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Graduate School of Health
Sciences**



Master of Science Thesis

**INVESTIGATION OF QUALITY OF LIFE OF WOMEN WITH
BREAST CANCER LIVING IN KIRKUK AND AFFECTING
FACTORS**

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BREAST CANCER LIVING IN KIRKUK AND AFFECTING
FACTORS**

BY

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ACCEPTANCE AND APPROVAL

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ETHICS STATEMENT

The thesis entitled "INVESTIGATION OF QUALITY OF LIFE OF WOMEN WITH BREAST CANCER LIVING IN KIRKUK AND AFFECTING FACTORS" was prepared and presented as a thesis, was written by myself and following the scientific, academic rules and ethical conduct. The research on the thesis was conducted by myself; therefore, all of the used sentences and interpretations within the work belong to me. The idea/hypothesis of my thesis solely belongs to my supervisor and me.

I declare the issues mentioned above to be correct.

Signature

14.10.2022

Amani Sabah Kareem ALBO SLAM

ABSTRACT

INVESTIGATION OF QUALITY OF LIFE OF WOMEN WITH BREAST CANCER LIVING IN KIRKUK AND AFFECTING FACTORS

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Master of Science in Nursing

Advisor: Assoc. Prof. Figen EROL URSAVAŞ

October-2022

Background: In women, breast cancer is one of the most common forms. Affects the physical, psychological, and social aspects of one's well-being.

Objective: This study aims to evaluate the quality of life of patients with breast cancer living in Kirkuk and the factors affecting it.

Method: It is a cross-sectional and descriptive study. The study was conducted at the Oncology and Hematology Center in Kirkuk, Iraq, between January 10, 2022- April 15, 2022. One hundred fifty women who met the sampling criteria formed the study's sample. Data were collected face-to-face with the Sociodemographic and Clinical Characteristics Form and the WHOQOL-BREF Scale. The psychological health dimension consists of 6 items. The score varies between 6-30. A higher score indicates better psychological health. The social relations dimension consists of 3 items. The score ranges from 3-15. A higher score indicates better social relationships. The perimeter dimension contains eight items. The score varies between 8-40. A higher score indicates better environmental life. In the data analysis, number, percentage, mean, T-test, and ANOVA were used.

Results: The mean age of the female participants was 45 ± 19 , and 28.7% had a high school graduate education. 67.3% were married, 77.3% were homemakers, 62.7% had less than expenses in income, and 96% did not smoke. Also, the female participants, 58.0%, were in the second stage, and 36.7% were diagnosed less than a year ago. The study also found that 98% of the women participants received surgical treatment, 98% of those received chemotherapy, 5.3% received radiotherapy, and 15.3% received hormonal therapy. In addition, 94.0% of the participants had a mastectomy, 73.3% had a family history of the disease, and 80% did not use oral contraceptives. 9.3% of the family history were cousins who had BC. The majority

of the participants, women, 78%, had children. The mean score for the WHOQOL-BREF scale was GQOL was 5.6 ± 2.9 , the mean score for the environmental sub-dimension of the WHOQOL-BREF scale was 26.0 ± 4.1 , the mean score for the physical sub-dimension of the WHOQOL-BREF scale was 21.4 ± 3.7 , the mean score for the psychological sub-dimension of the WHOQOL-BREF scale was 15.2 ± 3.7 . The mean score for the social relationships sub-dimension of the WHOQOL-BREF scale was 8.2 ± 1.9 . When the WHOQOL-BREF scale was compared with demographic and clinical characteristics: There were significant differences determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale: physical health, psychological health, social relations, and environmental health, based on age groups ($p < 0.05$). There were statistically significant differences determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on educational level groups ($p < 0.05$). Significant differences were determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on occupation groups ($p < 0.05$). Significant differences were determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environment, based on the stage of the disease ($p < 0.05$). Significant differences were determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale, physical health, based on BC diagnosis time ($p < 0.05$). There were statistically significant differences in GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical and social relationships based on marital status groups ($p < 0.05$). No statistically significant differences were determined in the GQOL and sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environment, based on the smoking factor ($p > 0.05$). There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, social relationships, and environmental health based on treatment methods received surgical factor ($p < 0.05$). There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, social relationships and environmental health based on treatment methods received chemotherapy factor ($p < 0.05$). There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, social relationships based on treatment

methods received radiotherapy factor ($p < 0.05$). There were statistically significant differences specified in the sub-dimensions of the WHOQOL-BREF scale, psychological, social relationships, and environmental health based on treatment methods received hormonal therapy factor ($p < 0.05$). There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical and social relationships based on the type of surgery being performed ($p < 0.05$). There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, psychological, social relationships, and environmental health based on a family history of BC factor ($p < 0.05$).

Conclusion: In our study, most patients were found to have a moderate QOL. A significant relationship was found between marital status and the sub-dimension of the WHOQOL-BREF scale. Our investigation determined that the variables that affect the sub-dimensions of the WHOQOL-BREF scale and are statistically significant are marital status, education level, stage of disease BC, time of diagnosis, treatment methods received, and family history of BC. Our study found that smoking had no statistically significant effect on the WHOQOL-BREF scale's sub-dimensions.

2022, 57 pages

Key Words: BC, QOL, Iraq, Influencing factors

ÖZET

KERKÜK'TE YAŞAYAN MEME KANSERLİ KADINLARIN YAŞAM KALİTESİ VE ETKİLEYEN FAKTÖRLERİN İNCELENMESİ

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Ekim 2022

Giriş: Meme kanseri, kadınlarda en sık görülen kanser türlerinden biridir. Meme kanseri yaşam kalitesinin fizyolojik, psikolojik, sosyal alanını olumsuz yönde etkilemektedir.

Amaç: Bu araştırmanın amacı, kerkük'te yaşayan meme kanserli hastaların yaşam kalitesini ve etkileyen faktörleri değerlendirmektir.

Yöntem: Kesitsel tanımlayıcı bir çalışmadır. Çalışma 10 Ocak 2022 - 15 Nisan 2022 tarihleri arasında Irak'ın Kerkük kentindeki Onkoloji ve Hematoloji Merkezi'nde yapılmıştır. Örneklem kriterlerini sağlayan 150 kadın çalışmanın örneklemini oluşturmuştur. Veriler Sosyodemografik ve Klinik Özellikler Formu ve Dünya Sağlık Örgütü'nün Yaşam Kalitesi Ölçeği- Kısa formu ile yüz yüze toplanmıştır. Verilerin analizinde, sayı, yüzde, ortalama, T-testi, ve ANOVA testleri kullanılmıştır.

Bulgular: Kadının yaş ortalaması 45 ± 19.00 olup, %28.7'si lise mezunu, %67.3'ü evli, %77.3'ü ev hanımı, %62,7 gelirin giderlerden az olduğu ve %96'sı sigara içmediği belirlendi. Kadınların %58,0'ı ikinci evreydi ve %36.7'si bir yıldan daha kısa bir süre önce tanı aldı. Kadınların %98'inin cerrahi tedavi, %98'inin kemoterapi ve %5,3'ünün radyoterapi ve %15,3'ünün hormonal tedavi aldığını saptandı. Ayrıca kadınların %94.0'ında mastektomi, %73.3'ünde ailede hastalık öyküsü, %80'i oral kontraseptif kullanmadığı ve %78'i çocuk sahibiydi. Dünya Sağlık Örgütü'nün Yaşam Kalitesi Ölçeği- Kısa formu Ölçeği'nde genel yaşam kalitesi puan ortalaması 5.6 ± 2.9 , çevresel alt boyut puan ortalaması 26.0 ± 4.1 , fiziksel alt boyut puan ortalaması 21.4 ± 3.7 , psikolojik alt boyut puan ortalaması 15.2 ± 3.7 , sosyal ilişkiler alt boyut puan ortalaması 8.2 ± 1.9 olarak saptanmıştır. Dünya Sağlık Örgütü'nün Yaşam Kalitesi kısa formu

Ölçeği'nde demografik ve klinik özelliklerle karşılaştırıldığında: Kadınların Yaş gruplarına göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların eğitim düzeyi gruplarına göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların meslek gruplarına göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların hastalıklarının evresine göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Meme kanseri tanı zamanına göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların medeni durumu gruplarına göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, sosyal ilişkiler alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların sigara içme faktörüne göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Genel yaşam kalitesi, fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık yoktu ($p > 0.05$). Kadınların Cerrahi faktör uygulanan tedavi yöntemlerine göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Fiziksel sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların kemoterapi faktörü uygulanan tedavi yöntemlerine göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Fiziksel sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların radyoterapi uygulanan tedavi yöntemlerine göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Sosyal ilişkiler alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların hormonal tedavi faktörü uygulanan tedavi yöntemlerine göre yaşam kalitesi ölçeğinin alt boyutları arasındaki

ilişki incelendiğinde; Psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Kadınların yapılan cerrahinin türüne göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Fiziksel sağlık ve sosyal ilişkiler alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$). Ailede meme kanseri faktör öyküsüne göre yaşam kalitesi ölçeğinin alt boyutları arasındaki ilişki incelendiğinde; Fiziksel sağlık, psikolojik sağlık, sosyal ilişkiler ve çevre alt boyutlarında istatistiksel olarak anlamlı farklılık olduğu belirlendi ($p < 0.05$).

Sonuç: Çalışmamızda hastaların yaşam kalitesinin orta düzeyde olduğu saptanmıştır. Çalışmamızda Dünya Sağlık Örgütü'nün Yaşam Kalitesi Ölçeği- Kısa formunun alt boyutlarını etkileyen ve istatistiksel olarak anlamlı olan değişkenlerin medeni durum, eğitim düzeyi, hastalık evresi, tanı zamanı, alınan tedavi yöntemleri, ailede meme kanseri öyküsü olduğu belirlenmektedir. Çalışmamızda sigara içme durumunun Dünya Sağlık Örgütü'nün Yaşam Kalitesi Ölçeği- Kısa formunun alt boyutları üzerinde istatistiksel olarak anlamlı bir etkisinin olmadığı bulunmuştur.

2022, sayfa 57

Anahtar Kelimeler: Meme kanseri, Yaşam kalitesi, Irak, Etkileyen faktörler

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ABBREVIATIONS AND SYMBOLS

BC	: Breast cancer
QOL	: Quality of life
HRQOL	: Health-related quality of life
WHO	: World Health Organization
OCP	: Oral contraceptive pills
HPV	: Human papillomavirus
HR	: Hazard ratio
MRI	: Magnetic resonance imaging
ER	: Estrogen receptor
HRT	: Hormone replacement therapy
RR	: Relative risk
DCIS	: Ductal Carcinoma in Situ
PRO	: Patient-reported outcomes

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1. INTRODUCTION

Breast cancer (BC) is expected to be the most frequent malignancy in women in 2020, with an estimated 2.2 million new cases worldwide. BC affects around one in 12 women in their lifetime. BC is the number one cause of cancer death among women, and nearly 685,000 women died from it in 2020. Low and middle-income nations account for most cases and deaths from BC. High- and middle-income countries differ vastly from low- and middle-income countries. In high-income nations, the 5-year survival rate following BC is above 90%, but only 66% in India and 40% in South Africa. African countries, as well as Polynesia, have the highest age-standard mortality rates from BC. Sub-Saharan Africa accounts for half of all BC deaths. (WHO 2021).

The incidence of BC is approximately 22 cases per 100,000 females in Iraq annually, and the late stages constitute 25% of these cases (Baghdad Today news 2021). A thousand injuries assume evidence of environmental and therapeutic factors. According to estimates by the Central Statistics Agency in Iraq, about 51 million people by 2030 will raise the number of cases of BC to about 460 thousand, assuming that environmental and treatment factors are constant (Hassoun 2021).

The connection between BC and emotional life has become an almost inevitable problem. Numerous studies have proven the importance of emotions in the emergence of many diseases, including cancer. However, there has been little study on emotional control mechanisms in health, illness, and psychopathology. This leads us to focus on the impact of these strategies on the quality of life (QOL) of BC patients and their partners, who were the first to show interest in investigating the effects of emotional regulation strategies, such as cognitive reassessment and expressive suppression, on conditioning Women with BC and their husbands' adaptation to their disease, in terms of QOL in general, and their psychological dimension in part (Dalila and Sabrina 2020).

Since a considerable improvement in HRQOL has frequently been documented following a favorable initial outcome has been recorded, QOL can be a crucial indicator of better treatment outcomes in patients who have undergone radiation. (Marta *et al.* 2017). According to WHOQOL, "the patient's appraisal of his or her living circumstances, both in the context of the cultural structure and value system in which he lives and in terms of his or her objectives, aspirations, standards, and worries" is what they mean by "quality of life." (Skevington *et al.* 2004). A person's QOL includes many factors, including physical health, psychological well-being, and social support. There are many different parts to treating BC, such as diagnosis, treatment, genetic risk and how to deal with it from a psychological standpoint, special issues related to non-invasive BC, recurrence and finishing treatment and going back to everyday life, survivorship, and palliative care for people with advanced cancer (Hewitt M *et al.* 2004). BC affects many areas of QOL—physiological, psychological, social, and spiritual (Jennings-Sanders 2003). Many studies have been conducted on the QOL of women with BC, such as a study in Saudi Arabia that found that QOL is linked to cancer, especially in late stages, and can be ascribed to physical, psychological, and social aspects. When cancer survivors were compared to the control group, they were shown to have a greater level of stress and a worse QOL. BC is a different entity since it may seriously damage a woman's physical appearance, influencing her QOL and her fear of disease, recurrence, and mortality. (Imran *et al.* 2019). A study in Poland also found the QOL of women with BC was affected by their age, whether or not they were married, how much education they had, and how much money they had. (Konieczny *et al.* 2020). Fatigue, insomnia, and pain have a significant impact on QOL. It affects all areas of QOL and involves the most psychological and social places in our society. (Gavric *et al.* 2016). It has been determined that individualized interventions and psychosocial support programs need to be developed to improve the physical and psychological well-being of BC patients living in the Lebanon region (Akel *et al.* 2017). Although many studies in the literature evaluating the QOL of women with BC (Ho *et al.* 2018; Akel *et al.* 2017; Gavric *et al.* 2016), limited studies have been conducted in Iraq (Daher *et al.* 2017). Therefore, our study is essential to improve the QOL of women with BC in Kirkuk, Iraq, to recognize and support the problems and challenges BC patients face.

1.1 Purpose of the study

Evaluation of QOL and influencing factors in breast cancer patients.



2. GENERAL INFORMATION

2.1 BC definition

BC is a process through which a certain number of the many cells inside the breast enlarge, and this is done so rapidly that the body cannot control it in one way or another. There are a large number of BC. The connective tissue, ducts, and lobes comprise the breasts' three primary structural components. BC can begin in any of these three areas. An important part of your breast's anatomy is the ductus cystic, which connects to the nipple and delivers milk. Fibrous and adipose tissues make up connective tissue. When cancer cells enter the blood or lymphatic system and spread to other body parts, the disease is considered to have spread. Connecting lymph nodes all over the body is the lymphatic system, which consists of a system of vessels that carry lymph. Besides immune system cells, the clear fluid in the lymph vessels, known as lymph, contains other tissues. BC cells can invade lymph vessels and spread to the lymph nodes, where they can grow and spread. (NCCDPHP 2021).

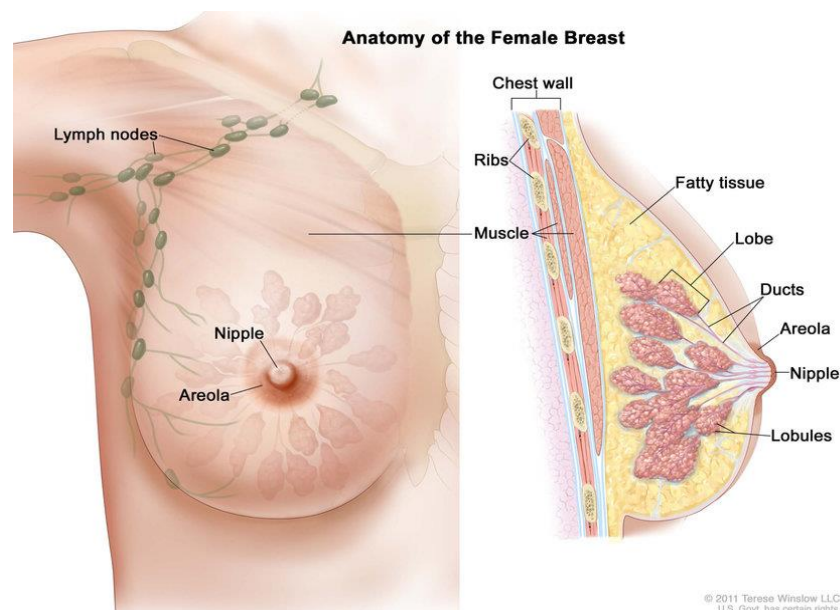


Figure 2.1 Anatomy of the femal breast (Botesteanu *et al.* 2016)

2.2 Risk Factors

A risk factor is anything that raises your odds of developing a disease like cancer. Although having one or more risk factors increases your likelihood of developing the disease, this is no guarantee. Some risk factors for BC, like family history and getting older, are out of your control (American Cancer Society 2022), as shown in figure 2.2.

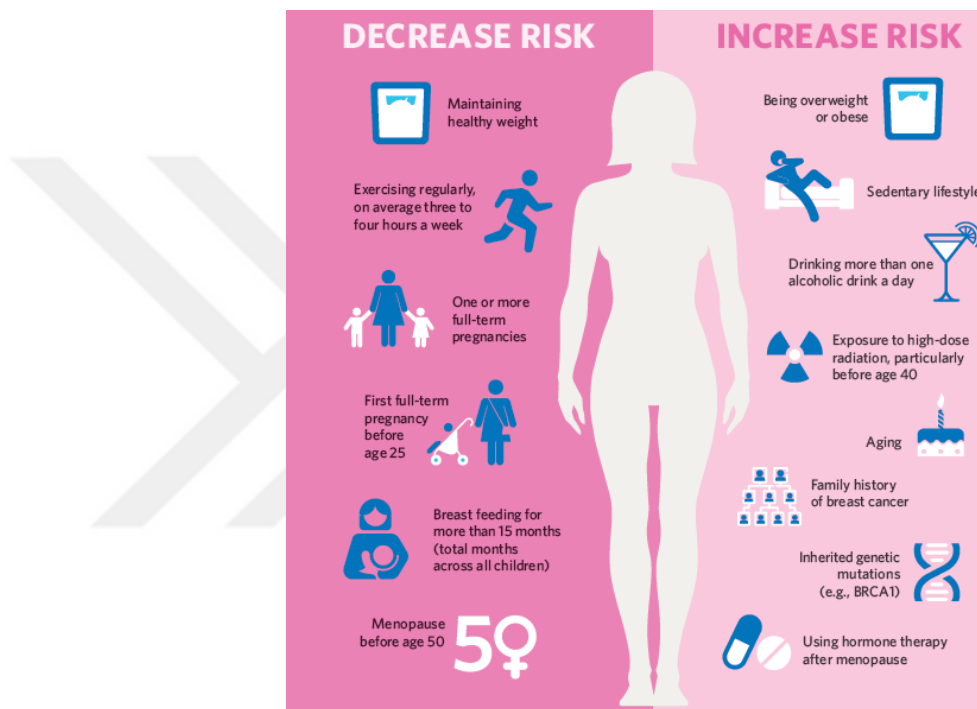


Figure 2.2. BC risk factors (Serrano 2022).

2.3 BC risk factors related to lifestyle

A woman's lifestyle choices, such as her diet and level of exercise, can influence her risk of developing BC. The option to have children and use hormone-containing medications are lifestyle-related risk factors (Jung *et al.* 2016; American Cancer Society 2022).

2.3.1 Drinking alcohol

A woman extra drinking alcohol can make her vulnerable to BC, so she should not drink more than one glass a day (Jung *et al.* 2016; (American Cancer Society 2022)).

2.3.2 Obesity or being overweight

A high dietary fat intake and being overweight or obese after menopause raise the risk of BC (American Cancer Society 2022).

2.3.3 Lack of physical activity

Regular physical activity appears to lessen the occurrence of BC in females, specifically after a certain age, called menopause (American Cancer Society 2022).

2.3.4 Not having children

A slightly higher overall risk of BC exists among women who have never given birth or had their first child after 30 years old (American Cancer Society 2022).

2.3.5 Breastfeeding is not permitted

Most studies suggest that breastfeeding may modestly reduce BC incidence, especially if done for a year or longer (American Cancer Society 2022).

2.3.6 Birth control pills

Some birth control techniques contain hormones, which may raise the risk of BC (American Cancer Society 2022).

- Contraception pills
- Vaccinations for birth control
- Implanted contraception, intrauterine devices (IUDs), skin patches, and vaginal rings (American Cancer Society 2022).

2.3.7 Menopause hormonal therapy

The use of menopausal hormone therapy (MHT) with estrogen often increases the risk of BC (American Cancer Society 2022).

- Combined Hormone Therapy (HT)
- Bioidentical hormonal therapy
- Estrogen therapy (ET) (Soroush *et al.* 2016; Sun *et al.* 2017; American Cancer Society 2022).

2.3.8 Breast augmentation

If BIA-ALCL appears after implantation, symptoms may include a lump, fluid buildup, edema, or soreness close to the implant, as well as a change in the size or form of the breast (American Cancer Society 2022).

2.4 Risk factors cannot be change

Aging and inherited gene changes are two examples of unavoidable risk factors for BC. The following is a detailed list of some factors that increase the risk of BC while not being able to control or avoid them. A higher chance of developing BC is associated with these (Siegel *et al.* 2017; American Cancer Society 2022).

2.4.1 Gender

For BC, this is the most critical risk factor. Because breast cells in women do not reach the stage of total growth until full-term pregnancy, a woman's gender is the most critical risk factor for developing BC, with 99 percent of all cases occurring in women and less than 1 percent in men. BC is more common in women than men, but men are not immune. When a woman is in her reproductive years, her breast cells are still immature and respond vigorously to estrogen, while a man's breast cells have fully matured and no longer respond to estrogen. (American Cancer Society 2022; Breasrcancer 2021).

2.4.2 Aging

When a woman reaches menopause, her risk of developing BC rises. The highest rate of BC is seen in women over 55 (American Cancer Society 2022).

2.4.3 Specific genetic alterations are inherited

It is estimated that somewhere between 5 and 10% of BC cases are hereditary, caused by inherited alterations in a person's genes. The most frequent cause of hereditary BC is an inherited mutation in the BRCA1 or BRCA2 gene, which is an ATM-type gene. In some families, inheriting an aberrant form of this gene has been linked to an increased risk of BC. PALB2 gene mutations can result in This gene raising the risk of BC, as do mutations in the TP53 gene, increased CHEK2 mutations, CDH1 gene mutations, STK11 gene mutations, and STK11 gene mutations (Brewer *et al.* 2017).

2.4.4 BC in the family

Most women who develop BC have no family history of the disease. However, women who have had close relatives diagnosed with BC face a higher risk of developing the disease themselves. A woman's risk of BC is roughly doubled if she has a first-degree relative (mother, sister, or daughter) with the disease. Having two first-degree relatives increases your risk by more than threefold. (Brewer *et al.* 2017).

2.4.5 Being a member of a BC family

A woman with BC is more likely to get cancer in either breast or another area of the same breast. (This is distinct from original cancer making a comeback.) While still relatively low, the risk is significantly increased for younger women diagnosed with BC (American Cancer Society 2022).

2.4.6 Race and ethnicity

Compared to African American women, white women are more likely to have BC (American Cancer Society 2022).

2.4.7 Being taller

Several studies have revealed that taller women are more likely than shorter women to get BC (American Cancer Society 2022).

2.4.8 Having thick breasts

People who can be considered from the tissues inside the breast, which are deemed dense in terms of mammography, are more likely to develop BC compared to women who are characterized by average breast density (American Cancer Society 2022).

2.4.9 Some benign breast illnesses are present

A higher chance of developing BC has been associated with several mild noncancerous breast illnesses in women. Some of these illnesses appear to have a more robust correlation with BC risk than others. Soft breast disorders are broken down into subcategories so that clinicians can better grasp the dangers they pose. Such as superficial fibrosis and cysts are non-proliferative lesions, mild hyperplasia, non-stiff stenosis, benign phyllodes, solitary papilloma, fat necrosis, ductal dilatation, periductal fibrosis, squamous and apocrine metaplasia, epithelial calcifications, and various malignancies are examples of these conditions (lipoma, hematoma, hemangioma, neurofibromatosis, epithelial adenoma), Mastitis (breast inflammation) It is not called a tumor. Still, it does not increase the odds of developing BC. Lesions are called proliferative, but they are considered without atypia (cellular abnormalities), typical ductal hyperplasia (without atypia), fibroadenoma, gland sclerosis, numerous papillomas (also known as papillomas), and radial scar.

Atypical proliferative lesions: In certain circumstances, the cells within the ducts or the breast tissue lobules may develop abnormally, some of which no longer appear normal. Atypical proliferative lesions: Cells in the breast tissue can form improperly,

and some no longer look like normal cells. Four to five times as many women develop BC with atypical ductal hyperplasia (ADH) or atypical lobular hyperplasia (ALH). In situ lobular cancer (LCIS). Women with LCIS are 7 to 12 times more likely to get BC in either breast (American Cancer Society 2022).

2.4.10 Menstruation begins early

The chance of developing BC is somewhat higher in women who started menstruation earlier. Perhaps the increased risk is because women are now exposed to estrogen and progesterone for more extended periods throughout their lives (American Cancer Society 2022).

2.4.11 Menopause later in life

Because of their greater lifetime exposure to estrogen and progesterone, women over 55 are more likely to develop BC (American Cancer Society 2022).

2.4.12 The chest has been exposed to radiation

There is a correlation between the age of exposure to radiation and the severity of the health effects. Women who have undergone chest radiation therapy as part of the treatment for another cancer at a younger age have an increased risk of developing BC later in life. There is a higher risk for women exposed to radiation while their breasts are still growing (American Cancer Society 2022).

2.4.13 Diethylstilbestrol exposure (DES)

There is a marginally higher risk of BC in these females. Some evidence suggests a slightly increased risk of BC in women whose mothers took DES during pregnancy (American Cancer Society 2022).

2.5 BC Risk Factors with Uncertain Effects

2.5.1 diet and vitamins

The association between nutrition and BC risk is less specific than the link between being overweight or obese and being inactive. Results from research examining the

connection between food and BC risk have varied. While research on vitamin levels in the body has yielded conflicting results, There is currently no conclusive evidence that vitamin intake reduces BC risk (American Cancer Society 2022).

2.5.2 Chemicals in the environment

To a greater extent than usual, researchers are interested in environmental chemicals that mimic the effects of estrogen. To give just a few examples, it appears that some substances used in plastic products, personal care products, and pesticides share these characteristics. These factors may, in theory, influence the likelihood of developing BC. Although it is challenging to study the effects of these chemicals on humans, current research has not found a definitive link between exposure to these chemicals and the risk of developing BC (American Cancer Society 2022).

2.5.3 Tobacco smoke

Evidence suggests that long-term, heavy smoking may increase the risk of BC. While the vast majority of research has failed to find a connection, few studies have found an increased risk, especially in premenopausal women. (Gaudet *et al.* 2017; Kispert and McHowat 2017).

2.5.4 Night shift work

Night shift workers, such as caregivers, may be at a higher risk of developing BC. It has been shown that light affects the hormone melatonin, but other hormones are also being looked into as possible causes (American Cancer Society 2022).

2.6 BC That is unproven or controversial

2.6.1 Antiperspirants

Removing your hair with a razor while shaving your underarms exposes you to the potentially cancer-causing ingredients in antiperspirants. Since antiperspirants prevent you from sweating, it's believed that these substances build up in the lymph nodes under your arms. Toxins accumulate, causing cells to mutate and eventually develop cancer (American Cancer Society 2022).

2.6.2 Bras

Bras cause BC by obstructing the lymph flow (American Cancer Society 2022).

2.6.3 Intentional abortion

People's emotions can run deep when discussing the topic of abortion. These emotions are frequently associated with philosophical, theological, and political beliefs that may have little to do with a disease like cancer. When individuals connect the dots between these issues, they set off a firestorm of passionate discussion. However, studies examining the link between abortion and BC have yielded inconclusive results (American Cancer Society 2022).

2.7 BC types

2.7.1 Carcinoma of the ducts or lobules

Cancers that arise from the epithelial cells that coat the body's organs and tissues account for most cases of BC. The most common type of malignant tumor found in the breast milk-producing glands is adenocarcinoma, which arises in cells of the ducts or lobules of the milk ducts. (Gerdes *et al.* 2018; American Cancer society 2022).

2.7.2 Invasive breast cancer vs. BC in situ

The precancerous cancer, or ductal carcinoma in situ DCIS, begins in the milk duct and does not spread to the rest of the breast. You can determine if the disease has spread based on your BC type. Invasive or infiltrating BC is defined as BC that has migrated to the surrounding breast tissue. (Mannu *et al.* 2020; American Cancer society 2022).

2.7.3 In situ ductal carcinoma (DCIS)

DCIS, also known as intraductal carcinoma, is a non-invasive or pre-invasive BC (Bergholtz *et al.* 2020; American Cancer society 2022).

2.7.3.1 Invasive BC comes in a variety of forms

A few types of invasive BC exhibit unique features or grow in unusual ways, affecting treatment and prognosis. These malignancies are less common than other forms of BC, but they may be more sluggish than other forms of BC. (Alkabban and Ferguson 2021; American Cancer society 2022).

2.7.3.2 Inflammatory BC

Inflammatory BC is a kind of invasive BC in which cancer cells obstruct lymph arteries in the skin, giving the appearance of an "inflamed" breast. It is exceptionally uncommon, accounting for about 1% to 5% of all breast malignancies (Mamouch *et al.* 2018; American Cancer society 2022).

2.7.4 Paget's disease is a kind of BC

Breast Paget's disease is uncommon, accounting for just 1-3 percent of all BC occurrences. It starts in the breast ducts and extends to the nipple skin, then the areola, the dark circle around the nipple (Gaurav *et al.* 2018; American Cancer society 2022).

2.7.5 Angiosarcoma

It is estimated that less than 1% of all BC are sarcomas. Angiosarcoma: the cells lining the blood and lymph vessels are at risk. Breast tissue or breast skin may be involved. Some symptoms might be linked to past radiation in that location (Fujisawa *et al.* 2018; American Cancer society 2022).

2.7.6 Phyllodes tumor

Phyllodes tumors are a kind of BC that is uncommon. Unlike carcinoid tumors, which form in the ducts or lobules, they start in the connective tissue stroma of the breast. The majority are benign, but some are cancerous (American Cancer society 2022).

2.8 Symptoms

- In the breast tissue, in the breast, or under the armpit, there is a lump or thickening. These are frequently the earliest signs of BC.
- The breast size, shape, or appearance may be changed.
- Any other change in the skin, such as dimpling or redness,
- The appearance of the nipple, the skin around it, or both may be altered.
- The appearance of abnormal secretions from the nipple
- The majority of breast lumps aren't malignant. Anyone who detects a node in their breast should have it examined by a medical practitioner. (Felman 2021).

2.9 BC stages and treatment

Stage	Body location of BC	Treatment
0	Stage 0 tumors are in situ and do not spread outside (American Cancer society 2022).	• Surgery • Hormonal therapy
1-3	In the early stages of cancer, the tumors are still small and have not spread to the lymph nodes, or the tumors have only spread to the sentinel lymph node, the first lymph node to which the disease is expected to expand. (American Cancer society 2022).	• Surgery • Radiotherapy • Chemotherapy • Other drug treatments
	Stage two BC has become more significant than stage one BC, or they may have migrated to a few neighboring lymph nodes. (American Cancer society 2022).	
	Stage three tumors are more advanced, have expanded into nearby tissues, or have disseminated to multiple nearby lymph nodes (the skin above the breast or the muscles beneath the breast) (American Cancer society 2022).	
4	Stage four tumors have migrated to other body regions from the breast and adjacent	• Surgery • Radiotherapy

	lymph nodes (American Cancer society 2022).	• Chemotherapy • Other drug treatments
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2.10 Defining QOL

It's a broad concept that incorporates positive and negative aspects of one's life. The term "QOL" has many meanings for everyone and in all academic areas, making it difficult to evaluate. It can be defined in a variety of ways by individuals as well as organizations. Even though health is the most important factor in overall QOL, other factors, including employment, living arrangements, educational attainment, and social support, play an important role. The measurement's complexity is due to the essential components of total QOL, such as culture, values, and spirituality. Researchers' development of critical tools has benefited in understanding and measuring these various areas and their relationships (CDC 2018).

2.11 Measures of Health-Related QOL

Health-related quality of life (HRQoL) assessments are one of the most often used forms of patient-reported outcomes (PROs), as defined by the World Health Organization in 1946 as "a condition of complete physical, mental, and social well-being, rather than only the absence of sickness or infirmity." HRQoL tools are multidimensional profile assessments focusing on several elements of everyday functioning. HRQoL reviews assess four primary domains: (Alexandra *et al.* 2019).

- Physical signs and illness condition
- Functional state, e.g., carrying out everyday tasks
- Emotional and psychological functioning
- Social interaction (Alexandra *et al.* 2019).

There is a growing interest in assessing the late effects of treatments and HRQoL for BC patients who are living for extended periods post-treatment. Several studies have shown that BC survivors, compared to the general population, experience more significant functional limitations and symptomatic impairments years after treatment (Klein *et al.* 2011).

Generic HRQoL instruments are used across various diseases and conditions, allowing for population comparisons. In contrast, disease-specific tools are sensitive to detecting impairments associated with a specific disease and its treatment. Generic instruments can generate single index utility scores, profiles, or both. Most devices used to measure survivors' HRQoL have been modified from those originally designed to assess more immediate symptoms of the disease or its treatment. Most of these adverse effects lose their significance in the long term after treatment has ended in people who are now disease-free (Van Leeuwen *et al.* 2018).

The burden of BC and its treatment can be better understood than the general population using a generic HRQoL measure that encompasses physical and psychosocial health (Rautalin *et al.* 2018).

2.12 QOL for BC in Iraq

BC is the most common type of cancer in women and the leading cause of death in the world. One out of every eight women will get BC at some point in their lives. That makes up 14% of all cancer-related deaths (Siegel *et al.* 2017). BC is one of the most frequent and deadly diseases among women, and it has a tremendous influence on BC sufferers' psychological, emotional, social, and familial lives. BC is becoming more common in the Kurdistan Region, with a rising trend over the previous decade (Mahmood and Amen 2022).

BC and its treatment inflict significant harm to women in many areas of their lives, including health, physical, psychological, and social issues. Being diagnosed with BC is a highly stressful experience that affects all parts of life for most individuals who suffer from it. Transient side effects associated with therapy may influence the

patient's health-related QOL during and after treatment (Hassen *et al.* 2019). BC patients' rising morbidity and deteriorating disease burden have a long-term influence on their physical and psychological well-being. Malignancies, particularly in their late stages, are linked to decreased QOL, which can be attributable to physical, psychological, and social aspects. When cancer survivors were compared to the control group, it was shown that they had a higher stress score and a worse QOL (Wang *et al.* 2020). Insufficient social support is connected with a considerable increase in cancer-related fatalities among BC patients. In contrast, more incredible social support positively influences the physical and psychological functioning of BC patients and their QOL (Salakar *et al.* 2017).

Little is known regarding the impact of BC on Iraqi patients' QOL. Due to a lack of data, physicians have found it difficult to assess the various intervention modalities that are continually accessible in the healthcare business (Mahmood and Amen 2022).

3 MATERIAL AND METHOD

3.1 Research design

It was a cross-sectional and descriptive study.

3.2 Sample and Setting

Breast cancer patients were selected from the Center for Oncology and Hematology in Kirkuk. Convenience sampling was used sampling method was used to determine patients as study participants. In this power analysis, the G power package program was used. In our study, as a result of the power analysis, it was found that the power was 0.95 when the effect size was $p = 0.05$ and, according to the G-Power result, there were 150 women; the data were collected between January 10, 2022, and April 15, 2022, at the Center for Oncology and Hematology in Kirkuk, Iraq.

- **Sample criteria;** Sampling criteria; Being a woman, having breast cancer, agreeing to participate in the study.
- **Exclusion criteria;** Having a cognitive problem that affects cognition and suffering from a hearing problem, and those over the age of 65.

3.3 Data collection method and tools

Through face-to-face interviews, the researcher will collect the data with the sociodemographic and clinical characteristics from the world health organization's quality of life (WHOQOL-BREF) scale.

3.3.1 Sociodemographic and Clinical Characteristics Form

This form was created by the researchers in line with the literature. Condition, age, education level, marital status, Occupation, Stage of the disease, Treatment method so far, type of surgery, income status, Smoking, Carcinoma history in the family, Use of birth control pills, Comorbidities, Number of Children, Evaluation of the disease and diagnosis date (Daher *et al.* 2017).

3.3.2 WHOQOL-BREF

It will be used as the WHOQOL-BREF scale. The WHO developed this scale in 1997, and its validity and reliability study was carried out by Ohaeri and Awadalla in 2009. It was adapted to the Arab society and determined to be appropriate. The Arabic version of the WHOQOL-BREF is a 26-item scale. Response options range from 1 (Very dissatisfied/Very bad) to 5 (Very satisfied/Very good). The scale consists of four sub-dimensions: physical health (seven items), psychological health (six items), social relationships (three things), and environment (eight items). In addition, two general QOL items are examined separately: The first question questions the individual's perception of the general QOL, and the second asks about the individual's perception of public health. The score ranges from 2-10. A higher score indicates better general QOL. The physical health dimension includes seven items. The score ranges from 7-35. A higher score indicates better physical health. The psychological health dimension consists of six things. The score ranges from 6-30. A higher score indicates better psychological health. The social relationships dimension includes three items. The score ranges from 3-15. A higher score indicates better social relationships. The environment dimension contains eight items. The score ranges from 8-40. A higher score indicates better environmental life (WHO 1997).

In the study adapted to the Arabic language, the Cronbach alpha coefficient of the scale was found to be 0.93. The WHOQOL-BREF was high ($\alpha = 0.93$) and similarly the internal consistency reliability coefficient of the dimension, physical health domain $\alpha = 0.80$, psychological health $\alpha = 0.77$, social relations $\alpha = 0.69$, environment domain $\alpha = 0.83$, (Ohaeri and Awadalla 2009). In our study, the reliability coefficient of the dimension was calculated physical health domain $\alpha = 0.90$, psychological health $\alpha = 0.78$, social relations $\alpha = 0.80$, environment domain $\alpha = 0.90$.

3.4 Data Evaluation

The data were analyzed using SPSS 26; the descriptive statistical measures of frequency, percentage, mean, and standard deviation were used to describe the

subjects' sociodemographic and clinical characteristics. T-test and ANOVA were also used. The data distribution was checked with Kolmogorov-Smirnov and found to be normally distributed.

3.5 Ethical dimension

On December 27, 2021, ethical approval was obtained from the ethics committee of Çankırı Karatekin University (Appendix 3), in addition to the ethical approval from the ministry of health in Iraq No.2021078 brought on January 04, 2022 (Appendix 4), Where the researcher provided a detailed description that includes the purpose and methodology of the study, and to obtain official permission from the Iraqi ministry of health, Kirkuk health department, oncology center No. 813 (Appendix 5). Participants were orally informed of the study's objectives and were asked to participate freely while ensuring confidentiality. No names were written down during data collection and reporting to protect the participants' privacy. They were also told that they could refuse to answer a question or withdraw from the research at any time without incurring any consequences.

4. RESULTS

4.1 Information on the sociodemographic characteristics of patients

Table 4.1 : Sociodemographic and clinical features (n = 150).

Variables	Min.	Max.	Mean (SD)
Age	35	65	45±19
Education level		N	%
	Illiteracy	34	22.7
	Elementary graduate	40	26.7
	high school graduate	43	28.7
	University	33	22.0
Marital status	Single	49	32.7
	Married	101	67.3
Occupation	Housewife	116	77.3
	Worker	30	20.2
	Retired	4	2.7
Income	Less than expenses	94	62.7
	Equals expenses	51	34.0
	More than expenses	5	3.3
Smoking	Yes	6	4
	No	144	96
disease stage	first stage	1	0.7
	Second stage	87	58.0
	third stage	50	33.3
	fourth stage	12	8.0
Breast cancer diagnosis	less than one year	55	36.7

time	1-3 years	75	50.0
	4-5 years	18	12.0
	more than five years	2	1.3
Treatment methods received surgical	Yes	147	98
	No	3	2.0
Treatment methods received chemotherapy	Yes	147	98
	No	3	2.0
Treatment methods received radiotherapy	Yes	8	5.3
	No	142	94.7
Treatment methods received hormonal therapy	Yes	23	15.3
	No	127	84.7
The type of surgery being performed	Breast conservation surgery	9	6.0
	Mastectomy	141	94.0
A family history of breast cancer	Yes	40	26.7
	No	110	73.3
If your answer is yes	Mother	11	7.3
	Sister	15	10.0
	cousin	14	9.3
Have you used birth control pills?	Yes	30	20
	No	120	80
Other concomitant diseases	High blood pressure	6	4
	Diabetes	11	7.3
	heart disease	4	2.7
	Joint diseases	42	28.0
	Gastrointestinal diseases	2	1.3

have children	Yes	117	78.0
	No	33	22.0
Total		150	100

The mean age of the female participants was 45 ± 19 , and 28.7% had a high school graduate education. 67.3% were married, 77.3% were homemakers, 62.7% had less than expenses in income, and 96% did not smoke. Also, of the female participants, 58.0% were in the second stage, and 36.7% were diagnosed less than a year ago. The study also found that 98% of the participants received surgical treatment, 98% underwent chemotherapy, 5.3% received radiotherapy, and 15.3% received hormonal therapy. In addition, 94.0% of the participants' women had a mastectomy, 73.3% had a family history of the disease, 80% BC of the participants women did not use oral contraceptives, and 9.3% of the family history were cousins who had BC, the majority of the participants women was 78% had children (Table 4.1).

Table 4.2 Distribution of research group scores on the WHOQOL-BREF of BC patients and its sub-dimensions (n = 150)

QOL	Min.	Max.	Mean (SD)
GQOL	3.0	8.0	5.6 ± 2.9
Physical health	12.0	30.0	21.4 ± 3.7
Psychological health	7.0	26.0	15.2 ± 3.7
Social relationships	3.0	12.0	8.2 ± 1.9
Environment health	14.0	34.0	26.0 ± 4.1
Total			76.4 ± 16.3 Moderate QOL

The mean score for the WHOQOL-BREF was GQOL was 5.6 ± 2.9 , the mean score for the environmental sub-dimension of the WHOQOL-BREF scale was 26.0 ± 4.1 , the mean score for the physical sub-dimension of the WHOQOL-BREF was 21.4 ± 3.7 , the mean score for the psychological sub-dimension of the WHOQOL-BREF scale was 15.2 ± 3.7 . The mean score for the social relationships sub-dimension of the WHOQOL-BREF scale was 8.2 ± 1.9 (Table 4.2).

Table 4.3 Comparison of sub-dimensions of WHOQOL-BREF according to age factor.

Variables	Age	N	Mean	SD	F/P
GQOL	35-39	27	15.9	5.7	49.6/ 0.000
	40-49	57	18.6	5.4	
	50-59	52	19.0	5.2	
	60-65	14	21.7	5.4	
Physical health	35-39	27	27.8	5.5	11.46/ 0.00
	40-49	57	25.6	5.4	
	50-59	52	26.0	5.1	
	60-65	14	23.7	5.4	
Psychological health	35-39	27	22.3	5.4	3.17/0.00
	40-49	57	23.0	5.0	
	50-59	52	23.3	5.1	
	60-65	14	24.0	5.0	
Social relationships	35-39	27	21.9	5.0	4.5/0.00
	40-49	57	22.0	5.2	
	50-59	52	22.9	5.5	
	60-65	14	23.5	5.6	
Environment Health	35-39	27	22.8	5.3	10.9/0.00
	40-49	57	23.0	5.0	
	50-59	52	23.8	5.3	
	60-65	14	24.0	5.0	

When the WHOQOL-BREF scale was compared with the age factor: There were significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on age groups ($p < 0.05$) (Table 4.3).

Table 4.4 Comparison of sub-dimensions of WHOQOL-BREF according to education level factor.

Variables	Educational level	N	Mean	SD	F/P
GQOL	Illiteracy	34	16.3	6.1	11.9/0.000
	Elementary graduate	40	18.6	5.4	
	high school graduate	43	19.0	5.0	
	University	33	20.2	5.3	
Physical health	Illiteracy	34	24.1	5.6	20.2/0.00
	Elementary graduate	40	25.6	5.4	
	high school graduate	43	26.0	5.0	
	University	33	26.7	6.0	
Psychological Health	Illiteracy	34	22.5	5.5	3.9/0.00
	Elementary graduate	40	23.0	5.0	
	high school graduate	43	23.1	5.0	
	University	33	23.4	5.5	
Social relationships	Illiteracy	34	21.9	5.0	27.4/0.00
	Elementary graduate	40	22.0	5.4	
	high school graduate	43	22.6	5.4	
	University	33	23.2	5.6	
Environment Health	Illiteracy	34	22.8	5.3	21.7/0.00
	Elementary graduate	40	23.0	5.0	
	high school graduate	43	23.6	5.4	
	University	33	24.0	5.0	

When the WHOQOL-BREF scale was compared with the education level factor: There were statistically significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on educational level groups ($p < 0.05$) (Table 4.4).

Table 4.5 Comparison of sub-dimensions of WHOQOL-BREF according to occupation factor.

Variables	Occupation	N	Mean	SD	F/P
GQOL	Housewife	116	18.1	6.2	38.6/ 0.000
	Worker	30	19.9	6.2	
	Retired	4	22.0	5.0	
Physical health	Housewife	116	25.3	9.1	12.0/0.01
	Worker	30	26.5	8.1	
	Retired	4	28.0	5.1	
Psychological health	Housewife	116	22.8	3.5	9.8/0.00
	Worker	30	23.4	4.9	
	Retired	4	24.0	5.0	
Social relationships	Housewife	116	22.2	4.5	5.1/0.00
	Worker	30	23.1	3.4	
	Retired	4	24.0	5.0	
Environment Health	Housewife	116	23.1	4.8	22.3/0.01
	Worker	30	24.0	5.0	
	Retired	4	24.1	5.4	

When the WHOQOL-BREF scale was compared with the occupation factor: There were significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on occupation groups ($p < 0.05$) (Table 4.5).

Table 4.6 Comparison of sub-dimensions of WHOQOL-BREF according to disease stage factor.

Variables	disease stage	N	Mean	SD	F/P
GQOL	first stage	1	15.0	4.0	57.1/0.000
	2 stage	87	17.8	6.3	

	3 stage	50	19.1	5.4	
	4 stage	12	21.8	5.3	
Physical health	first stage	1	27.0	5.9	13.5/0.02
	2 stage	87	25.1	5.2	
	3 stage	50	26.0	5.3	
	4 stage	12	23.8	6.0	
Psychological health	first stage	1	22.0	5.0	19.7/0.03
	2 stage	87	22.8	3.8	
	3 stage	50	23.0	2.7	
	4 stage	12	24.0	5.0	
Social relationships	first stage	1	26.1	11.4	15.4/0.00
	2 stage	87	19.8	10.7	
	3 stage	50	29.8	14.1	
	4 stage	12	26.6	4.9	
Environment Health	first stage	1	22.9	7.1	13.1/0.00
	2 stage	87	22.9	19.7	
	3 stage	50	24.0	5.0	
	4 stage	12	23.3	5.54	

When the WHOQOL-BREF scale was compared with disease stage factors: There were significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on the stage of the disease ($p < 0.05$) (Table 4.6).

Table 4.7 Comparison of sub-dimensions of WHOQOL-BREF according to BC diagnosis time factor.

Variables	BC diagnosis time	N	Mean	SD	F/P
GQOL	less than one year	55	17.1	6.3	36.9/ 0.000
	1 -3 years	75	15.1	6.0	

	4-5 years	18	16.5	5.7	
	More than five years	2	17.0	5.0	
Physical health	less than one year	55	28.0	8.5	9.4/0.00
	1 -3 years	75	26.0	5.3	
	4-5 years	18	25.5	5.1	
	More than five years	2	27.0	3.7	
Psychological health	less than one year	55	22.6	4.6	14.6/0.81
	1 -3 years	75	23.0	5.0	
	4-5 years	18	23.2	4.8	
	More than five years	2	22.2	9.1	
Social relationships	less than one year	55	26.9	4.6	11.0/0.60
	1 -3 years	75	30.0	6.2	
	4-5 years	18	23.0	5.4	
	More than five years	2	24.1	5.2	
Environment Health	less than one year	55	22.9	3.7	4.9/0.44
	1 -3 years	75	30.0	4.2	
	4-5 years	18	33.0	5.1	

	More than five years	2	34.0	5.4	
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When the WHOQOL-BREF scale was compared with the BC diagnosis time factor: There were significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, based on BC diagnosis time ($p < 0.05$) (Table 4.7).

Table 4.8 Comparison of sub-dimensions of WHOQOL-BREF according to marital status factor.

Variables	Marital status	N	Mean	SD	t/P
GQOL	Single	49	11.9	6.2	-13.5/0.000
	Married	101	14.3	5.9	
Physical health	Single	49	24.4	7.3	1.9/0.003
	Married	101	26.2	6.2	
Psychological health	Single	49	22.6	4.8	9.9/0.7
	Married	101	23.1	3.6	
Social relationships	Single	49	21.9	9.1	10.8/0.04
	Married	101	22.6	6.1	
Environment Health	Single	49	22.8	3.0	1.9/0.1
	Married	101	23.5	4.9	

When the WHOQOL-BREF scale was compared with the marital status factor: There were statistically significant differences determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical and social relationships, based on married status groups ($p < 0.05$) (Table 4.8).

Table 4.9 Comparison of sub-dimensions of WHOQOL-BREF according to smoking factor.

Variables	Smoking	N	Mean	SD	t/P
GQOL	Yes	144	18.4	6.4	- 6.059/0.09
	No	6	22.0	5.0	
Physical health	Yes	6	28.0	5.0	7.9/0.40
	No	144	30.5	9.8	
Psychological health	Yes	6	24.0	5.4	1.8/0.41
	No	144	22.9	5.0	
Social relationships	Yes	6	22.3	22.3	4.1/0.50
	No	144	24.0	24.0	
Environment Health	Yes	6	24.0	5.0	8.1/0.43
	No	144	23.3	5.5	

When the WHOQOL-BREF scale was compared with the smoking factor: There were no statistically significant differences were determined in the GQOL and the sub-dimensions of the WHOQOL-BREF scale, physical health, psychological health, social relations, and environmental health, based on the smoking factor ($p > 0.05$) (Table 4.9).

Table 4.10 Comparison of sub-dimensions of WHOQOL-BREF according to Treatment methods received surgical factor.

Variables	Received surgical	N	Mean	SD	t/P
GQOL	Yes	147	18.0	6.3	-7.915/0.143
	No	3	20.0	6.3	
Physical health	Yes	147	28.0	6.0	14.0/0.040
	No	3	25.6	5.0	
Psychological health	Yes	147	23.0	5.0	5.7/0.32
	No	3	22.9	5.4	
Social relationships	Yes	147	12.0	1.58	

	No	3	11.4	1.50	7.8/0.00
Environment Health	Yes	147	24.3	5.5	5.4/0.00
	No	3	22.0	5.0	

When the WHOQOL-BREF scale was compared with treatment methods received surgical factors: There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, social relationships, and environmental health based on treatment methods received surgical elements ($p < 0.05$) (Table 4.10).

Table 4.11 Comparison of sub-dimensions of WHOQOL-BREF according to treatment methods received chemotherapy factor.

Variables	received chemotherapy	N	Mean	SD	t/P
GQOL	Yes	147	15.5	5.5	-2.85/0.08
	No	3	16.1	5.5	
Physical health	Yes	147	28	5.0	8.5/0.040
	No	3	25.6	6.0	
Psychological health	Yes	147	24	5.0	5.7/0.32
	No	3	22.9	5.4	
Social relationships	Yes	147	20	5.0	5.2/0.00
	No	3	18.4	5.5	
Environment Health	Yes	147	24	5.0	8.1/0.00
	No	3	23.3	4.6	

When the WHOQOL-BREF scale was compared with treatment methods received chemotherapy factor: There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, social relationships, and environmental health based on treatment methods received chemotherapy factor ($p < 0.05$) (Table 4.11).

Table 4.12 Comparison of sub-dimensions of WHOQOL-BREF according to treatment methods received radiotherapy factor.

Variables	received radiotherapy	N	Mean	SD	t/P
GQOL	Yes	8	15.3	5.5	-6.79/0.25
	No	142	18.7	6.4	
Physical health	Yes	8	23.3	5.1	4.2/0.407
	No	142	25.7	9.5	
Psychological health	Yes	8	22.0	5.0	2.2/0.09
	No	142	23.0	4.1	
Social relationships	Yes	8	4.48	1.60	1.9/0.038
	No	142	7.7	0.58	
Environment Health	Yes	8	22.3	5.1	4.0/0.50
	No	142	23.4	4.9	

When the WHOQOL-BREF scale was compared with treatment methods received radiotherapy factor: There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, social relationships based on treatment methods received radiotherapy factor ($p < 0.05$) (Table 4.12).

Table 4.13 Comparison of sub-dimensions of WHOQOL-BREF according to treatment methods received hormonal therapy factor.

Variables	Received hormonal therapy	N	Mean	SD	t/P
GQOL	Yes	23	15.7	5.4	-14.38/0.16
	No	127	19.0	6.0	
Physical health	Yes	23	25.9	7.7	7.0/0.63
	No	127	23.7	4.2	
Psychological health	Yes	23	23.1	5.3	6.7/0.03
	No	127	22.2	4.4	

Social relationships	Yes	23	18.5	2.61	1.5/0.00
	No	127	16.9	2.28	
Environment Health	Yes	23	23.4	5	2.6/0.00
	No	127	22.7	4.2	

When the WHOQOL-BREF scale was compared with treatment methods received hormonal therapy factor: There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, psychological, social relationships, and environmental health based on treatment methods received hormonal therapy factor ($p < 0.05$) (Table 4.13).

Table 4.14 Comparison of sub-dimensions of WHOQOL-BREF according to the type of surgery being performed factor.

Variables	type of surgery	N	Mean	SD	t/P
GQOL	Conservation surgery	9	15.4	5.5	-7.17/0.28
	Mastectomy	141	18.7	6.3	
Physical health	Conservation surgery	9	23.4	5.5	1.3/0.00
	Mastectomy	141	25.7	5.9	
Psychological health	Conservation surgery	9	22.0	3.9	3.1/0.09
	Mastectomy	141	23.0	4.1	
Social relationships	Conservation surgery	9	21.7	4.4	3.5/0.03
	Mastectomy	141	22.4	6.0	
Environment Health	Conservation surgery	9	22.4	5.2	1.1/0.41
	Mastectomy	141	23.4	4.9	

When the WHOQOL-BREF scale was compared with the type of surgery being performed factor: There were statistically significant differences determined in the

sub-dimensions of the WHOQOL-BREF scale, physical and social relationships based on the type of surgery being performed element ($p < 0.05$) (Table 4.14).

Table 4.15 Comparison of sub-dimensions of WHOQOL-BREF according to a family history of BC factor.

Variables	family history of BC	N	Mean	SD	t/P
GQOL	Yes	40	19.1	6.0	14.88/ 0.96
	No	110	16.1	5.9	
Physical health	Yes	40	25.3	9.2	1.0/0.00
	No	110	26.6	8.6	
Psychological health	Yes	40	23.4	4.9	2.8/0.00
	No	110	22.8	3.6	
Social relationships	Yes	40	22.1	4.2	1.8/0.00
	No	110	23.2	4	
Environment Health	Yes	40	24.0	5.0	5.7/0.00
	No	110	23.1	4.5	

When the WHOQOL-BREF scale was compared with a family history of BC factor: There were statistically significant differences determined in the sub-dimensions of the WHOQOL-BREF scale, physical, psychological, social relationships, and environmental health based on a family history of BC factor ($p < 0.05$) (Table 4.15).

5. DISCUSSION

In our study, most patients were found to have a moderate QOL. A similar result to our study was found in studies by (Olivera *et al.* 2014; Gangane *et al.* 2017; Ganesh *et al.* 2016; Rahou *et al.* 2016). That contrasts with a study in Colombia (Finck *et al.* 2018) and a study in the Netherlands (Dijck *et al.* 2016) that found higher results in most areas of quality of life. The difference is due to cultural differences and the tools used.

In our study, significant differences were found in the sub-dimensions of the WHOQOL-BREF scale for female participants based on age groups. This is because young people have better insights into life and a greater sense of treatment opportunities. Similar results to our study were found in studies (Read *et al.* 2016; Munoz-Navarro *et al.* 2017; Munoz *et al.* 2019), and this study is also similar to our study (Yu *et al.* 2018; Velikova *et al.* 2018) who reported that age affects QOL, the effect was statistically significant. A study in Poland also found that the QOL of women with BC was influenced by their age (Konieczny *et al.* 2020).

In contrast to the results of our study, a study was conducted in Morocco, which studied the effect of the age variable on the QOL for BC patients through two groups, and found that the age variable did not affect the QOL for BC patients, meaning that it did not affect the QOL (Mahfouz and Almaghrabi 2020). The difference is believed to be due to the fact that the Iraqi environment is different from the other environment.

This study also found statistically significant differences in the sub-dimensions of the WHOQOL-BREF scale for female participants based on educational level groups. Similar results to our study were also found in its conducted studies (Herrett *et al.* 2015; Carreira *et al.* 2020). This study comes from a survey conducted in India, which concluded that there are statistically significant differences between the

educational level and the QOL for BC patients (Sharma and Purkayastha 2017). A study in Poland also found that the QOL of women with BC was affected by their educational level (Konieczny *et al.* 2020). This result contradicts a study conducted in Egypt (Nady *et al.* 2008), which showed no statistically significant differences between educational level and QOL of BC patients. This difference is due to the nature of the composition of the Iraqi society, which depends on education in various aspects of life, which makes it a reason that affects the quality of life.

This study concluded that there were statistically significant differences in the sub-dimensions of the WHOQOL-BREF scale for female participants based on marital status groups. Similar results to our study were found in studies conducted by (Klein *et al.* 2011, and Claridy *et al.* 2016). This study comes from a survey conducted in India (Sharma and Purkayastha 2017) and a study conducted in Poland (Konieczny *et al.* 2020), whose results concluded that there are statistically significant differences between marital status and QOL for BC patients.

Also, our study found that there were significant differences in the sub-dimensions of the WHOQOL-BREF scale for female participants based on occupation groups. This result is consistent with a study conducted in America (Keim-Malpass *et al.* 2015) which concluded that there are statistically significant differences between quality of life and BC patients. Similar results to our study were found in studies conducted by (Syrowatka *et al.* 2017; Aquil *et al.* 2021).

One of our study's results was that there were statistically significant differences in the sub-dimensions of the WHOQOL-BREF scale for female participants based on the stage of the disease. Similar results to our study were found in studies conducted by (Al Zahrani *et al.* 2019; Srivastava *et al.* 2020). This study comes from a survey conducted in India, which concluded that there are statistically significant differences between the stage of the disease and the QOL for BC patients (Sharma and Purkayastha 2017). This result contradicts a study conducted by (Vacek *et al.* 2003), whose results showed no statistically significant differences between stage of the disease and QOL of BC patients. We attribute this variation to cultural and societal

differences in the prevalence of the belief that disease progression can be predicted and treated effectively based on patient stage.

In our study, it was found that there were significant differences in the sub-dimensions of the WHOQOL-BREF scale for female participants based on treatment methods received. This is because a patient who has undergone BC treatment may experience a wide variety of unpleasant side effects and symptoms. Similar results to our study were found in studies conducted by (Al Zahrani *et al.* 2019; Srivastava *et al.* 2020).



6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The research was conducted with 150 patients to determine the relationship between the WHOQOL-BREF scale and demographic data

- A significant relationship was found between marital status and the subdimension of the WHOQOL-BREF scale ($p < 0.05$).
- A statistically significant relationship was found between educational level and the sub-dimension of the WHOQOL-BREF scale for BC patients ($p < 0.05$).
- In this study, it was determined that the variables that affect the sub-dimension of the WHOQOL-BREF scale and are statistically significant are marital status, education level, disease BC stage, diagnosis time, treatment methods received, and family history of BC, and childbearing ($p < 0.05$).
- Finally, this study found that smoking factors had no statistically significant effect on the sub-dimension of the WHOQOL-BREF scale ($p > 0.05$).

6.2 Recommendations

In line with the results obtained from the research;

- Should be Increasing the quality of nursing care by creating awareness of the disease and ways to coexist with it, which increases the QOL for patients and makes them feel more effective and efficient, and meets the training needs in this field
- Conducting awareness programs for patients, which increases social support and thus enhances their QOL
- Publishing awareness programs on the importance of early examination, especially for people with a family history, increases the chances of recovery for patients at the beginning of the disease and thus enhances the QOL

- Should be creating social support programs for affected women, but the focus is on singles because of the disease's impact on them more than on married women
- Conducting awareness programs for patients and the participation of those with low education in various educational programs to increase their ability to deal with the disease.
- Educate patient nurses on ways to manage the disease.
- Holding several awareness sessions for patients, in general, to educate them about the nature of the disease they suffer from, the extent of its ability to treat, and its positive coexistence with it.

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APPENDIX 1 Sociodemographic and Clinical Characteristics Form

APPENDIX 2 WHOQOL short form scale

APPENDIX 3 Ethics committee in Çankiri Karatekin approval

APPENDIX 4: Ethics committee in republic of Iraq, ministry of health approval

APPENDIX 5: Facilitating a task from the iraqi ministry of health approval

APPENDIX 6. Editing Certificate



APPENDIX 1 Sociodemographic and Clinical Characteristics Form





APPENDIX 2 WHOQOL short form scale





	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16- How comfortable do you feel in your sleep?	1	2	3	4	5
17- How satisfied are you with your ability to perform your daily activities?	1	2	3	4	5
18- To what extent are you satisfied with your ability to do your job?	1	2	3	4	5
19- How satisfied are you with yourself?	1	2	3	4	5
20- To what extent are you satisfied with your personal relationships?	1	2	3	4	5
21- (Private life) How satisfied are you with your private life?	1	2	3	4	5
22- How satisfied are you with the support you receive from your friends?	1	2	3	4	5

23- How satisfied are you with the situation where you live?	1	2	3	4	5
24- How satisfied are you with your access to healthcare?	1	2	3	4	5
25- How satisfied are you with the transportation facilities?	1	2	3	4	5

The following question asks how you have felt or experienced doing certain things in the past two weeks:

	Never	Seldom	Quit often	Very often	Always
26- To what extent do you experience negative emotions such as sadness, hopelessness, anxiety, and depression?	1	2	3	4	5

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