mood is generally the first indicator of a minor depressive episode (e.g., sad, hopeless, fearful and worried about the future, tearful). A more thorough examination using well-validated, relevant measures is needed for more severe depression. In addition to the nurse's intuitive evaluation, tools like the Patient Health Questionnaire and the Center for Epidemiological Research Depression Scale may be used to track changes over time and evaluate the effectiveness of therapy (NCCN, 2021).

B. Assessment: When a depression screening identifies a woman as being at risk for depression, the nurse's next task is to determine if the woman is experiencing mild, moderate, or severe depression. Asking patients to share the specifics of their sickness experience, such as the effect of cancer on the patient's mental health, family life, work, etc., allows nurses to capitalize on the growing trust between them and further expand the connection. Although some women may be

reluctant to speak about their experiences with depression or other mental health disorders, many are relieved when given the chance to do so by concerned healthcare practitioners (Rodin *et al.*, 2009). Depressive symptoms are evaluated in the context of a woman's cancer diagnosis, treatment plan, physical symptoms, other life stresses, social networks, and sources of emotional support (Levenson *et al.*, 2019). The importance of providing a secure environment for the expression of these experiences cannot be overstated.

Women with cancer who are also depressed may have difficulty diagnosing their condition and receiving effective therapy. Symptoms of depression, such as loss of appetite, weariness, sleeplessness, and difficulty focusing or general mental foginess, are quite similar to frequent medical symptoms reported by cancer patients undergoing treatment (Saracino *et al.*, 2016). Certain physical symptoms, such as pain and exhaustion, may be made worse by depression (Hata *et al.*, 2020). Although treating pain and exhaustion is likely to enhance mood and psychological well-being, acting in depression may concurrently lessen certain physical symptoms (Kim *et al.*, 2018, Riba *et al.*, 2019).

1.5. Previous study

Anxiety and depression were examined as a part of a cross-sectional study of women with breast cancer in Central Ethiopia. The purpose of this research was to identify the factors that contribute to the development of anxiety and depression in Ethiopian women who have breast cancer. Women with breast cancer receiving treatment at Ethiopia's biggest referral teaching hospital, Tikur Anbessa Specialty Hospital, were the subjects of a cross-sectional study of its patients. Participants' anxiety and depression levels were assessed using the Hospital Anxiety and Depression Scale (HDAS), and their demographic, socioeconomic, and clinical information was collected via the use of a structured questionnaire. The participants' medical records were examined in order to compile data on the individuals' cancer grades and stages. There were 333 individuals in all; 35.4% were at stage III, 33.0%

at stage II, and 67.9% were undergoing chemotherapy and/or surgery. Anxiety was found to be prevalent among 60.7% of the population, whereas sadness affected 58.6%. Anxiety and depression were shown to be common among women with breast cancer, and the lack of financial support and poor women-provider relations were major predictors of anxiety and depression in this population. Preventing and treating anxiety and depression in cancer patients requires routine mental health screening and increased emotional support from healthcare professionals and family members (Winini *et al.*, 2022).

Yet another looked into the variables contributing to depression, the severity of depression, and the incidence of depression among women in Palestine who had been diagnosed with BC at various hospitals. In order to determine the prevalence and severity of major depressive disorder in women with breast cancer, a cross-sectional research was undertaken at several cancer treatment facilities in Palestine using a previously prepared questionnaire with 23 items. Just 79 (35.4%) of the 223 participants reported feeling moderate to severely depressed. The probability of developing major depressive disorder was greater in breast cancer patients, as shown by a chi-square analysis ($P = 0.011$) among women who had treatment-related side effects. Quality of life and treatment results for breast cancer depend on depression being evaluated and treated at the time of diagnosis, maintained during therapy, and monitored after treatment has concluded (Dana *et al.*, 2022).

1.6. Importance of the study

The reason for the selection of this study is that there is no previous literature measuring the level of depressive symptoms for women with breast cancer in Kirkuk province, nor has any study involving a sample aged 60 or older been found. The fact that it will be done on a sample of geriatric age groups with unique psychological, physical and mental characteristics will make a great contribution to the literature for the first time in Iraq. In addition, what is extremely important in all these aspects is to determine the frequency of depressive symptoms in older females with breast

tumors in Iraq, to uncover the factors affecting depression, and to offer recommendations and strategies to health policies to protect them from depression. There are many original aspects of this work. The most important thing is that it will be performed on the elderly sample group, although there have been previous studies in Iraq that have identified the depression levels of individuals with breast cancer (Cameran *et al.*, 2012).

Being an integral element of the interdisciplinary team caring for elderly patients, nurses play a crucial role in the treatment of breast cancer. Clinical care, emotional support, and assisting patients in navigating the healthcare system are just a few of the various responsibilities that nurses perform during a patient's course of treatment (Prajapati *et al.*, 2019). When older adults are discharged from the hospital, clinical nurses must assist caregivers to be well-prepared for their roles in home settings and acknowledge their contribution to the well-being of the care recipient. Older adults are often hospitalized for short periods for chronic illnesses and their care at home is thus complex, requiring education, support, and collaboration in care between nurses and caregivers (Hagedoorn *et al.*, 2020).

Breast cancer is a common type of malignant tumor among females, accounting for about a third of the cancers recorded in women, and the prevalence of breast cancer in Iraq was approximately 6959 cases, 34.08% of the total cancer cases in 2019. In Iraq, breast malignancy has special difficulties for females due to its influence as a life-threatening illness, intensive surgical and medical management, as well as alterations in sexuality, femininity, body image, and motherhood after mastectomy, and the elimination of an important cultural symbol. It is a private part of femininity and the patient's self-esteem. Affected females may face psychiatric peer diagnoses with this new life condition and depression may be inevitable (Glanz and Lerman, 2018).

1.7 Objectives of the study

The objective of the current study was to determine the the factors affecting the depression level of elderly women diagnosed with breast cancer at Kirkuk Oncology Center.

1.8 Research questions

This study was chosen to answer the two research questions:

- 1- What is the depression level of elderly women diagnosed with breast cancer?
- 2- What are the factors affecting the depression levels of elderly women diagnosed with breast cancer?

1.9 Limitations

Among the obstacles that were overcome while preparing for the current study on the effects of depression on the elderly in various fields during the COVID-19 pandemic was the difficulty of meeting and mixing with elderly women with breast cancer in the Kirkuk Oncology Center.

2 MATERIAL and METHODS

2.1 Study design

This was a quantitative and descriptive cross-sectional study.

2.2 Study preparation

The study was conducted at Kirkuk Oncology Center. Data were collected over six months between February 10, 2022, and August 10, 2022. The data were collected from women in the oncology center who were previously diagnosed with breast cancer and women who attended treatment continuously.

2.3 Study Sample

A nonprobability sampling approach was used (purposive sampling), and 250 elderly women with breast cancer were chosen as the study sample.

2.4 Eligibility criteria

Inclusion criteria: Women aged 60 years and above who attended the Oncology Center, and who agreed to participate in the study.

Exclusion criteria: Women aged less than 60 years, and those who refused to participate in the study.

The total number of elderly women with breast cancer was 800 patients in 2021, according to the annual statistics of the Kirkuk Oncology Center where the study was to take place. The sample size was determined as 20-25% of the total size according to the percentage, and 257 women with breast cancer were selected. Seven women were very tired and did not agree to participate in the study.

2.5 Pilot Study

A pilot study was carried out between January 20th, 2022 and January 28th, 2022.

The pilot study aimed to

- 1- Identify the barriers that may be encountered during data collection.
- 2- Estimate the time required for data collection.
- 3- Be sure of the accuracy of the scales.
- 4- Determine the reliability of the study scales.

2.6 Reliability

Cronbach's alpha correlation coefficients were calculated using a split-half design on a subset of 10 women who were randomly chosen from the original sample to assess the questionnaire's reliability. It took approximately 10-20 minutes to complete. The result of correlation was 0.86. It was computed with the use of the following formula:

$$r = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}}$$

n = Number of question

x = Even

y = Odd

$\sum xy$ = Summation of even and odd. (Polit & Hungler, 1999).

2.7 Data collection tools

The Beck Depression Inventory (BDE) and a questionnaire that recorded the sociodemographic information, health, and social data of older adults were used in the study. The questionnaire was designed by the authors according to the literature (Vahdaninia *et al.*, 2009; Tsaras *et al.*, 2018). The Beck Depression Inventory (BDE)

was used to determine the level of depression in the study (Appendix 1). The BDE is a measure first developed by Beck and colleagues (Beck *et al.*, 1961). This scale has been used in many countries around the world to determine the level of depression both in people living in the community and in patients (Wang and Gorenstein, 2013). The validity and reliability of the Arabic language for the scale were tested by West (1985). The scale was translated into Arabic and applied in four Arab countries, Saudi Arabia, Kuwait, Lebanon, and Egypt, and it was reported to be a valid and reliable scale for Arab culture (Abdel-Khalek, 1998). It was applied to pregnant women in Qatar (Naja *et al.*, 2019), educators in Egypt (Desouky and Allam, 2017), and parents of children with leukemia in Iraq (Lutfi and Al-Lami, 2019) to determine depression levels. The scale consists of a total of 21 questions, in the type of. Each question is scored between 0 and 3, and the total score ranges between 0 and 63. The cut-off score is 17. A score from 0 to 16 indicates no depression. Mild depression is between 17 and 20 points, moderate depression is between 21 and 30 points, severe depression is between 31 and 40 points, and major depression is 41 points or more (Lutfi and Al-Lami, 2019). The second questionnaire, which records sociodemographic data and other variables, was developed by the researchers. These variables were designed to detect factors that influence depression in breast cancer (Appendix 1).

2.8 Data analysis

The researchers here used a power analysis to figure out how many samples to include in their analysis. The power values for various sample sizes were determined using G-Power 3.1.9.4 software. 5% margin of error ($\alpha=0.05$) was taken while calculating the power values. Within the scope of the independent samples t-test applied for the variable of depression level from the reference study (Ismail *et al.*, 2012) the effect value was calculated as approximately $d=0.0436$. According to the power values, a test power of 96.61% is reached if a total of 250 observations are studied in this study. Figure 1 shows the graph of power values according to the number of samples.

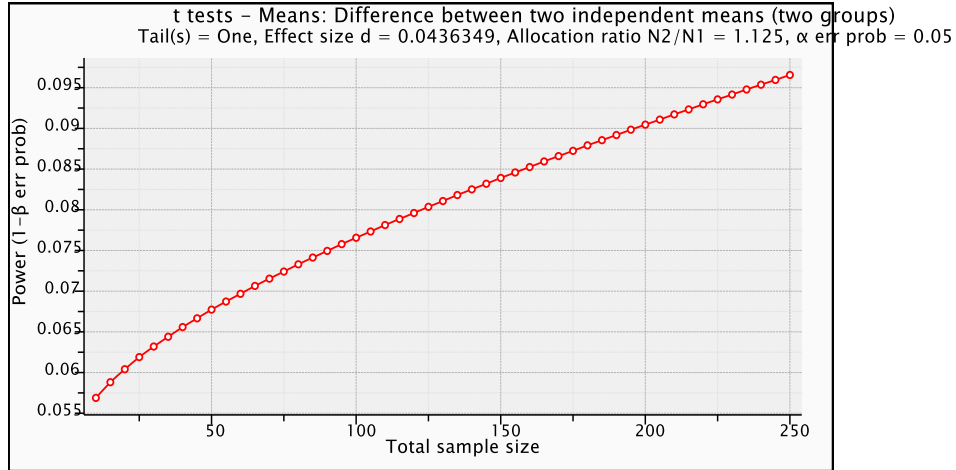


Figure 1. Power values for different number of samples

In the statistical analysis part of the study, frequency analysis, mean comparison tests and ordinal logistic regression analysis were applied. In addition, in order to decide on the statistical tests to be used, the compatibility of the data with the normal distribution was checked with the Shapiro-Wilk or Kolmogorov-Smirnov tests. Accordingly, Mann Whitney U or Kruskal-Wallis tests from non-parametric tests and One Way Anova (F test) from parametric tests were applied in average comparisons according to the number of groups. First, frequency analyzes of the demographic characteristics of the participants were presented. In frequency analysis, percentage (%) and frequency (n) values of the groups are shown together. Summary statistics were calculated for the quantitative variables in the study. The margin of error was taken as 5% in the evaluation of the statistical analysis findings. Applications were carried out with Statistical package for social sciences SPSS (24).

2.9 The Ethical Dimension

On 1 December 2021, ethical approval No 41171 was obtained from the ethics committee of the Kirkuk Health Department in Iraq, where the researcher provided a detailed description that included the purpose and methodology of the study (Appendix 2) for hospital admissions (Appendix 2), and on 7 February 2022, ethical approval was obtained from Çankırı Karatekin University (Appendix 3). The participants were verbally informed of the objectives of the study and were asked to participate voluntarily, and they were assured of non-disclosure. To ensure the confidentiality of the participants, no names were written during data collection and reporting. They were also informed that they could refuse to answer a particular question or withdraw from the study at any time without any penalty.

3 RESULTS

The search results are presented in two parts:

- Descriptive characteristics of the research group
- Determination of the level of depression of the research group

Table (1): Distribution of study sample (n=250) according to Socio-demographic characteristics

Socio-demographic characteristic		Frequency (<i>f</i>)	Percentage (%)
Age	60-69 years	145	58.00
	70-79 years	67	26.80
	80-89 years	27	10.80
	90 years and above	11	4.40
Total		250	100.0
Mean $\pm$ SD = 1.62 $\pm$ 0.848			
Residence	Urban	145	58.00
	Rural	105	42.00
Total		250	100.0
Level of Education	Illiterste	70	28.00
	Reading and writing	63	25.20
	Primary school graduate	42	16.80
	Middle school graduate	32	12.80
	Preparatory school graduate	23	9.20
	Institute	9	3.60
	Masters and above	11	4.40
Total		250	100.0
Marital Status	Married	215	86.00
	Single	35	14.00
Total		250	100.0
Occupation	Housewife	152	60.80
	Retired	22	8.80
	Employee	49	19.60
	Self-employed	27	10.80

Total		250	100.0
Family monthly income	Sufficient	79	31.60
	Barely Sufficient	115	46.00
	Insufficient	56	22.40
Total		250	100.0
Is your house yours	Yes	161	64.40
	No	89	35.60
Total		250	100.0
Family type	Nuclear	118	47.20
	Extended	132	52.80
Total		250	100.0
Number of Pregnancies (Live Births)	1-2	27	10.80
	3-4	85	34.00
	5-6	59	23.60
	7 and above	45	18.00
	None	34	13.60
Total		250	100.0
Body Mass Index	Underweight = <18.5	166	66.40
	Normal weight = 18.5–24.9	50	20.00
	Overweight = 25–29.9	23	9.20
	Obese = BMI of 30 or greater	11	4.40
Total		250	100.0

Table 1 demonstrates the socio-demographic characteristics of the whole study sample and shows the frequency analysis results. When the results are examined, it is seen that 58% of the participants are in the 60-69 age range, 26.80% are in the 70-79 age range, 10.80% are in the 80-89 age range, and 4.40% are aged 90 and over. Also, 42% of the participants live in rural areas and 58% in urban areas. When the level of education variable is examined, it is seen that 28% of the participants were illiterate, 25.20% could read and write, 16.80% were primary school graduates, 12.80% were middle school graduates, 9.20% were preparatory school graduates, 3.60% were institute graduates and 4.40% had a master's degree or above. Regarding marital status, 86% of the participants were married and 14% were single. When the occupation variable is examined, it is seen that 60.80% of the participants were housewives, 8.80% were retired, 19.60% were employed and

10.80% had freelance jobs. When the monthly family income variable is examined, it is seen that 31.60% had sufficient income, 46% of the participants had barely sufficient income and 22.40% had insufficient income; 64.60% of the participants have their own house and 35.60% do not have their own house. Also, 47.20% of the participants had a nuclear family and 52.80% had an extended family. When the variable "number of pregnancies (live births)" variable is examined, it is seen that 10.80% of the participants had 1-2, 34% had 3-4, 23.60% had 5-6, 18.% had 7 or more, and 13.60% had never given birth. For the Body Mass Index variable, 66.40% of the participants were underweight, 20.00% were normal weight, 9.20% were overweight and 4.40% were obese.

Table (2): Distribution of study sample (n=250) according to general lifestyle & habits

General Lifestyle & Habits		Frequency (f)	Percentage (%)
Number of daily working hours	Seat	27	10.80
	6 hours / day	85	33.60
	8 hours / day	91	36.40
	10 hours / day	39	15.60
	12 hours / day	9	3.60
Total		250	100.0
Nature of work	Sedentary	27	10.80
	Requires little muscle effort	112	44.80
	Requires moderate muscle exertion	90	36.00
	Requires great muscle exertion	21	8.40
Total		250	100.0
Do you take regular walks?	Yes	146	58.40
	No	104	41.60
Total		250	100.0
Do you smoke?	Yes	23	9.20
	No	192	76.80
	X-smoke	35	14.00
Total		250	100.0
Do you drink alcohol?	Yes	2	0.80

	No	248	99.20
Total		250	100.0
Sleeping	Insomnia	53	21.20
	Little sleep	98	39.20
	Normal sleep	99	39.60
Total		250	100.0

As seen in Table 2, 10.80% of the participants had a sedentary job, 33% of them worked for six hours, 36.40% for eight hours, 15.60% for 10 hours, and 3.60% for 12 hours. When the nature of their work is examined, it is seen that 10.80% of the participants had a sedentary job, for 44.80% of the participants it required little muscle effort, for 36% it required moderate muscle exertion and for 8.40% it required great muscle exertion. Also, 58.40% of the participants took regular walks and 41.60% did not. For the variable “Do you smoke?”, 9.20% of the participants answered yes, 76.80% no, and 14% answered x-smok. Also, 0.80% of the participants drank alcohol and 99.20% did not. When the trouble in sleeping variable is examined, it is seen that 21.20% of the participants had insomnia, 39.20% had little sleep and 39.60% had normal sleep.

Table 3: Distribution of study sample (n=250) according to history of breast cancer

History of Breast Cancer		Frequency (f)	Percentage (%)
Family history for breast cancer	Yes	119	47.60
	No	131	52.40
Total		250	100.0
Stage of breast cancer	First stage	35	14.00
	Second stage	108	43.20
	Third stage	107	42.80
Total		250	100.0
Treatment type of breast cancer	Surgical	18	7.20
	Chemotherapy	193	77.20
	Radiation	39	15.60
Total		250	100.0
Chemotherapy	1-5 hours	35	14.00

administration per 21 days	6-10 hours	92	36.80
	11-15 hours	46	18.40
	16 hours & above	8	3.20
	Others, e.g radiation, tablet, surgically	69	27.60
Total		250	100.0
Chemotherapy side effect	Yes	177	70.80
	No	73	29.20
Total		250	100.0
Type of surgery for breast cancer	Partial	87	34.80
	Total	163	65.20
Total		250	100.0
Age when breast cancer was first diagnosed	1-2 years	216	86.40
	3-5 years	23	9.20
	6 years or above	11	4.40
Total		250	100.0
Which breast has cancer?	Right	106	42.40
	Left	113	45.20
	Both	31	12.40
Total		250	100.0

As Table 3 shows, 47.60% of the participants had a family history of breast cancer and 52.40% had no history of breast cancer. Also, 14.00% of the participants were in the first stage of breast cancer, 43.20% are in the second stage and 42.80% were in the third stage. When the treatment method of cancer is examined, it is seen that 7.20% of the participants had had surgery, 77.20% had had chemotherapy and 15.60% had had radiation. When the variable of hourly chemotherapy application every 21 days is examined, 14.00% had 1-5 hours, 36.80% had 6-10 hours, 18.40% had 11-15 hours, and 3.20% received 16 hours or more of chemotherapy. Also, 27.60% of the participants had radiation, tablets or surgery. While 70.80% of the participants had chemotherapy side effects, 29.20% did not have any side effects. When the type of surgery variable is examined, it is seen that 34.80% of the participants had partial surgery, while 65.20% had total surgery, The variable of time of breast cancer diagnosis showed that 86.40% were diagnosed 1-2 years previously,

9.20% were diagnosed 3–5 years previously, and 4.40% were diagnosed 6 years or more previously. Finally, 42.40% of the participants had right breast cancer, 45.20% had left breast cancer, and 12.40% had cancer in both breasts.

Table (4): Distribution of study sample (n=250) according to medical and psychological history

Medical & Psychological history		Frequency (f)	Percentage (%)
Do you have any chronic diseases?	Hypertension	46	18.40
	D.M	41	16.40
	Heart Disease	2	0.80
	Renal Disease	9	3.60
	None	152	60.80
Total		250	100.0
Do you have a previously diagnosed psychiatric illness?	Yes	17	6.80
	No	233	93.20
Total		250	100.0
Are you currently being treated by a psychiatrist or a psychologist?	Yes	18	7.20
	No	232	92.80
Total		250	100.0
Are you taking any antidepressant or antipsychotic drugs?	Yes	20	8.00
	No	230	92.00
Total		250	100.0

As seen in Table 4, for the concomitant disease variable, 18.40% of the participants had hypertension, 16.40% had D.M., 0.80% had heart disease, 3.60% had renal disease, and 60.80% had none. When asked whether they had a previously diagnosed psychiatric illness, 6.80% of the participants said yes and 93.20% said no. Also, 7.20% of the participants were currently being treated by a psychiatrist or

psychologist, and 92.80% were not. Also, 8.0% of the participants use an antidepressant or antipsychotic and 92% did not.

Table (5): Distribution of level of depression (Beck Depression Inventory) among women with breast cancer

Depression level	Score	Frequency	Percentage	Mean
Normal	0-16	132	52.80	26.4
Mild	17-20	44	17.60	8.8
Moderate	21-30	58	23.20	11.6
Severe	31-40	14	5.60	2.8
Extremely severe	41 -63	2	0.80	0.4
Total		250	100%	

As seen in Table 5, when the level of the depression variable is examined, it is seen that 52.8% of the participants were normal, 17.6% had mild depression, 23.2% had moderate depression, 5.6% had severe depression, and 0.8% had extremely severe depression.

Table 6: . Summary statistics for quantitative variables

Variables	n	Mean	SD	Min.	Max
What was your age when breast cancer was first diagnosed?	250	64.58	8.83	49	98
Total depression scale score	250	16.60	8.31	0	41

SD: Standard deviation. Min: Minimum. Max: Maximum.

Table 6 shows the descriptive statistics of the participants in the research. The mean age of the participants when diagnosed with breast cancer was 64.58 and the depression scale mean score was 16.60.

Table 7: Comparison of depression total score according to independent variables

Variables		n	Mean	Std. Deviation	Median	Test Statistics	P	Significant Differences
Age	60-69 years	145	17.81	8.29	18.00	6.43	0.092 ^a	-
	70-79 years	67	14.96	9.05	14.00			
	80- 89 years	27	15.33	7.00	16.00			
	90 years & above	11	13.91	3.62	15.00			
Residence	Rural	105	14.45	7.86	13.00	3.73	<0.001 ^a	
	Urban	145	18.17	8.32	18.00			
Level of education	Illiterate ¹	70	14.04	7.27	13.00	15.63	0.016 ^b	3>1,4>1, 5>1
	Reading and writing ²	63	16.02	7.66	15.00			
	Primary school ³ graduate	42	17.29	8.26	17.00			
	Middle school graduate ⁴	32	20.00	8.04	18.00			
	Preparatory school graduate ⁵	23	20.17	10.87	20.00			
	Institute ⁶	9	14.78	6.50	15.00			
	Master's degree or above ⁷	11	17.82	10.00	17.00			
Marital status	Married	215	17.00	8.33	16.00	-1.94	0.052 ^a	
	Single	35	14.20	7.92	13.00			
Occupation	Housewife	152	15.48	7.66	15.00	9.96	0.019 ^b	3>1,4>1
	Retired	22	15.91	8.42	15.00			
	Employee	49	19.00	8.79	19.00			
	Self employed	27	19.15	9.85	20.00			
Number of pregnancies (live births)	1-2	27	17.70	9.60	18.00	14.28	0.006 ^b	1>4,2>4, 3>4,2>5, 3>5
	3-4	85	17.60	7.97	17.00			
	5-6	59	18.19	8.60	18.00			
	7 & more	45	13.87	7.38	12.00			
	Non	34	14.12	7.78	13.50			
Body Mass Index	Underweight = <18.5	166	17.55	8.60	17.00	5.82	0.12 ^b	
	Normal weight = 18.5–24.9	50	14.92	7.85	15.00			
	Overweight = 25–29.9	23	15.35	7.46	15.00			
	Obese = BMI of 30 or greater	11	12.64	5.35	12.00			
Number of daily	Seat	27	13.52	7.52	12.00	6.81	0.146 ^b	

working hours	6 hours	84	16.54	8.18	17.00			
	8 hours	91	16.53	7.34	16.00			
	10 hours	39	18.59	10.48	19.00			
	12 hours	9	17.00	8.69	18.00			
Nature of work	Sedentary	27	13.52	7.52	12.00	7.37	0.061 ^b	
	Requires little muscle effort	112	16.31	7.95	15.50			
	Requires moderate muscle exertion	90	17.41	8.41	17.50			
	Requires great muscle exertion	21	18.67	10.12	18.00			
Variables		n	Mean	Std. Deviation	Median	Test Statistics	P	Significant Differences
Monthly family income	Sufficient	79	16.42	8.54	17.00	0.24	0.887 ^b	
	Barely Sufficient	115	16.50	8.29	15.00			
	Insufficient	56	17.09	8.18	15.00			
Is your house yours?	Yes	161	16.41	8.26	16.00	0.61	0.548 ^b	
	No	89	16.96	8.46	15.00			
Family type	Nuclear family	118	17.47	8.45	17.00	-1.79	0.072 ^a	
	Extended family	132	15.83	8.15	15.00			
Do you take regular walks?	Yes	146	18.18	8.80	18.00	-3.57	<0.001 ^a	
	No	104	14.38	7.05	14.00			
Do you smoke?	Yes	23	13.39	8.48	14.00	2.57	0.079 ^c	
	No	192	17.20	8.43	17.00			
	X-Smoke	35	15.46	7.14	15.00			
Do you drink alcohol?	Yes	2	10.00	11.31	15.50	0.93	0.351 ^a	
	No	248	16.66	8.29	15.50			
Trouble sleeping	Insomnia	53	18.43	8.11	19.00	5.51	0.063 ^b	
	Little sleep	98	16.81	7.76	15.00			
	Normal sleep	99	15.42	8.84	15.00			
Do you have a family history of breast cancer?	Yes	119	18.13	8.96	17.00	-2.22	0.026 ^a	
	No	131	15.21	7.45	15.00			
Stage of breast cancer	First stage	35	15.20	9.65	15.00	1.74	0.418 ^b	
	Second stage	108	16.13	7.85	15.00			
	Third stage	107	17.54	8.29	16.00			
Cancer treatment type	Surgical	18	19.89	11.20	20.50	3.12	0.21 ^b	
	Chemotherapy	193	16.29	7.97	15.00			

	Radiation	39	16.64	8.41	15.00			
Chemotherapy administration per 21 days	1-5 hours	35	13.26	5.69	13.00	1.89	0.112 ^c	
	6-10 hours	92	16.83	6.96	16.50			
	11-15 hours	46	17.09	9.48	18.00			
	16 hours or more	8	19.63	11.02	19.50			
	Radiation, tablet, surgery	69	17.33	9.63	16.00			
Chemotherapy side effects	Yes	177	16.16	7.39	15.00	0.88	0.376 ^a	
	No	73	17.67	10.20	16.00			
Type of surgery	Partial	87	16.26	8.31	15.00	0.51	0.605 ^a	
	Total	163	16.79	8.34	17.00			
Which breast has cancer?	Right	106	17.76	8.22	18.00	5.59	0.061 ^b	
	Left	113	15.99	7.96	15.00			
	Both	31	14.87	9.60	12.00			
Variables		n	Mean	Std. Deviation	Median	Test Statistics	P	Significant Differences
Do you have any chronic diseases?	Hypertension	46	17.02	7.71	15.50	4.47	0.347 ^b	
	DM	41	15.34	6.97	14.00			
	Heart Disease	2	27.00	5.66	27.00			
	Renal Disease	9	18.89	9.53	15.00			
	Non	152	16.55	8.73	16.00			
Do you have a previously diagnosed psychiatric illness?	Yes	17	22.41	8.56	22.00	-2.79	0.005^a	
	No	233	16.18	8.16	15.00			
Are you currently being treated by a psychiatrist or psychologist?	Yes	18	24.11	9.49	23.50	-3.33	0.001^a	
	No	232	16.02	7.95	15.00			
Are you taking any antidepressant or antipsychotic drugs?	Yes	20	23.45	9.44	23.00	-3.25	0.001^a	
	No	230	16.01	7.96	15.00			

^aMann Whitney U, ^bKruskal Wallis, ^cOne Way Anova (F test)

As seen in Table 7, according to the comparison of the depression scale total scores of the participants in the research according to the independent variables, Mann-Whitney U test result, depression scale median total scores is statistically

significant according to residence, taking regular walks, family history for breast cancer, having a previously diagnosed psychiatric illness, currently being treated by a psychiatrist or psychologist and taking any antidepressant or antipsychotic medication ($p < 0.05$). The Kruskal-Wallis test results showed that the depression scale median total scores differed statistically significantly according to the variables of level of education, occupation, number of pregnancies (live births) and family history for breast cancer. ($p < 0.05$). In addition, when the pairwise comparison results are examined, it is seen that the depression scale scores of the participants who are at the primary school graduate education level are higher than the scores of those who were illiterate. The depression scale scores of the participants at the middle school graduate and preparatory school graduate education level are higher than those who are illiterate. Employed and self-employed participants had higher depression scale scores than housewives. The depression scale scores of the participants with 1-2, 3-4 and 5-6 live births were higher than the participants who had 7 or more live births. In addition, the scores of the participants who had 3-4 and 5-6 live births were higher than the participants who did not have any children. If there is a significant difference in the Kruskal Wallis test, the Mann Whitney U test is used for pairwise comparisons. If there are significant differences in the anova test, then appropriate tests are used for pairwise comparison tests, such as the Tukey, Duncan or Bonferroni tests.

The ordinal logistic regression model was created using the Logit link function. Parallel lines assumption was provided from the ordinal logistic model assumptions and the goodness of fit tests of the model gave statistically significant results. Parallel lines assumption results are given in Table 8 below.

Table 8: Parallel lines assumption test result

Model	-2 Log Likelihood	Chi-Square	df	p
Null hypothesis	83.676			
General	69.485	14.190	12	0.289

df: degree of freedom

As seen in Table 8, the estimated regression coefficients are the same in each category and the parallel lines assumption is met ($p>0.05$). The fit test results of the model are given below.

Table 9: Goodness of fit for ordinal logistic regression analysis

	Chi-Square	Df	p
Pearson	26.810	24	0.313
Deviance	28.784	24	0.228
Link: Logit. df: degree of freedom			

As seen in Table 9, the ordinal logistic regression model with the Logit link function is suitable ($p>0.05$).

The results of the ordinal logistic regression analysis, which were created to determine the factors affecting the depression level variable, are given in Table 10 below.

Table 10: Ordinal logistic regression models results

Variables			Standard Deviation	Wald	p	Odds Ratio (OR)
Residence	Rural	-0.679	0.300	5.133	0.023	0.507
	Urban	Reference group				
Level of education	Illiterste	0.434	0.767	0.320	0.572	1.543
	Literate	0.432	0.710	0.370	0.543	1.540
	Primary school graduate	0.881	0.726	1.473	0.225	2.414
	Middle school graduate	0.948	0.726	1.703	0.192	2.579

	Preparatory school graduate	0.794	0.775	1.049	0.306	2.212
	Institute	0.155	0.908	0.029	0.865	1.167
	Master's degree or above	Reference group				
Occupation	Housewife	-0.699	0.443	2.490	0.115	0.497
	Retired	-1.300	0.621	4.382	0.036	0.272
	Employee	-0.307	0.475	0.419	0.517	0.735
	Self employed	Reference group				
Number of pregnancies (live births)	1-2	0.396	1.348	0.086	0.769	1.487
	3-4	0.441	1.283	0.118	0.731	1.554
	5-6	0.557	1.315	0.180	0.672	1.746
	7 & more	0.199	1.335	0.022	0.881	1.220
	Non	Reference group				
Do you take regular walks?	Yes	0.593	0.300	3.917	0.048	1.810
	No	Reference group				
Do you have a family history for breast cancer?	Yes	0.247	0.284	0.762	0.383	1.281
	No	Reference group				
Do you have a previously diagnosed psychiatric illness?	Yes	-1.009	1.259	0.643	0.423	0.365
	No	Reference group				
Are you currently being treated by a psychiatrist or a psychologist?	Yes	-0.282	1.503	0.035	0.851	0.755
	No	Reference group				
Do you taking any antidepressant or antipsychotic drugs?	Yes	2.131	1.879	1.287	0.257	8.422
	No	Reference group				

When the analysis results given in Table 10 are examined, it is seen that there is a statistically significant relationship between the variables of residence, occupation and taking regular walks and the variable of depression levels ($p < 0.05$). When the reference group is taken as urban for the residence variable, the depression risk of the rural participants is 0.50 (1-OR) times less than that of the urban participants. When participants who did not take regular walks was taken for the reference group

variable for the variable of taking regular walks, the risk of depression was 1.81 times higher in the participants who took regularly walks.

Table 11: The relationship between the ages at which the participants were first diagnosed with breast cancer and their total depression scale scores

Variable		Total depression scale score	Age when breast cancer was first diagnosed
Total depression scale score	Correlation Coefficient	1.000	-0.145*
	P	-	0.022
	N	250	250
Age when breast cancer was first diagnosed	Correlation Coefficient	-0.145*	1.000
	P	0.013	-
	N	250	250

As seen in Table 11, the relationship between the total depression scale score and age at which breast cancer was first diagnosed was analyzed with Spearman's Rho correlation coefficient. When the results were examined, it was seen that there was a low negative correlation between the variables.

4 DISCUSSION

The goal of this research was to establish independent markers of the risk of mental illnesses among older women by assessing the variables influencing the depression levels of those who had been diagnosed with breast cancer at the Kirkuk Oncology Center. According to our results, 47.20% of patients with depressive symptoms, and their place of residence is an essential indicator of depression risk.

However, in this study, more than a quarter of participants experienced moderate depression, which is not similar to a study by Avis *et al.* (2012), who reported that women with breast cancer experienced mild depression. This study contrasts with a study conducted in the state of Santa Catarina, Brazil, which showed that 80.4% of the study sample did not experience symptoms of depression (Boing *et al.*, 2019). This study showed that more than half of the study sample did not experience symptoms of depression. Perhaps the reason for this difference is that the country of Iraq has been exposed to wars for many years.

The results of this study showed that there is a statistically significant effect between educational level and depression, and that there is a positive relationship, that is, the lower the educational level, the less depression. The current study is consistent with another study showing that less educated women showed fewer depressive symptoms (Bener *et al.*, 2017), which reported a significant effect between education level and incidence of depression. In contrast to a study by Inhester *et al.* (2017), the majority of illiterate women or those with lower levels of education were found with the highest prevalence of breast cancer the prevalence of anxiety is more in women who suffer from illiteracy or low levels of education.

The current study showed the opposite of another study, which showed that low and high levels of education had the same prevalence. In a study by Rogers *et al.* (2017), it was found that lower educational levels are predictors of comorbidity in breast cancer patients. In some way, this can be explained by the fact that patients

with a higher educational level have a greater chance of being aware of their disease and its related aspects.

Other studies have shown the opposite of our findings that the relationship between the level of education and depression is a negative one, as they have shown that higher education is associated with low levels of depression (Boing *et al.*, 2019). Regarding the relationship between education and depression, the results of our study are similar to those of other researchers who have shown that higher education is associated with lower levels of depression (Shen, 2020).

The results of this study showed a no statistically significant effect between the variable of smoking and depression. This result disagrees with a study by Choi *et al.* (2016), which showed that the variable of smoking had a significant effect on depression, $p < 0.001$, which was higher for x-smoke. This result also disagrees with the study of Paek *et al.* (2021), which reported a statistically significant positive effect between current smokers and depression for breast cancer patients ($p < 0.001$). The reason for this is that women in Iraq mostly do not smoke, and so the reason is socio-cultural.

In addition, the results of this study showed a statistically insignificant effect between the variable of sleeping and depression. Previous research has shown a correlation between slow sleep response time and depressed symptoms in breast cancer survivors, along with a link between sleep quality, sleep length, and sadness (Budhrani *et al.*, 2015).

In this study, 42.80% of the participants were diagnosed with stage three breast cancer, and these results are consistent with a study conducted by Tsaras *et al.* (2018), which stated that 44.1% were diagnosed with stage three breast cancer.

However, the research found no statistically significant link between BMI and low mood. It's possible that the high rates of missing data in the eating habits and family history of depression variables account for the absence of a correlation. This result disagrees with the study of Luppino *et al.* (2010), which reported a statistically significant effect between body mass index and depression for elderly women with breast cancer ($p < 0.05$), showing that there was a correlation between depression and

obesity, and that obesity increased the risk of developing depression. The result of this study disagrees with the previous study because the Iraqi population are mostly overweight because of irregularity in diet.

Though married status would be more relevant for the well-being of middle-aged and older people, the findings of this research demonstrated no statistically significant link between marital status and depression. On the other side, being single may increase your risk of developing depression. Married people had higher depression than single people. This result is in disagreement with the study of Paek *et al.* (2021), which reported a statistically significant effect between marital status and depression for women with breast cancer ($P < 0.05$). Morell *et al.* (2008) showed a direct relationship between being single and depression, with the higher the incidence of being single or divorced, the greater the depression.

This research found a statistically significant correlation between older women's likelihood of living in an urban area and their level of depression due to breast cancer. This positive correlation increased as the likelihood of living in an urban area decreased. In addition, living in a certain region was proven to be a strong indicator of despair and anxiety among breast cancer survivors. There is a lack of consensus in the available research about the correlation between depression and place of residence among breast cancer patients and cancer patients in general (Lavdaniti *et al.*, 2012).

This study also showed a statistically significant effect between occupation and depression in elderly women with breast cancer. The variable of having a job at the time of diagnosis has not been sufficiently studied. There are indications that a large number of women with breast cancer are not able to work as they are too ill (Piroth *et al.*, 2022). The likelihood that an unemployed woman would report moderate or severe depression was about three times higher than that of a woman who was gainfully employed. The rate of depression among retirees was double that of working women. Previous studies have shown that women with breast cancer who are jobless or retired had a higher risk of depression (Lindbohm *et al.*, 2014).

The results of this study also showed a statistically significant effect between taking regular walks and depression in elderly women with breast cancer, as it showed that there was a positive relationship, which meant that taking regular walks indicated greater depression. There are numerous studies that point to the role of regular physical activity in decreasing the risk of breast cancer (Veronesi *et al.*, 2005).

The intensity and duration of physical exercise are also useful in reducing the incidence of breast cancer, according to the research. They stress that a woman's risk of breast cancer may drop by 10–70% if she leads an active lifestyle, and by an additional 30–40% if she exercises frequently for 3–4 hours per week (Mertens *et al.*, 2006). Women in Iraq do not participate in regular walking and sufficient physical activity, which is one reason for the increase in depression in women with breast cancer. The reason is also due to the fact that we did not ask the question about the exact number of walking hours, so their answers were inexact.

Finally, the study showed a statistically significant positive effect between the family history of cancer and depression in elderly women with breast cancer. Evidence of a relation between a family history of breast cancer in first degree relatives and breast cancer risk has been well documented by many studies with different study designs. A study carried out with Latina women with breast cancer showed no significant data between family history and symptoms of depression (Crane *et al.*, 2019). In contrast in a study conducted in Turkey, data showed significant results between having depression and a family history of breast cancer (Daştan *et al.*, 2011).

5. CONCLUSION

The research was conducted on 250 patients in order to determine the relationship between depression and demographic data and reached the following conclusions:

1. The depression scale was normal in most of the study sample, with a mean score of 26.4.
2. The depression scale median total scores differed statistically significantly according to the variables of the level of education, the number of pregnancies (live births), and a family history of breast cancer ($p<0.05$).
3. There was a statistically significant relationship between the variables of place of residence, occupation and taking more regular walks and the variable of depression levels ($p<0.05$).
4. There was a low negative correlation between the total depression scale score and the age when breast cancer was first diagnosed.

4.1 Recommendations

In line with the results obtained from the research:

- The quality of nursing care must be increased by creating awareness of the disease and ways to coexist with it, which will increase the quality of nursing care for patients and make them feel more effective and efficient, and will meet the training needs in this field.
- According to the results of the study, policies can be made to raise the level of education of women. Improving the social security system can relieve the elderly and women with cancer from having to work. Early diagnosis of those with a family history of cancer with routine nursing screenings is useful in disease management. These policies will lower depression in older women with breast cancer.

- The availability of a psychiatric nurse or clinical psychologist who is trained to provide effective psycho-oncological treatment to patients at risk for developing psychopathological disorders would also be of great use to cancer care in the area.



Genişletilmiş Türkçe Özet / Extended Turkish Abstract

Giriş: Meme kanseri, kadınlar arasında önemli morbiditeye neden olan ve dünya çapında sağlık sistemi üzerinde muazzam bir yüke neden olan önde gelen malignitelerden biridir. GLOBOCAN2020 hakkında yakın zamanda yayınlanan bir rapora göre, 2020'de 2,3 milyon yeni teşhis edilmiş vaka vardır ve bu, yeni teşhis edilen tüm kanser vakalarının %11,7'sini oluşturmaktadır. Meme kanserinin ayrıca 684.996 kansere bağlı ölüme neden olduğu bildirilmiştir. 2020 yılında meme kanserinin yaşa göre standardize edilmiş insidans hızı (ASIR) ve yaşa göre standardize edilmiş ölüm oranı (ASMR) tüm kanser türleri arasında sırasıyla birinci ve ikinci sırada yer aldı. Meme kanseri insidansı tipik olarak yüksek gelirli ülkelerde daha yüksektir. Bununla birlikte, son on yılda, yaşlanma, ekonomik geçiş ve meme kanseri ile ilişkili risk faktörlerine artan maruziyete atfedilebilecek Çin gibi önceki düşük insidanslı ülkelerde artmıştır. Bu nedenle, meme kanseri önleme ve kontrolüne yönelik stratejileri daha iyi geliştirmek ve başlatmak için, meme kanseri insidansı ve mortalitesindeki küresel eğilimleri ve risk faktörlerini anlamak çok önemlidir.

Aynı zaman aralığında, Nijerya, Malavi ve Seyşeller gibi Sahra-altı Afrika ülkeleri, her yıl %5'in üzerinde en yüksek meme kanseri insidans oranı artışını yaşadılar . Güney Afrika'nın Doğu Burnu ve Zimbabwe'de yeni teşhis edilen meme kanseri vakaları da yılda %3-4 oranında artmıştır . Bu artışlar, muhtemelen batılılaşmış yaşam tarzına uyum, çocuk doğurmanın başlamasının geciktirilmesi, emzirme süresinin kısaltılması ve oral kontraseptif kullanımının artması gibi faktörlerin bir kombinasyonundan kaynaklanmaktadır ve bunların tümü meme kanseri gelişimine katkıda bulunmaktadır .

Irak'ta yeni kanser vakalarının insidans oranı eğilimi 2000 yılından (52.00/100.000) 2019 yılına (91.66/100.000) yükseldi. Meme kanseri, Iraklı kadınlar arasında ana ölüm nedenidir ve 2019'da ülkede kaydedilen tüm kanser vakalarının yaklaşık üçte birini oluşturmaktadır. 2019 yılında ilk on kanser arasında en yüksek yüzde ve

insidans oranı meme kanseri (sırasıyla %34,08, 35,95/100.000) ve en yüksek kanser yüzdesi ve ölüm oranına sahiptir (sırasıyla %22,58, 6,22/100.000) (Irak Kanser Kurulu, 2019). Meme kanseri, çoğu kanser gibi, yaşlanan bir hastalıktır. Sürveyans epidemiyolojisi ve Nihai Sonuçlar kayıt defterine göre, ortalama meme kanseri teşhisi yaşı 62'dir ve teşhis konulan kadınların yaklaşık %20'si 75 yaşın üzerindedir.

Amaç: Bu çalışmanın amacı, Kerkük Onkoloji Merkezi'nde meme kanseri tanısı alan yaşlı kadınların depresyon düzeylerini etkileyen faktörlerin belirlenmesidir.

Yöntem: Irak, Kerkük Onkoloji Merkezi'nde, 10 Şubat 2022 ve 10 Ağustos 2022 tarihleri arasında tedavisi devam eden meme kanserli (250) yaşlı kadından oluşan tanımlayıcı, , olasılık dışı (amaçlı örneklem) bir çalışma yapılmıştır. Veriler görüşme tekniği (yüz yüze) ile toplanmış ve ve anket kullanılmıştır. Bu anketler, yaşlı kadınların sosyodemografik verileri ve depresyon düzeylerini etkileyebilecek içeren sorulardan oluşmakta olup, ayrıca depresyon düzeyini belirlemek için "Beck Depresyon Envanteri" kullanılmıştır. Frekans analizi, ortalama karşılaştırma testleri ve sıralı lojistik regresyon analizi uygulanmıştır.

Bulgular: Meme kanserli yaşlı kadınlardan oluşan katılımcılarda; kentte yaşayan, lise mezunu olan, çalışan, çok doğum yapmış olan, düzenli yürüyen, ailesinde meme kanseri öyküsü olan, daha önce psikiyatrik bir tanı konulmuş olan ve psikiyatrik ilaç kullananlarda depresyon seviyesi anlamlı olarak yüksekti. Katılımcıların % 52.8'inde depresyon yoktu, ancak, % 17.60'ında hafif, %23,2'sinde orta derece, %5,6'sında şiddetli ve %0,8'inde ise çok şiddetli depresyon vardı. Regresyon analizinde, kentte yaşama, çalışıyor olma ve yürüyüş yapma değişkenleri depresyon düzeyini artırdı. Ayrıca, toplam depresyon ölçeği puanı ile meme kanserinin ilk tanı konduğu yaş arasında düşük bir negatif korelasyon konusu olmuştur.

Sonuç ve Öneriler: Bu çalışmanın sonuçlarına göre; kadınların eğitim düzeyinin artırılmasına yönelik politikalar üretilebilir. Sosyal güvenlik sisteminin iyileştirilmesi, yaşlı ve kanserli kadınların çalışmak zorunda kalmasını önleyebilir. Rutin hemşirelik taramaları ile erken tanı, aile öyküsü olanlarda hastalık yönetiminde faydalıdır. Bu politikalar, meme kanseri olan yaşlı kadınlarda depresyonu azaltacaktır.

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APPENDIX

APPENDIX 1. Questionnaire

APPENDIX 2. Approval by Ethics Committee in Iraq

APPENDIX 3. Approval by Ethics Committee in Çankiri Karatekin

APPENDIX 1. Questionnaire

Part I : Demographic data	
1- Age	1- 60-69 2- 70 – 79 3- 80 – 89 4- over 90
2- Residence	(1) Rural (2) Urban
3- Level of education	(1) Can't read or write (2) Can read and write (3) Elementary school graduate (4) Middle school graduate (5) Prep school graduate (6) Graduate of higher education (7) Master's or Doctorate graduate
4- Marital status	1- Married 2- Single
5- Profession	(1) Housewife (2) Retired (3) Employee (4) Self employed
6- Number of pregnancies (live births)	1-2 live birth (1) 3- 4 live births (2) 5 -6 live births (3) 7 or more live births (4) None (5)
7- Body Mass Index	(1) Underweight = <18.5 (2) Normal weight = 18.5–24.9 (3) Overweight = 25–29.9 (4) Obese = BMI of 30 or greater
Part II: General Lifestyle & Habits	
1- Number of daily working hours	(1) Seat (2) 6 hours / day (3) 8 hours / day (4) 10 hours / day (5) 12 hours / day
2- Nature of the work	(1) Sedentary (2) Requires little muscle effort (3) Requires moderate muscle exertion (4) Requires great muscle exertion
3- Monthly family income	(1) Sufficient (2) Barely Sufficient (3) Insufficient
4- Does your house belong to you?	(1) Yes (2) No

5- Family type	(1) Nuclear family (2) Extended family
6- Do you take regular walks?	(1) Yes (2) No
7- Do you smoke?	(1) Yes (2) No (3) x-smoke
8- Do you drink alcohol?	(1) Yes (2) No
9- Do you have sleeping problems?	(1) Insomnia (2) Little sleep (3) Normal sleep
Part III: History of Breast Cancer	
1- Family history for breast cancer	Yes (1) No (2)
2- Stage of breast cancer	1. First stage 2. Second stage 3. Third stage
3- Treatment type of cancer?	(1) Surgical (2) Chemotherapy (3) Radiation
4- Chemotherapy administration per day	Radiation, tablet, surgical type (0) 1-5 hours (1) 6-10 hours (2) 11-15 hours (3) 16 hours & above (4)
5- Chemotherapy side effects?	(1) Yes (2) No
6- Type of surgery?	(1) Partial (2) Total
7- Age when breast cancer was first diagnosed	1-2 year (1) 3-5 years (2) 6 year & above (3)
8- Which breast has cancer?	(1) Right (2) Left (3) Both

Part IV: History of Medical & Psychological Disease:	
1. Do you have any chronic diseases?	Hypertension (1) D.M (2) Heart Disease (3) Renal Disease (4) Others (5) None (6)
2- Do you have a previously diagnosed psychiatric illness?	Yes (1) No (2)
3- Are you currently being treated by a psychiatrist or a psychologist?	Yes (1) No (2)
4- Are you taking any antidepressant or antipsychotic drugs?	Yes (1) No (2)
Part II:- Depression assessment level	
1. Do you feel sad?	0- I don't feel sad. 1 I feel sad 2 - I always get sad and I can't get rid of it. 3- I'm very sad and unhappy, and it's too much to bear.
2-Does the future particularly discourage you?	0- I'm not particularly discouraged about the future. 1- I'm discouraged about the future. 2- I feel like I have nothing to expect. 3- I feel that the future is hopeless and things cannot be improved.
3. Do you feel a failure?	0- I don't feel like a failure. 1- I feel like I'm failing more than the average person. 2-When I look back on my life, all I can see is a lot of failures. 3-I feel like I've failed completely as a person.
4. Are you as satisfied with things as you used to be?	0- I'm as satisfied with everything as I used to be. 1- I don't enjoy things the way I used to. 2-I don't get real satisfaction from anything anymore. 3-I'm not happy with everything or I'm bored.
5. Do you feel guilty?	0- I don't feel particularly guilty 1- I feel guilty for most of the time. 2-Most of the time I feel fairly guilty. 3-I feel guilty all the time.
6. Do you feel punished?	0- I don't feel punished. 1- I feel like I can be punished. 2- I expect to be punished. 3-I feel punished.
7. Do you feel disappointed with yourself?	0- I don't feel disappointed with myself. 1-I'm disappointed with myself. 2-I'm disgusted with myself. 3- I hate myself.
8. Do you suspect you are worse than other people?	0 - I don't feel like I'm worse than anyone else. 1- I criticize myself for my weaknesses or mistakes.

	2- I always blame myself for my mistakes. 3- I blame myself for everything that happens.
9. Would you consider killing yourself?	0- I have no intention of killing myself. 1- I have thoughts of killing myself, but I don't make them happen. 2- I want to kill myself. 3- I would kill myself if I had the chance.
10. Do you cry all the time?	0- I don't cry more than usual. 1- I cry more now than before. 2- I cry all the time now. 3- I used to cry, but now I can't even if I wanted to
11. Does everything make you angry?	0- I'm no more bothered by things than before. 1- Now I'm a little more angry than usual. 2- Most of the time I get quite angry or angry. 3- I always feel angry.
12. Are you interested in other people?	0- I haven't lost interest in other people. 1- I'm less interested in other people than I used to be. 2- I've lost most of my interest in other people. 3- I've lost all interest in other people.
13. Do you make decisions?	0- I make as good decisions as I can. 1- I delay decision making more than ever before. 2- I have more difficulty making decisions than before. 3- I can't decide anymore.
14. Are you worried about your looks?	0- I don't feel like I look worse than I used to. 1- I worry that I look old or unattractive. 2- I feel that there are permanent changes in my appearance that do not appeal to me. 3- I believe that I look ugly.
15. Do you work?	0- I can work as well as I used to. 1- Starting to do something requires extra effort. 2- I have to push myself hard to do anything. 3- I can't do any work.
16- Do you sleep well?	0- I can sleep as usual. 1- I don't sleep as well as I used to. 2- I wake up 1-2 hours earlier than usual and have trouble falling asleep again. 3- I wake up a few hours earlier than before and can't sleep again.
17. Are you tired?	0- I'm not tired more than usual. 1- I get tired easier than before. 2- I get tired doing almost everything. 3- I'm too tired to do anything.
18. Has your appetite changed?	0- My appetite is no worse than usual. 1- My appetite is not as good as it used to be. 2- My appetite is much worse now. 3- I don't have any appetite any more.
19. Is there a change in your weight?	0- I haven't lost a lot of weight lately. 1- I've lost over five kilos. 2- I've lost over 10 kilos. 3- I've lost over 15 kilos
20. Are you worried about your health?	0- I am no more worried about my health than before. 1- I worry about physical problems such as pains, aches, nausea or constipation. 2- I am very worried about physical problems and it

	is difficult to think of more. 3-I'm so worried about my physical problems that I can't think of anything else.
21. Is there a change in your interest in sex?	0- I haven't noticed any changes in my interest in sex lately. 1- I'm less interested in sex than I used to be. 2- I have almost no interest in sex. 3-I've completely lost interest in sex.
الجزء الأول : البيانات الديموغرافية	
1- العمر (1) 60 إلى 69 سنة (2) 70 إلى 79 سنة (3) 80 إلى 89 سنة (4) أكثر من 90 سنة	
2- السكن (1) الريف (2) الحضر	
3- التدريب على المستوى (1) لا يمكن القراءة أو الكتابة (2) يمكن القراءة والكتابة (3) خريج مدرسة ابتدائية (4) خريج مدرسة متوسطة (5) تخرج مدرسة الإعدادية (6) خريجة التعليم العالي (7) تخرج الماجستير والدكتور	
4- الحالة الاجتماعية (1) متزوج (2) اعزب	
5- العمل او المهنة (1) ربه منزل (2) متقاعد (3) موظفة (4) وظائف خاصة	
6 - عدد مرات الحمل (الولادة الحية)؟ - 1-2 ولادة حية (1) 3-4 مولود حي (2) 5-6 ولادة حية (3) ولادة أحياء 7 وأكثر (4) لا شيء (5)	
7 - مؤشر كتلة الجسم نقص الوزن = $18.5 >$ (1) الوزن الطبيعي = $18.5 - 24.9$ (2) الوزن الزائد = $25 - 29.9$ (3) السمنة = مؤشر كتلة الجسم 30 أو أكثر (4)	
الجزء الثاني: أسلوب الحياة العام والعادات	
6- عدد ساعات العمل اليومية (1) مقعد (2) ساعات / يوم (3) ساعات / يوم (4) ساعات / يوم 10 (5) ساعة / يوم 12	
7- طبيعة العمل الذي تم عمله (1) مقعد (2) يتطلب جهدا عضليا صغيرا (3) يتطلب مجهود عضلي معتدل	

8- الدخل الشهري للأسرة	(4) يتطلب مجهود عضلي عالي (1) كاف (2) متوسط الدخل (3) غير كاف
9- هل تملك المنزل الذي تعيش فيه؟	(1) نعم (2) لا
10- نوع الأسرة؟	(1) الأسرة الصغيرة (2) الأسرة الموسعة
13- هل تمشي بانتظام؟	(1) نعم (2) لا
14- هل تدخن؟	(1) نعم (2) لا (3) مدخن سابقا
15- هل تشرب الكحول؟	(1) نعم (2) لا
16- هل لديك مشكلة في النوم؟	(1) الأرق (2) انام قليلا (3) نومي طبيعي
الجزء الثالث: تاريخ سرطان	
19- تاريخ عائلي لسرطان الثدي؟	(1) نعم (2) لا
20- مرحلة سرطان الثدي؟	(1) المرحلة الأولى (2) المرحلة الثانية (3) المرحلة الثالثة
21- نوع العلاج؟	(1) العلاج الجراحي (2) العلاج الجراحي (3) العلاج الإشعاع
22- مدة العلاج الكيميائي؟	(1) إشعاع ، قرص ، جراحي (2) 1-5 ساعات (3) 6 – 10 ساعات (4) 11- 15 ساعة (5) 16 ساعة فما فوق
23- العلاج الكيميائي الآثار الجانبية؟	(1) نعم (2) لا
24- نوع الجراحة؟	(1) جزئي (2) كامل
27- عمرك عندما تم تشخيص سرطان الثدي لأول مرة؟	(1) 1- 2 سنة (2) 3 – 5 سنة (3) 6 سنة فما فوق

28- ما هو الثدي المصاب بالسرطان؟ (1) الأيمن (2) الأيسر (3) كلاهما	
الجزء الرابع: تاريخ المرض الطبي والنفسي	
31- هل لديك أي أمراض مزمنة أخرى؟ (1) ارتفاع ضغط الدم (2) داء السكري (3) أمراض القلب (4) أمراض الكلى (5) أمراض مزمنة أخرى (6) لا شيء	
33- هل سبق تشخيصك بمرض نفسي؟ (1) نعم (2) لا	
34- هل يتم علاجك حالياً من قبل طبيب وطبيب نفسي؟ (1) نعم (2) لا	
35- هل هناك مضاد للاكتئاب تتناوله؟ (1) نعم (2) لا	

الجزء السادس تقييم مستوى الكآبة

1- هل تشعر بالحزن 0- لا أشعر بالحزن 1 أشعر بالحزن 2 - أنا دائماً الحصول على الحزن وأنا لا يمكن التخلص من 3 - أنا حزينة جداً وغير سعيدة لتحملها	
2- هل المستقبل يثبط عزيمتك بشكل خاص 1- أنا محبط بشأن المستقبل 2- أشعر أنه ليس لدي ما أنتظره 3- أشعر أن المستقبل ميؤوس منه ولا يمكن تحسين الأمور	
3- هل تشعر بالفشل؟ 0- لا أشعر بالفشل 1- أشعر أنني أفضل أكثر من الشخص العادي 2- عندما أنظر إلى الوراء على حياتي، كل ما أستطيع أن أرى هو الكثير من الفشل 3- أشعر أنني فشلت تماماً كشخص	
4- هل أنت راض عن فكرة الاستخدام؟ 0- أنا راض عن كل شيء كما كنت 1- أنا لا أستمتع بكل شيء كما كنت 2- أنا لا أحصل على الارتياح الحقيقي من أي شيء بعد الآن 3- أنا لست سعيداً بكل شيء أو أشعر بالملل	
5- هل تشعر بالذنب؟ 0- لا أشعر بالذنب بشكل خاص 1 - أشعر بالذنب معظم الوقت 2- معظم الوقت أشعر بالذنب جداً 3- أشعر بالذنب طوال الوقت	

6- هل تشعر بالعقاب	0- لا أشعر بالعقاب 1- أشعر أنه يمكن معاقبتي 2- أتوقع أن يعاقب 3- أشعر بالعقاب
7- هل تشعر بخيبة أمل في نفسك؟	0- لا أشعر بخيبة أمل في 1- أشعر بخيبة أمل في 2- أشعر بالاشمئزاز من 3- أكره
8- هل تشك في أنك أسوأ بخيبة أمل؟	0- أنا لا أشعر أنني أسوأ من أي شخص آخر 1- أنتقد بسبب نقاط ضعفي أو أخطائي 2- ألوم دائماً على أخطائي 3- ألوم على كل ما حدث
9- هل تفكر في قتل نفسك؟	0- ليس لدي أي نية لقتل 1- لدي أفكار بقتل نفسي، لكنني لا أجعلها تحدث 2- أريد أن أقتل 3- كنت سأقتل إذا سنحت لي الفرصة
10- هل تبكي طوال الوقت؟	0- أنا لا أبكي أكثر من المعتاد 1- أبكي الآن أكثر من ذي قبل 2- أبكي طوال الوقت الآن. 3- اعتدت على البكاء، ولكن الآن لا أستطيع حتى لو أردت
11- هل تمنع كل شيء؟	0- أنا لست منزوعة من هذا أكثر من أي وقت مضى 1- الآن أنا غاضب أكثر من المعتاد. 2- معظم الوقت أحصل على غاضب جداً أو غاضب 3- أشعر دائماً بالغضب
12- هل أنت مهتم بأشخاص آخرين؟	0- لم أفقد الاهتمام بأشخاص آخرين 1- أنا أقل اهتماماً في أشخاص آخرين مما كنت عليه 2- فقدت معظم اهتمامي بأشخاص آخرين 3- فقدت كل اهتمامي بأشخاص آخرين
13- هل تتخذ قرارات؟	0- أتخذ القرارات الجيدة بقدر ما أستطيع 1- أنا تأخير صنع القرار أكثر من أي وقت مضى 2- أجد صعوبة أكبر في اتخاذ القرارات من ذي قبل 3- لا أستطيع أن أقرر بعد الآن
14- هل أنت قلق؟	0- لا أشعر أنني أبوء أسوأ مما كنت عليه 1- أنا قلق من أن أبوء قديمة أو غير جذابة 2- أشعر أن هناك تغييرات دائمة في مظهري لا تروق لي 3- أعتقد أنني أبوء قبيحة
15- هل تعمل؟	0- يمكنني العمل كما كنت أفعل 1- البدء في القيام بشيء يتطلب جهداً إضافياً. 2- يجب أن أدفع بشدة لفعل أي شيء 3- لا أستطيع القيام بأي عمل
16- هل تنام جيداً؟	0- يمكنني النوم كالمعتاد 1- أنا لا أنام كما كنت 2- أستيقظ 1-2 ساعات في وقت سابق من المعتاد، ويكون صعوبة في النوم مرة أخرى

3-أستيقظ قبل ساعات قليلة من ذي قبل ولا أستطيع النوم مرة أخرى	
17- هل أنت متعب؟ 0-لست متعبا أكثر من المعتاد 1- أنا تعبت أسهل من ذي قبل 2- لقد تعبت من فعل كل شيء تقريبا. 3- أنا متعب جدا لفعل أي شيء	
18- هل تغيرت شهيتك؟ 0- شهيتي ليست أسوأ من المعتاد 1- شهيتي ليست جيدة كما كانت في السابق. 2- شهيتي أسوأ بكثير الآن. 3- لم يعد لدي أي شهية بعد الآن	
19- هل هناك تغيير في وزنك؟ 0- لم أفقد الكثير من الوزن مؤخرا، إذا كان لديك واحد 1- لقد فقدت أكثر من رطل أو خمسة كيلو غرامات 2- لقد فقدت أكثر من 2، 10 كيلو غرامات. 3- لقد فقدت أكثر من 15 كيلو	
20- هل أنت قلق على صحتك؟ 0- لست قلقا على صحتي أكثر من أي وقت مضى. 1- أنا قلق بشأن المشاكل الجسدية مثل الآلام أو الأوجاع أو الغثيان أو الإمساك. 2- أنا قلق جدا من المشاكل الجسدية ومن الصعب التفكير في المزيد. 3- أنا قلق جدا حول مشاكلي الجسدية التي لا أستطيع التفكير في أي شيء آخر	
21- هل هناك تغيير في مصلحتك 0- لم ألاحظ أي تغييرات في اهتمامي بالجنس مؤخرا. 1- أنا أقل اهتماما بالجنس مما كنت عليه. 2- ليس لدي أي اهتمام تقريبا بالجنس. 3- لقد فقدت تماما الاهتمام بالجنس.	

APPENDIX 2. Ethical approval from Iraq



APPENDIX 3. Ethical approval from Çankırı Karatekin university



CURRICULUM VITAE

Personal Information





