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Master of Science Thesis

DETERMINING THE RELATIONSHIP BETWEEN FEAR OF BREAST CANCER AND MAMMOGRAPHY SELF-EFFICACY OF WOMEN OVER 40 YEARS OLD LIVING IN IRAQ

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BY

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The Degree of Master of Science

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ACCEPTANCE AND APPROVAL

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ETHICS STATEMENT

The thesis entitled "Determining The Relationship Between Fear Of Breast Cancer And Mammography Self-Efficacy Of Women Over 40 Years Old Living In Iraq" was prepared and presented as a thesis and was written by myself and per the scientific, academic rules, and ethical conduct. The idea/hypothesis of my thesis solely belongs to my supervisor and me. The research pertaining to the thesis was conducted by myself and therefore, all of the used sentences and interpretations within the work belongs to me.

I declare the aforementioned issues to be correct.

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ABDULABBAS

ABSTRACT

DETERMINING THE RELATIONSHIP BETWEEN FEAR OF BREAST CANCER AND MAMMOGRAPHY SELF-EFFICACY OF WOMEN OVER 40 YEARS OLD LIVING IN IRAQ

Zaid Sattar Abdulabbas ABDULABBAS

Master of Science in Nursing

Advisor: Assoc. Prof. Dr. Figen EROL URSAVAŞ

April 2023

Introduction: The incidence of breast cancer is increasing worldwide every year. The best option for controlling breast cancer is early detection and the most effective method is mammography. Women's self-efficacy and fears may influence withdrawal from mammography used in the early detection of breast cancer. **Aim:** The aim of this study is to determine the relationship between the fear of breast cancer and mammography self-efficacy of women over the age of 40 living in Iraq. **Method:** The research was conducted with 386 women recruited in the main primary health care centers of Hilla I and II sectors from June 1, 2022, to September 1, 2022. The research is cross-sectional and relational. Data were collected using the Sociodemographic and clinical characteristic form, the Champion Mammography Self-Efficacy Scale-Arabic version, and the Champion Breast Cancer Fear Scale-Arabic version. **Results:** The mean age of women is 48.46±6.83, 38.6% are university graduates, 75.4% are married, 68.1% have children, 54.7% work, 61.7% income equal to the cost, 76.7% have good health, 91.5% have no family history of breast cancer, 88.3% have no breast problems, 61.1% have received information about breast cancer, 97.2% had no history of breast cancer. 66.6% of women do not do breast self-examination, 77.5% do not have a clinical breast examination, 90.2% have not had mammography before, and 6.2% of them have been recommended by nurses or doctors. A statistically significant correlation was found between self-efficacy and fear as weakly positive ($r=0.147$) ($p=0.004$). **Conclusion:** It was found that Iraqi women had a high level of mammography self-efficacy and fear of breast cancer. There is a significant relationship between mammography self-efficacy and fear of breast cancer.

2023, 47 pages

Keywords: Fear of breast cancer, Mammography, Self-efficacy.

ÖZET

IRAK'TA YAŞAYAN 40 YAŞ ÜSTÜ KADINLARIN MEME KANSERİ KORKUSU VE MAMMOGRAFİ ÖZ YETERLİLİKLERİ ARASINDAKİ İLİŞKİNİN BELİRLENMESİ

Zaid Sattar Abdulabbas ABDULABBAS
Hemşirelik, Yüksek Lisans
Tez Danışmanı: Doç. Dr. Figen EROL URSAVAŞ
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Giriş: Meme kanseri insidansı her yıl dünya çapında artmaktadır. Meme kanserini kontrol altına almak için en iyi seçenek erken teşhistir ve en etkili yöntem mamografidir. Kadınların öz-yeterlilik ve korkuları meme kanserinin erken teşhisinde kullanılan mammografinin çekilmesini etkileyebilir. **Amaç:** Irak'ta yaşayan 40 yaş üstü kadınların meme kanseri korkusu ve mammografi öz yeterlilikleri arasındaki ilişkinin belirlenmesidir. **Yöntem:** Araştırma, 1 Haziran- 1 Eylül 2022 tarihleri arasında Hilla I ve II sektörlerinin ana birinci basamak sağlık merkezlerine başvuran 386 kadın ile yürütülmüştür. Araştırma kesitsel ve ilişkiseldir. Veriler, Sosyodemografik ve klinik özellikler formu, Champion Mamografi Öz-Yeterlik Ölçeği-Arapça versiyonu ve Champion Meme Kanseri Korku Ölçeği-Arapça versiyonu kullanılarak toplanmıştır. **Bulgular:** Kadınların; yaş ortalamaları 48,46±6,83, %38,6'sı üniversite mezunu, %75,4'ü evli, %68,1'i çocuk sahibi, %54,7'si çalışmakta, %61,7'sinin geliri giderine eşit, %76,7'sinin sağlık durumu iyi, %91,5'inin ailesinde meme kanseri öyküsü yok, %88,3'ünde meme problemi yok, %61,1'i meme kanseri hakkında bilgi almış, %97,2'sinde meme kanseri öyküsü yok, %66,6'sı kendi kendine meme muayenesi yapmamakta, %77,5'i klinik meme muayenesi yaptırmamakta, %90,2'si daha önce mamografi çektirmemiş, ve mammografi %6,2'sine hemşire veya doktorlar tarafından önerilmiştir. Öz-yeterlik ile korku arasında zayıf pozitif (r=0.147) olarak istatistiksel olarak anlamlı bir ilişki saptanmıştır (p=0.004). **Sonuç**: Iraklı kadınların mammografi öz yeterliliği ve meme kanseri korkusunun yüksek düzeyde olduğu bulunmuştur. Mamografi özyeterliliği ile meme kanseri korkusu arasında anlamlı bir ilişki vardır.

2023, 47 sayfa

Anahtar Kelimeler: Meme kanseri korkusu, Mammografi, Öz-yeterlik .

PREFACE AND ACKNOWLEDGEMENTS

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Zaid Sattar Abdulabbas ABDULABBAS

Çankırı-2023

CONTENTS

LIST OF ABBREVIATIONS

ACOG	American college of obstetricians and gynecologists
ACS	American cancer society
BC	Breast cancer
BCS	Breast cancer screening
BSE	Breast self-examination
CBCFS	Champion's breast cancer fear scale
CBE	Clinical breast examination
CMSES	Champion's mammography self-efficacy scale
HCP	Health care provider
HICs	High income countries
MOH	Ministry of health
MOHESR	Ministry of higher education and scientific research
NCRC	National cancer research center
WHO	World health organization

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1. INTRODUCTION

There are 2.1 million new cases of breast cancer identified in women each year (Bray *et al*. 2018). Breast cancer ranks first in incidence in the great majority of countries (159 of 185 countries and for mortality in 110 countries), accounting for one-quarter of all cancer diagnoses and one-sixth of all cancer deaths among women (Sung *et al*. 2021).

Breast cancer accounts for 19.5% of the total cancer cases diagnosed in Iraq (4996 cases), and 34.3% of all cancers diagnosed in women (4922 cases). This places breast cancer at the top of the list of the top ten malignant neoplasms afflicting the population. In 2016, 897 women lost their lives to this illness, which is listed as the leading cause of cancer-related death among Iraqi women (23.6%), and the second leading cause of cancer-related mortality overall among males and females (12.1%) after bronchogenic carcinoma. Previous research that took a cross-sectional approach found that even the most educated members of Iraqi society had a significant lack of information about the variables that increase the likelihood of developing breast cancer (Alwan *et al*. 2019).

Five-year survival estimates for breast cancer range from 80% in developed countries to below 40% in poor ones. Improving breast cancer outcomes via early detection, diagnosis, and treatment faces obstacles in developing nations due to limited resources and inadequate infrastructure. In 2013, around 232,340 women were diagnosed with breast cancer in advanced countries like the United States, and the disease was responsible for the deaths of 39,620 women. A risk of 12.38% of acquiring breast cancer is associated with being an American female. The consistent improvement in both screening mammography and treatment for breast cancer may be credited for the considerable drop in the overall death rate caused by breast cancer in the United States during the years 1975 to 2000 (Akram *et al*. 2017) .

There are usually no warning signs of breast cancer until a lump may be seen or felt. The most common physical sign is a painless lump in the breast. The axillary lymph nodes may become enlarged and swollen in the early stages of metastasis. Indicators of breast malignancy such as bloody nipple discharge, breast heaviness, redness, swelling, breast deformity, or retractions are less prevalent but significant, especially in the later stages of the illness. As there are few warning indications in the early stages of breast cancer, it is advised that all women adhere to the current breast cancer screening standards (Walker *et al*. 2014).

In over 40 years old women, the most prevalent cancer is breast cancer (Brandt *et al*. 2015). Since breast cancer is more treatable if caught early when tumors are tiny and isolated, a woman's prognosis depends on how well her cancer is found and diagnosed. Mammography screening is the most effective diagnostic method for detecting breast cancer in its earliest stages. Mammography's principal function is to create high-resolution pictures of the breast for the purposes of screening for breast cancer and assessing the presence and severity of breast illness. To generate clear pictures of the breasts, it employs a low-dose x-ray system, high-contrast, high-resolution film, and a special x-ray system made for mammography. Women over the age of 40 should get one every two years or three at the absolute least (Abdelaziz *et al*. 2015).

The World Health Organization (WHO) has implemented two primary strategies, education, and mammography, for preventing breast cancer. The decision to undergo a mammogram might be influenced by a number of circumstances. Variables hypothesized to impact certain behaviors are included in several health education theories and models. The social cognitive theory offers a framework for understanding the elements that influence human behavior by identifying human behavior as the result of the interplay of personal factors, behavior, and the environment (Hashemian *et al*. 2015).

The term "self-efficacy" describes a person's belief in his or her ability to take preventative actions, and it is a crucial idea in social cognitive theory. Self-efficacy, according to Bandura's definition, is the conviction that one has the capacity to carry out an activity on purpose. The idea behind this perspective is that an individual's conduct might be influenced by their social environment, but in ways that they cannot predict or change. Therefore, self-efficacy as a concept highlights an individual's confidence in control over self-initiated activity, and this perception may lead to healthy and beneficial consequences. People are more inclined to take action and stick with their choice if they feel they can find a solution to their situation (Hughes 2014).

Fear was characterized as being terrified of getting a mammogram and/or being afraid of being diagnosed with breast cancer. One participant's apprehension about finding cancer was accompanied by a lack of faith in physicians' findings. Apprehension about the results of a screening mammogram and the possibility of discovering cancer were both identified as possible deterrents to screening participation. Lack of confidence in the doctors' abilities to interpret the imaging might have been a factor in why someone chose not to attend. This lack of faith was motivated by erroneous positive and bad outcomes from earlier medical exams (Muhanna and Floyd 2019).

According to earlier research, perceived self-efficacy and breast cancer fear are inextricably connected and influence how often women are screened for the disease. For instance, research has shown a correlation between greater breast cancer fear and lower self-efficacy levels. Women with high levels of self-efficacy and low levels of breast cancer anxiety are more likely to use any breast cancer screening (Ezema *et al*. 2021).

The concepts of breast cancer fear and self-efficacy are potent essential predictors of compliance with mammography. However, assessments of these formulations are not available for use among Iraqi women across different cultures as it is the first study to be conducted in Iraq. While the psychometric properties of the Cancer Fear Scale and Mammography Self-efficacy have been previously evaluated in Saudi Arabia, Turkey, and Iran, the present work was conducted in Babylon, a city in central Iraq that differs culturally and religiously from the neighboring country. The cultural and religious factors present in Babylon are expected to lead to differences in the components of cancer fear and mammography self-efficacy than when the scale was used in neighboring countries.

1.1. Objective of the study

The aim of this study is to determine the relationship between fear of breast cancer and mammography self-efficacy of women over the age of 40 living in Iraq.

2. GENERAL INFORMATION

2.1. Breast anatomy

The breast has skin, fat, fascial layers, cooper ligaments, fibro glandular tissue, and lymphatic, and neurovascular systems across the chest wall. After menopause, many women have breasts with more fat than fibro glandular tissue (Jesinger 2014). The female breast sits on the anterior thoracic wall from the second to the sixth rib. Breasts have 15–20 lobes. Breast lobes have 20–40 lobules. There are tubuloalveolar glands that have branched out into the lobules. A large lactiferous duct collects the milk from each lobe. Located just below the areola, the lactiferous ducts widen into a lactiferous sinus before narrowing and emerging onto the nipple. Adipose tissue fills the lobes gap. A breast has four sections, the upper inner, upper outer, lower inner, and lower outer. The most prevalent site for breast tumors is the upper outside quadrant, where most breast volume is found (Alex *et al*. 2020, Martaindale 2018).

At least 60% of the blood supply is provided by the superomedial perforators, which originate from the internal mammary artery. In comparison, the remaining 40% comes from the lateral thoracic artery, the thoracodorsal artery, and the terminal branches of the intercostal perforators (costal perforators 3–8) (Pandya and Moore, 2011). Veins flow heavily from the breast, both superficially and deeply. Lots of big vein's leak into the chest wall from deep within the breast (Pandya and Moore 2011).

Lymphatic channels flow both superficial and deep into the breast, providing the organ with a large amount of drainage. The intercostal nerves (T3-T5) provide sensory innervation to the breast (Galarza-Paez *et al*. 2022).

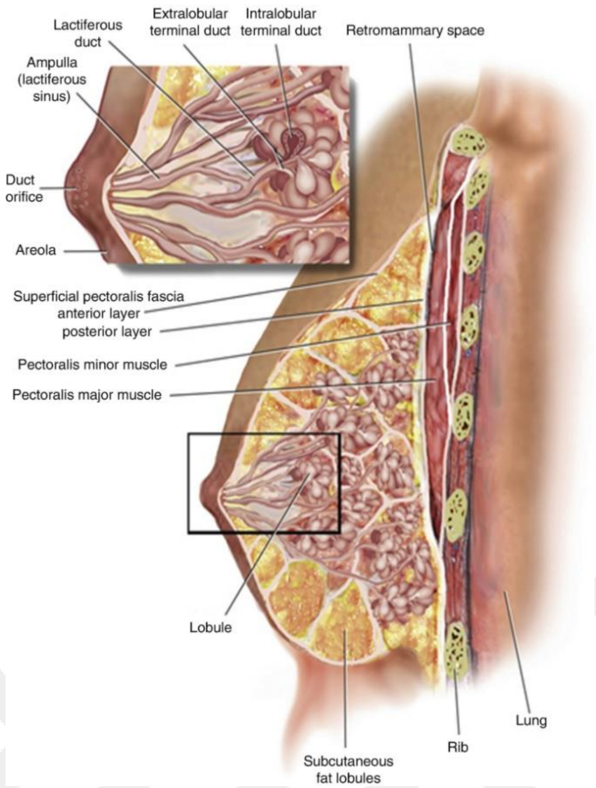

Figure 2.1 The anatomy of the women breast (Alex *et al*. 2020)

2.2. Breast cancer pathology

No one knows for sure what causes breast cancer to begin (Harbeck *et al*. 2019). However, exposure to estrogen may contribute to the development of breast cancer by causing DNA damage and genetic abnormalities. Sometimes, cancer-causing genes like BRCA1 and BRCA2 are passed down via families. Thus, a higher risk of developing breast cancer may be attributed to a family history of either ovarian or breast cancer (Sun *et al*. 2017). Most breast cancers develop in the lobules, which are milk-producing glands, or in the ducts that go from the lobules to the nipple (ACS 2021).

2.3. Epidemiology of breast cancer in the world and Iraq

Cancer of the breast is a kind of invasive ductal carcinoma. It may manifest initially in either of the breasts. Cancers of the breast can begin in various breast locations (ACS 2019). Breast cancer, as defined by the WHO, develops in the glandular tissue of the breast, namely the lining cells (epithelium) of the ducts (85%) or lobules (15%). While "in situ," the malignant growth produces no symptoms and spreads slowly within the duct or lobule (metastasis) (WHO 2021a).

By 2020, it was predicted that there would be over 2.3 million new breast cancer cases in women, making up 12.5% of all malignancies in both sexes combined. This made it the top cause of cancer worldwide. Moreover, it turns out that just 25.8% of women fall into this category (GLOBOCAN 2020a). Breast cancer is the second most common type of cancer in the world, accounting for one-sixth of cancer deaths and one-fourth of all cancers in women. The annual number of deaths from this disease is estimated at 685,000 cases, which places it in first place among all types of cancer (Sung *et al*., 2021). The 5-year global prevalence of breast cancer is 17.7% in both sexes, and 33.7% in women alone, being the most prevalent kind of cancer among females (Lei *et al*. 2021).

From 2000 to 2019, the rate of new cancer diagnoses in Iraq increased from 52.00 to 91.66 per 100,000 people. In 2019, about one-third of all cancer cases in Iraq will be diagnosed in women, and this was due mostly to breast cancer. In 2019, breast cancer had the greatest cancer death rate 22.58%, and the highest cancer incidence rate (35.95/100,000) (Iraqi Cancer Board 2019).

2.4. Early diagnosis of breast cancer / screening methods

Early detection has been a rallying cry for cancer patients and their families since at least the 1930s, thanks to pioneers in cancer care like the American Cancer Society (ACS). Using pathologist guidance, data gathering, and patient follow-up, New York Presbyterian/Columbia University's breast service was one of the first to build a contemporary center specialized in cancer care, encouraging collaboration across physician subspecialists. Because screening mammography was not yet available, it was recommended that women do both a Clinical Breast Exam (CBE) and a Breast Self-Examination (BSE) to detect tumors at an earlier stage. Patients with tumors less than 2.0 cm in diameter had a 95% 5-year survival rate, while patients with tumors greater than 5 cm in diameter had a 70% 5-year survival rate. In the 1980s, RNs were only starting to enter the "gray area" between medical and nursing practice using "standardized processes" like CBE (Coleman 2017).

The prognosis is critical for long-term survival, and early identification of breast cancer assists in early diagnosis and treatment. The prognosis is a major worry for breast cancer patients who wait a long period between first diagnosis and therapy because even a short delay in either of these can significantly impact the course of the illness (Tahmooresi *et al*. 2018).

In Iraq, the incidence of BC among women is high, as it appears in an advanced stage of cancer. The complicated stage of breast cancer among Iraqi patients at the time of diagnosis was documented in 2017 by retrospective research that documents the clinical and pathological parameters of 603 individuals, 1.2% of patients with ductal carcinoma in situ (stage 0), 9.5%, 47.1%, 33.2%, and 9.1% of patients were diagnosed at Stage I, II, III, or IV, respectively. 70-80% of patients are of this age or 40-59 years (Alwan *et al*. 2017).

The Ministry of Health (MOH) in Iraq launched a National Program for Early Detection of Breast Cancer in 2001, which included the opening of specialized clinics in the country's largest hospitals and the establishment of four main specialized referral training centers for early detection in Baghdad, Basra, and Mosul. The primary goals of the program are to increase awareness of breast cancer screenings, decrease cancer-related mortality, and improve survival rates (Al-Alwan 2015, Alwan *et al*. 2018).

In 2010, the MOH received financing from the Ministry of Higher Education and Scientific Research (MOHESR), which led to the creation of the breast cancer-focused "National Cancer Research Program" and the "National Cancer Research Center" (NCRC) in 2012. The NCRC at Baghdad University is doing more than just research and teaching; they have also started some programs to raise awareness about the need for early detection (Al-Alwan 2020).

2.4.1. Breast self-examination

BSE of the breasts should be performed at the same time each month to detect abnormalities. There are two essential parts to this: sight and touch. It requires both sight and touch. By establishing a baseline of normalcy, this approach can help women see abnormalities quickly (Boraas and Gupta 2021).

The BSE procedure is painless, quick, and easy to execute without needing special equipment. BSE methods entail inspecting and touching one's breasts while standing and lying in front of a mirror for abnormalities such as lumps, soreness, skin changes, dimpling, nipple discharge, pulled-in nipple, alterations in size, shape, consistency, and redness. When a person becomes 18, they should begin getting the BSE done once per month (Rahman *et al*. 2019, Mekonnen 2020).

The vast majority of changes found during BSE are not cancerous. Still, in many countries, it may be the only alternative, so women should be encouraged to become familiar with what is normal for their breasts and to notice any changes in their size, shape, skin, or nipples as soon as possible (Abo Al-Shiekh *et al*. 2021).

2.4.2. Clinical breast exams

Since the initial randomized controlled breast cancer screening experiment in 1963, it has been unclear whether or not CBE is useful. Various expert bodies have issued CBE recommendations at odds with one another. The Canadian Task Force on Preventive Health Care discouraged population-based screening using CBE in 2011, in 2018, the American Cancer Society in 2015, and the Japan National Cancer Center in 2016. In 2009, the U.S. Preventive Services Task Force found inadequate evidence to recommend for or against CBE. However, the American College of Obstetricians and Gynecologists (ACOG) suggested CBE every 1-3 years for women aged 25-39 and yearly for those aged 40 and over. The inconsistency across guidelines/recommendations can be due to contextual disparities in the appraisal of evidence and the sufficiency of the evidence, as well as discrepancies in the methodologies and quality of systematic reviews used to inform them (Ngan *et al*. 2020, Mehta *et al*. 2019).

In high-income countries (HICs), mammography has been so closely associated with breast cancer screening that it is sometimes cited as the sole source of such guidelines and/or systematic reviews. In HICs, mammography is widely available, although CBE as a stand-alone screening method has not been shown to be effective (Altobelli *et al*. 2017).

2.4.3. Mammography

The most common type of medical imaging is x-rays. Mammography is a low-dose x-ray examination used in medicine to check for breast cancer. For a more precise read with less exposure to radiation, mammography machines utilize two plates to compress the breast and spread it apart in preparation for the x-rays (Zubor *et al*. 2019).

The current standard of care for detecting breast cancer is mammography. The goal of this technique is to spot cancerous growths before they become obvious. The breast is an x-ray in the traditional craniocaudal and mediolateral oblique perspectives for mammography. The test may find suspicious tumors, but cannot definitively diagnose cancer. If a breast biopsy is performed for cancer suspicion, histopathology, and molecular analysis can be performed to determine the exact nature of the tumors (Barba *et al*. 2021).

When it comes to screening females for breast cancer, mammography is now the gold standard. On average, a lesion will not be detected by BSE or CBE, for one to two years after it has been detected by mammography. According to the US Preventive Services Task Force, women aged 50–74 who have a mammogram have a 30% lower chance of dying from breast cancer. There is a 17% lower mortality rate among women in this age range (Thompson and Stopeck 2008).

2.5. Mammography screening standards in the world and Iraq

Health workers should explain the processes and answer any questions patients have before the examination. Women should be instructed not to apply deodorant or talcum powder on exam day to avoid image interference. Patients need privacy during exams to feel comfortable. These latter two stages are crucial for a quick diagnosis and treatment, if necessary (Paho 2016).

The Iraqi National Program for Breast Cancer Research and the Iraqi Cancer Board recommend starting monthly breast self-examinations at 20 to detect breast abnormalities' which works best 7–10 days after your menstruation. They should start a clinical breast examination at age 20 and check every 3 years, then yearly from age 40 and above. At forty, mammography should be done every three years, and at fifty, once a year. High-risk women start annual mammography screening at 30 years (Iraqi Cancer board 2017, Al Ameen *et al*. 2020).

2.6. Factors affecting mammography behavior of breast cancer

Several variables were found to decrease women's propensity to have mammograms, and these obstacles were shown to exist in all social strata. In order to better understand screening behaviors and encourage screening initiatives, several researchers have advised that these hurdles be taken into account. Awareness, attitude, cultural values, fear, belief in fate, self-efficacy, and psychological variables all have a role in determining screening behavior (Emami *et al*. 2020).

In 2020, researchers in India set out to learn more about the variables that discourage and encourage women from getting screened for cancer. Most people didn't get screened because of psychological concerns like worrying about being sick or being told they had cancer. Ignorance, cultural norms, economic barriers, and issues within the medical system all play a role as well. Changes in government policy to implement obligatory screening programs, incentives, and raising awareness were cited as reasons for the rise in women's participation in screenings. The primary obstacles to screening women, including psychological and social concerns, have not altered significantly over time (Mahalakshmi and Suresh 2020, Yildirim *et al*. 2020).

Problems with screening mammography arise from the healthcare system as a whole. Women's contact with the health care system, especially health care systems, and practitioners, can be a barrier to adherence. Lack of health care provider (HCP) recommendation for mammograms, lack of a usual HCP, economic barriers (lack of health insurance and cost of mammography), and lack of access to examination services, and appointment barriers, have all been identified in the literature as system-wide barriers within the healthcare industry (Abdel-Salam *et al*. 2020, Sarma 2013, Bowser *et al*. 2017, Hassoun *et al*. 2015).

The customs and beliefs of a woman's social circle and culture might act as stumbling blocks when it comes to getting a mammogram. Having a friend or family member drive you to your doctor's visits is an example of the practical kind of social health support while having someone to talk to about your breast health or offer medical advice is an example of the emotional kind. Modesty, privacy concerns, and a fatalistic outlook on cancer are examples of cultural norms that may discourage mammography screening (Orji *et al*. 2020, Freund *et al*. 2017, Mishra *et al*. 2012).

Personal factors that prevent women from getting regular mammograms include perspectives on cancer and what we know adherence to mammography can be hindered by women's erroneous views about the cause and management of cancer. A discussion of the benefits and risks of mammography a major obstacle to screening may be a lack of information or inaccurate understanding regarding mammography and mammography screening guidelines, which might hamper adherence. Apprehensions that aren't really positive regarding screening Fear of humiliation, discomfort, and a potentially bad diagnosis are all factors that may discourage women from undergoing mammography screenings. Loss of faith in the medical establishment, particularly among women of color, and a lack of faith in hospitals and doctors has been identified as a barrier. A major predictor of non-adherence was the presence of conflicting priorities, such as worries that took precedence over screening and a lack of time to be screened (Ilaboya *et al*. 2018, Sarma 2013).

The primary goal of a 2016 descriptive research done on 100 Iraqi female volunteers was to identify barriers to mammography screening among Iraqi women. Significantly less than half (47%) indicated concern over potential divorce in the event of a breast cancer diagnosis. Lack of resources for treating breast cancer if diagnosed (29%), fear of personal safety when traveling to medical centers (48%), and difficulty in accessing medical facilities (35%) were all cited as impediments. The assumption that breast cancer is infectious was one of the most commonly reported myths regarding breast cancer among the sample (Al-Attar 2016).

2.7. Perception of self-efficacy

A person's self-efficacy indicates how confident they are in their ability to do a certain activity and bring about the desired result. Those who believe in their own abilities to achieve their goals are more likely to do so. Self-efficacy was developed by Bandura on the basis of social cognitive theory, which examines the reasons behind the emergence of particular patterns of behavior. The concept of perceived self-efficacy has been applied to predict and explain health-seeking behavior (Jerome-D'Emilia *et al*. 2015).

In the context of mammography, self-efficacy increases women's motivation to take essential preventative measures (e.g., finding a mammography service provider, obtaining a referral, paying for the test, and preparing for getting a mammogram) (Moshki *et al*. 2017).

Claim that African-American women, in general, have a more positive view of their own abilities than do white women. Self-efficacy competence in undergoing mammography was shown to be related to socioeconomic position and physician advice in the same study (Champion *et al*. 2005).

Compared to women who had a low opinion of their own ability to perform a mammogram, those with a high opinion were nearly three times as likely to get mammography (Secginli 2012). Using the attitude, social impact, and self-efficacy (ASE) model, researchers in Korea found that self-efficacy was the most relevant predictor in predicting frequent mammography among women in their twenties and thirties (Lee and Kim 2015).

Researchers in 2014 surveyed Muslim women who had just immigrated to the United States in order to learn more about their breast cancer knowledge, screening habits, and other variables that may influence their decision to get a mammogram. Studies have shown that self-efficacy is a major factor in whether or not women get mammograms (Hasnain *et al*. 2014).

2.8. Fear

When we see danger as substantial and personally meaningful, we experience fear, which is a negative emotion accompanied by a high level of arousal. People can show their fear in a number of ways, including via their bodies (as arousal), their mouths (through self-reports), or their actions (through overt conduct) (facial expressions) anxiety (i.e., self-rated feelings of anxiousness), physiological arousal, responses to mood adjectives (e.g., frightened, anxious, nauseous), and ratings of concern or worry have all been used to operationalize fear in the fear appeal literature (Witte 2009).

Anxiety over one's health develops when ordinary feelings or shifts in one's body are interpreted as signs of a more serious condition. Anxiety over one's health includes feelings as well as thoughts, actions, and perspectives. Health anxiety, to be more precise, is characterized by negative feelings such as fear, worrying thoughts, and heightened sympathetic nervous system activity. Health anxiety has been imagined on a continuum ranging from moderate and temporary to severe and chronic to account for the wide range of experiences that people have with this phenomenon. Moderate to high levels of health anxiety is typically in the context of chronic disease (Asmundson and Fergus 2019). The incidence of moderate to high anxiety about cancer recurrence among cancer survivors, where cancer is considered a chronic condition, was estimated to be 49% in a recent comprehensive study. The analysis also revealed conflicting findings on the severity of cancer recurrence anxiety with time. Some research has found no change in fear, while other research has shown that anxiety spikes immediately following a cancer diagnosis and treatment before leveling out. With the exception of being younger in age and experiencing somatic symptoms, this research found few sociodemographic and medical determinants. We find little significance in illness and treatment-related variables. Thus, there is still a lot of work to be done to pinpoint the people who have chronic illnesses and are most likely to present with heightened health anxiety (Lebel *et al*. 2020).

Women worry about getting breast cancer because Most respondents cited anxiety over a possible breast cancer diagnosis as their primary reason for avoiding mammograms. Women also claimed that they were less likely to obtain mammograms when they thought about the potential side effects of the procedure, such as chemotherapy, pain, mortality, suffering, treatment costs, and mastectomy. In addition, several participants were anxious about the risks of mammography, particularly those related to breast compression and radiation (Shirzadi *et al*. 2020).

Beliefs about cancer and confidence in one's own abilities to fight cancer have an impact on how seriously people take the disease. Individuals' preventative and information-seeking behaviors in relation to cancer are best understood when their perception of their own cancer risk is taken into account (Wigfall and Friedman 2016). Another study found that African-American women's dread of cancer and their faith in fate prevented them from getting screened for it (Talbert 2008).

The Iranian study also observed poor mammography rates among the women due to fear of discovery of a breast lump and perceived dread of physical pain of the mammography technique, despite the women's claims of having a high level of awareness about the subject (Mokhtari *et al*. 2011).

2.9. The role of the public health nurse in improving screening behavior for women

In order to effectively prevent illness, primary care must be in place. It is essential to the community's global, social, and economic growth, and it serves as the backbone of the National Healthcare System. Providing services as near to people's homes as feasible, the primary care physician's office is the initial point of contact for patients, families, and communities with the National Healthcare System (Who 2021b, White 2015).

Breast cancer survival rates can be improved by education on the disease and its prognosis, a primary care system that is accessible to all people regardless of their socioeconomic status or cultural background, and a robust referral system for initial surgical and hormonal therapy (Bahkali *et al*. 2017).

The nurse's role is to educate and comfort women who have a strong personal or family history of breast cancer. High-risk women should be provided interventions such as education, psychological support, involvement in breast cancer screening, anxiety management, and treatment decision support. Counseling these women also decreases their anxiety related to breast cancer risk and increases their compliance with screening criteria (Rainey *et al*. 2018, Benito *et al*. 2014).

Nurses are uniquely positioned to integrate primary and secondary prevention strategies for breast cancer into their existing practice. Primary prevention entails educating women about breast cancer risk factors and influencing behavior change. Secondary prevention entails screening for and early detection of the disease. Increased motivation to recommend and perform breast cancer screening (and other types of screening behaviors) for their patients may result from nurses having access to information about early detection methods and their benefits, which would contribute to cancer control by reducing late-stage diagnoses (Wu and Chen 2017).

As a result, public health nurses should ensure that all women have access to high-quality education and training in order to detect breast cancer early, improve their screening habits, and increase their understanding of the importance of leading a healthy lifestyle. Thus, public health nurses play a crucial role in promoting and enforcing breast cancer screening practices as a type of preventative healthcare (Bahkali *et al*. 2017).

3. MATERIAL AND METHOD

3.1. Design of the study

It is cross-sectional and relational.

3.2. Setting of the study

The study was conducted in the main primary health care centers within Hilla Sector I and Hilla Sector II in Babil Governorate, Iraq.

3.3. Study sample

The study sample consisted of women living in the city of Babylon. The inclusion criteria were to be a woman over 40 years old, one of the applicants of the main primary care centers in the first or the second sector of Hilla, have the ability to communicate in Arabic, and consent to participate in the study. In calculating the sample size of the study, since the number of women who visit primary care centers over the age of forty is unknown, the number of samples was determined using the sampling equation in cases where the number of individuals in the community is not known (Sarmah *et al*. 2013), and it was calculated as at least 385 women. The equation used to calculate the sample size:

$$N = \frac{z^2 \, p(1-p)}{e^2}$$

N: Number of individuals to be sampled

Z: is the selected critical value of the desired confidence level (1.96) at the 95% confidence level

P: is the estimated ratio of an attribute found in the population (0.5) e is the desired precision level(0.05)

$$N = \frac{(1.96)^2\ 0.5(1-0.5)}{(0.5)^2} = 385$$

386 samples were collected

3.4. The exclusion criteria

Those with a mental or cognitive disability, women with significant medical issues, and those who refused to give consent were also excluded.

3.5. Data collection

Data were collected using a paper questionnaire and face-to-face interviews with women who met the inclusion criteria and who became 386 participants. Women who visit the main health centers of the first and second sectors in Babil Governorate were received. It takes about 20 minutes for each woman to answer the questionnaire. Data was collected from June 1st, 2022 to September1st, 2022.

3.6. Research instrument

Three parts of the data collecting tools were used: The Sociodemographic and Clinical Characteristics Form, Champion Mammography Self-Efficacy Scale Arabic versions, and Champion Breast Cancer Fear Scale Arabic versions.

3.6.1. Part one: Sociodemographic and clinical characteristics form

It consists of 14 questions, including age, education level, marital status, children, employment, income status, perceived health status, family history, breast problems, information about breast cancer, health history, BCE status, BSE status, mammography status, and who referred you to your last mammogram. That was prepared based on the literature (Champion *et al*. 2005, Champion V. *et al*. 2004, Alyami, Al-Sharef, Al-Aseri and Henning 2019, Moshki, *et al*. 2017, Secginli 2012).

3.6.2. Part two: Modified Champion mammography self-efficacy scale-Arabic CMSES

Developed by Champion *et al*. (Champion *et al*. 2005), it consists of 10 items and is scored using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). CMSES assesses the perceived effectiveness of the process of having a mammogram. The total score ranges from 10 to 50, with higher scores indicating a higher probability of having a mammogram screening. CMSES showed good internal reliability (α = .87) and the construct validity of this scale was also confirmed using factor analysis (Alyami et al. 2019), and 6 additional elements have been added to CMSES. Overall adjusted scale scores ranged from 16 to 80. The Cronbach's α correlation coefficient for the modified CMSES-Arabic was 91, and the corrected item-total correlations for each item ranged from 0.51 to 0.68 (Alyami et al. 2019)(Appendix 3).

3.6.3. Part three: Champion breast cancer fear scale-Arabic (CBCFS-Arabic) CBCFS

Also developed by Champion *et al*. (Champion V. *et al*. 2004), it consists of 8 items and is a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). It is scored using CBCFS assesses emotional and physiological responses to breast cancer threat. The total score ranges from 8 to 40, with a higher total score indicating greater fear of breast cancer. A score of 8-15 indicates low fear, a score of 16-23 indicates moderate fear, and a score of 24-40 indicates high fear. The reliability coefficient was determined as (α = .91). The construct validity was verified using factor analysis (Alyami et al. 2019). Arabic version translation CBCFS-Arabic, Cronbach's α correlation coefficient was 94, and the corrected item-total correlations of each item ranged from 0.74 to 0.81 (Alyami et al. 2019) (Appendix 4).

3.7. The ethical considerations

The approval of the Ministry of Health and Environment of Iraq/Babil Health Department /Training and Human Development Center was obtained according to Ministry Decision No: 71 on June 14th, 2022 (Appendix 1). The student researcher also received a research ethics decision No: 25 from Çankırı Karatekin University on March 11th, 2022 (Appendix 2). The consent of all women was obtained before sample collection.

3.8. Data analysis

Data were analyzed using the statistical package for social sciences (SPSS) for Windows version 26. The descriptive statistical measures of frequency, percentage, mean, and standard deviation were used to describe the subjects' sociodemographic and clinical characteristics form. The distribution related to Kolmogorov-Smirnov in the results section is not normal, so the Spearman correlation used.

4. RESULTS

Table 4.1 Participants' sociodemographic and clinical characteristics (n = 386).

Variable	**Mean ±SD**	**Max-Min**
Age (years)	48.46±6.83	41-75
	n	%
Level of education		
Illiterate	30	7.8%
Literate	27	7.0%
Primary school	37	9.6%
Secondary school	17	4.4%
High school	45	11.7%
Undergraduate	149	38.6%
Postgraduate	81	21.0%
Marital status		
Married	291	75.4%
Single	95	24.6%
Do you have children?		
Yes	263	68.1%
No	123	31.9%
Working status		
Yes	211	54.7%
No	175	45.3%
Income status		
Income is less than expenses	107	27.7%
Income equals expense	238	61.7%
Income is more than expenses	41	10.6%
Perceived health status		
Very bad/bad	27	7.0%
Moderate/ Good	296	76.7%
Very good	63	16.3%
Family history		
Yes	33	8.5%
No	353	91.5%
Do you have any breast health problems such as pain, nipple discharge, mass?		
Yes	45	11.7%
No	341	88.3%

Table 4.1(continued) Participants' sociodemographic and clinical characteristics (n = 386).

Have you received information about breast cancer before?		
Yes	236	61.1%
No	150	38.9%
Have you been diagnosed with breast cancer before?		
Yes	11	2.8%
No	375	97.2%
Your status of performing BSE		
I do it regularly every month.	13	3.4%
I do it irregularly	116	30.1%
I never do	257	66.6%
Your status of having CBE		
I have it done regularly every year	15	3.9%
I don't get it done regularly every year	72	18.7%
I have never done	299	77.5%
Your mammography status		
I take it regularly every year	12	3.1%
I take it regularly every two years	26	6.7%
I have never had it taken before	348	90.2%
Who referred you to your last mammogram?		
Midwife or nurse working in Family Health Center	1	0.3%
Family Health Physician	3	0.8%
Cancer Early Diagnosis and Education Center	3	0.8%
The doctor or nurse in the hospital	24	6.2%
One of the family members (mother, sister, brother, spouse)	1	0.3%
I am impressed by the programs broadcast on television or the internet	4	1.0%
Other ……………	2	0.5%

The study results show that the mean age is 48.46±6.83, for the education level, 38.6% were college graduates, 75.4% were married, 68.1% had children, 54.7% worked, 61.7% of them had income levels equaled expenses, 76.7% of them had a good perceived health status, 91.5% of them did not have a family history of breast cancer, 88.3% of them did not have breast problems, 61.1% received information about breast cancer and 97.2% of them did not have breast cancer. 66.6% of them have not performed breast self-examination, 77.5% have not performed clinical breast examination, 90.2% of them have not performed mammography, 6.2% of them have been advised by nurses or doctors in hospitals (Table 4.1).

Table 4.2 Description of mammography self-efficacy for women over 40 years of age (n=386)

Variable	Rating	Frequency	Percent%	Total Score±SD	Min-max
CMSES	Low Moderate High Total	19 141 226 386	4.9 36.5 58.5 100	55.44±9.05	16-80

CMSES=Champion Mammography Self-Efficacy Scale

The results of the study showed that the self-efficacy of Iraqi women is high, as 4.9% of women enjoyed a low level of self-efficacy, 36.5% have moderate self-efficacy, and 58.5% have high self-efficacy, and the overall scale score is 55.44±9.05 (Table 4.2).

Table 4.3 Description of breast cancer fear for women over 40 years of age(n=386)

Variable	Rating	Frequency	Percent%	Total Score±SD	Min-max
CBCFS	Low moderate High Total	29 81 276 386	7.5 21 71.5 100	30.13±6.12	8-40

CBCFS = Champion Breast Cancer Fear Scale

The results of the study showed that the percentage of fear in Iraqi women is high, as 7.5% of women enjoyed a low level of fear, 21% had a medium level of fear, and 71.5% had a high level of fear. The overall scale score was 30.13±6.12 (Table 4.3).

Table 4.4 The relationship between mammography self-efficacy and breast cancer fear (n=386)

Factor	CBCFS
CMSES	0.147^{**} 0.004

*=p < 0.05, **=p < 0.01, CMSES champion mammography self-efficacy scale
CBCFS champion breast cancer fear scale

The results of our study revealed a weak positive relationship between the measure of CMSES, and the measure of CBFS, that is, the increase of one of them increases the other, and $r = 0.144$ ($p < 0.05$) (Table 4.4).

5. DISCUSSION

In our study most women were found to have a high level of self-efficacy. Other studies by (Kratzke *et al*. 2013, Canbulat and Uzun 2008, Yılmaz and Durmuş 2016, Kissal *et al*. 2018, Taşdemir and Seçginli 2022) found similar results indicating that women over 40 years of age have higher self-efficacy. Jerome-D'Emilia and Suplee (2014) stated that there may be self-efficacy, which is higher in the women being screened, as an effective mediator by which to develop interventions to increase preventative, health-seeking behaviors. There are many reasons available in Iraqi society that led to the emergence of women with a high level of self-efficacy, such as the availability of examination centers and ease of access to them, as well as the material cost, where the examination is almost free, in addition to the availability of health staff and the comfortable nature of women's work, often without pressure.

In contrast to our study, where I discovered a study of African American women to evaluate the self-efficacy of mammography screening in women. The results of the study indicated that African American women had low self-efficacy regarding mammography screening (Jennings-Sanders 2009). The level of self-efficacy varies as different studies have used different scales to assess self-efficacy. The reason may be due to the high costs of treatment in America. Cultural perspectives can influence the need for testing among racial minority patients. For example, low degrees of acculturation or only a brief stay in the United States can be impediments to cancer screening programs (Liu *et al*. 2020).

Our study found that Iraqi women enjoyed high levels of fear. There are many results similar to those of our study conducted by Taşdemir and Seçginli (2022) who found that breast cancer fear among women is high. A descriptive correlational study was conducted in Iran on 152 women. The aim was to investigate beliefs, fear, and awareness about breast cancer and mammography screening practices for women. This study found that women experienced higher levels of fear (Emami *et al*. 2020). In a descriptive, cross-sectional, comparative study, the aim was to compare the mammographic screening behavior of women with mammograms and women without mammograms, and levels of fear and perceived social support), the researcher found that women had high fear as a response to breast cancer fear scale (Çınar and Tuzcu 2020).

In a study conducted on Mexican-American women, the aim of which was to describe the fear of breast cancer and its association with personal characteristics and examination behavior among women. The study sample consisted of 1916 women. The results of the study were that 1042 women suffer from high levels of fear. In general, the level of fear was high (Flores-Luevano *et al*. 2020). Therefore, psychological interventions that can reduce women's fear levels should be implemented by psychologists in collaboration with health workers and public health experts.

The results of our study found a weak positive relationship between the CMSES scale and the CBFS scale. This result was frankly unexpected that the relationship between self-efficacy and fear of breast cancer is complex. The relationship between breast cancer fear and screening completion is complicated and difficult to clarify. On the one hand, found an association between breast cancer fear and previous mammography completion has been reported (McCaul *et al*. 1996, Lagerlund *et al*. 2000, Edwards 2000, Consedine 2004, Lauver and Chang 1991, Somayyeh and Aydogdu 2019). Self-efficacy is one of the important factors that increase the chances of women obtaining mammograms, and most studies indicate that there is a positive relationship between self-efficacy and mammograms (Jerome-D'Emilia and Suplee 2014, Jennings-Sanders 2009). The results of these studies explain the findings of our study, where fear is an important motivating factor to consider mammography, and the examination cannot be completed without finding the self-efficacy of women.

These studies are considered supportive of the results of our study. The association between self-efficacy and fear of breast cancer differs. Champion *et al*. (2004) found that the relationship between self-efficacy and fear was negative, for example, in the same study, it was assumed that the relationship between benefits and fear was negative, but the researcher was surprised when he found it positive. In another study, it was found that there is no relationship between the fear of breast cancer and the self-efficacy of mammograms (Abdul Kareem 2016). It may be due to the difference in sample size, place of study, and community culture.

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusions

1. Iraqi women have high mammography self-efficacy

2. Iraqi women have high levels of breast cancer fear

3. There is a significant relationship between mammography self-efficacy and breast cancer fear.

6.2. Recommendations

1. It requires that primary healthcare personnel keep women frequently informed about breast cancer and breast cancer screening

2. Provide them with training brochures and encourage them to do it regularly

3. Teach women strategies to manage their fear about breast cancer

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APPENDICES

APPENDIX 1. Babil health department ethics committee evaluation document.

APPENDIX 2. Çankırı karatekin üniversitesi ethics committee evaluation.

APPENDIX 3. Champion mammography self-efficacy scale.

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