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Evaluation of Mammogram Services in the Gaza Strip Governorates

Submitted by

Anwar M. Jadallah

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Prepared by

Anwar M. Jadallah

BSc. of Pharmacy- Al Azhar University, Gaza

Supervisor

Dr. Khitam Abu Hamad

Assistant Professor-Al-Quds University, Palestine

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Prepared by: Anwar M. Jadallah

Registration No.: 21112593

Supervisor: Dr. Khitam Abu Hamad

Master thesis submitted and accepted, Date: / /

The names and signatures of examining committee members are as follow:

1. Head of committee: Dr. Khitam Abu Hamad Signature……..……..
2. Internal examiner: Dr. Yehia Abed Signature……..……..
3. External examiner: Dr. Sobhi Skaik Signature……..……..

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Dedication

To my mother and father to whom I owe my life and success

To my wife who has been a great source of motivation and inspiration.

To my kids; Menna, Nadeen, Amro, and Sara for their encouraging smiles

To my brother and sisters

And

To everyone who contributed to make this study a reality

Anwar M. Jadallah

Declaration

I certify that this thesis submitted for the degree of master is the result of my own research, except where otherwise acknowledged, and that this thesis or any of its parts has not been submitted for higher degree to any other university or institution.

Signed:

Date:

Acknowledgement

This thesis would not have been possible without the guidance and help of several individuals who in one way or another contributed and extended their valuable assistance in the completion of this study. My high recognition and appreciations is due to Dr. Khitam Abu Hamad for her support and guidance

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Anwar M. Jadallah

Abstract

Breast cancer is by far the most frequently diagnosed cancer and cause of death among women worldwide, Palestine is not an exception. In 2012, some of 1.7 million of women were diagnosed with breast cancer. Worldwide, there is a variation in the breast cancer survival rates which greatly ranging from 80% or over in North America, Sweden and Japan to around 60% and 40% in low and middle-income countries. The 5- year's survival rate among Palestinian women is between 30% and 40%; this reflects the late diagnosis of breast cancer and the poor prognosis. Within the Gaza Strip context, there is a pressing need for implementing the early detection strategies including mammography-screening programs in order to detect breast cancer cases in early stages. The overall aim of this study was to evaluate the current mammogram services in the Gaza Strip in order to propose recommendations to increase the uptake rate of mammogram services

The design of this study is a descriptive analytical cross sectional design. It is a mixed methods study; it involves both quantitative and qualitative data. The quantitative data were collected from women who came to utilize the health services within the study settings. In total, 400 women participated in the study (160 women who visited the study settings to utilize mammogram services and 240 women who visited the study settings to utilize other health services). Qualitative data were collected through in-depth interviews with all the Directors of Mammography units in the Gaza Strip. Analysis of quantitative data were conducted using SPSS program, the analysis involved conducting frequency distributions, cross tabulation, general scores, mean percentages, and Chi-square. For qualitative data, an open coding thematic analysis method was used.

Findings of the study showed that more than two-thirds of the study participants have good knowledge of the early detection of the breast cancer and methods used in the early detection of the breast cancer(78.7% and 70.2%) respectively. The findings of the study did not show significant relationship between women's age, educational level of women, income status, and marital status and mammogram services utilization but showed significant relationship between employment status and mammogram services utilization (P=0.023). Additionally, the findings have showed a significant relationship between conducting mammogram and other factors, namely, family history of breast cancer, previous problems in the breast/s, having knowledge about early detection of breast cancer, methods used for early detection, and having knowledge about the importance of the early detection of breast cancer(P=0.000). Participants of the study have positive beliefs and conceptions about mammogram and its importance in the early detection of breast cancer (68.24% and 63%) respectively. The study findings have identified some barriers to mammogram services utilization, including pain, discomfort, fear from mammogram procedures and result, and time consumed in the process. While, cost, culture and religion were not barriers, thus, there were no accessibility problems. The findings of the study have also showed that mammogram services is timely affordable for more than two-thirds (73.7%) of study participants but there was a lack of information accessibility. Additionally, more than two-thirds (76.05%) of cases were satisfied with the accessibility and affordability of mammogram services. There is a need to develop a national policy for early detection of breast cancer screening including clear guidelines for mammogram, and organized health education programs to increase awareness and to increase the uptake of mammogram screening services. There is also a need to increase the number of mammogram units that could be used primarily for screening purposes, at least one unit in each governorate, finally, it is important to supply the currently working units with the required spare parts and films.

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Abbreviations

ACS	American Society of Cancer
AJCC	American Joint Committee on Cancer
BSE	Breast self-examination
CBE	Clinical breast examination
GCR-MoH	Gaza Cancer Registry
GDP	Gross Domestic Product
GS	Gaza Strip
MoH	Ministry of health
IARC	International Agency for Research on Cancer
NBCF	National Breast Cancer Foundation
NCI	National Cancer Institute
NGOs	Non-governmental organizations
OECD	The Organization for Economic Co-operation and Development
PCBS	Palestinian Central Bureau of Statistics
PHIC-MoH	Palestinian Health Information Center
PNGO	Palestinian Non-governmental Organizations
PRCS	Palestinian Red Crescent Society
SEER	National Cancer Institute's Surveillance Epidemiology and End Results
UNRWA	United Nations Relief and Works Agency for Palestinian Refugees
USPSTF	U.S Preventive Services Task Force
WB	West Bank
WHO	World Health Organization

Chapter 1

Introduction

1.1 Background

Among women worldwide, breast cancer is the most common malignancy. In 2012, 1.7 million women were diagnosed with breast cancer (International Agency for Research on Cancer, IARC, 2013). Along with being the most frequent cancer among women, it represents about 12% of all newly diagnosed cancer cases and 25% of all cancers among women in both developed and developing countries (IARC 2013). According to the National Breast Cancer Foundation (NBCF, 2012), one in eight women will be diagnosed with breast cancer in their lifetime. The case fatality of breast cancer is high; thus, it ranks as the fifth cause of death from cancer overall, both in developing and developed countries (Ferly et al., 2010).

Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (Globacan, 2008). According to the National Cancer Institute (NCI, 2015a), it is estimated that, 231,840 women will be diagnosed with breast cancer, which constitutes 14% of all new cancer cases and about 40292 women will be dying as a result of breast cancer which constitutes 6.8% of all cancer deaths.

In general, there is a variation in the incidence of breast cancer across countries. The highest rates were reported in the Western and Northern Europe, and North America and the lowest rates were reported in Sub-Saharan Africa and Asia (Jemal et al., 2011). The variation in the prevalence of breast cancer among countries is largely attributed to changes in reproductive patterns, the use of hormonal therapy, and the advancement in diagnosis techniques (Jemal et al., 2010). However, the recent decades have witnessed an increase in the incidence rate of breast cancer in developing countries due to increasing in life expectancy, increasing urbanization, and adopting of western lifestyles (World Health Organization, WHO, 2015).

Based on the information derived from the Palestinian Health Information Center (PHIC-MoH, 2006), like most of the countries, breast cancer is the most prevalent malignancy among Palestinian women. The incidence rate of breast cancer is similar to that of neighboring countries where breast cancer accounts for nearly half of all female cancer

cases (Husseini et al., 2009). With regard to the Gaza Strip (GS) and according to the Gaza Cancer Registry(GCR-MoH), breast cancer accounts for more than 30% of all female cancers and the total number of reported breast cancer cases was 1,213 cases during years from 2000 to 2010 (GCR-MoH, 2010). Accordingly, the incidence rate of breast cancer among Gaza's women was 15.6 per 100,000 women and most of breast cancer cases were reported among women aged between 45 and 54 years old, which represent 28.8% of the total cases (GCR-MoH, 2010). From the researcher point of view, the prevalence of breast cancer might be underestimated due to under reporting.

In order to improve breast cancer's outcome and increase survival rates, several strategies can be used. One of these strategies is prevention of specific modifiable breast cancer risk factors as well as effective integrated prevention of non-communicable diseases, which promote a healthy diet, physical activity, control overweight, and obesity, which could eventually have an impact in reducing the prevalence of breast cancer in the long term (WHO, 2015).

Although, reduction of some of these risk factors might decrease the prevalence of breast cancer, however, these strategies cannot eliminate the majority of breast cancer cases that develop in low and middle-income countries where cases where late diagnosis is common (Anderson et al., 2008). Therefore, improving breast cancer outcomes and increasing survival rates remains the cornerstones of breast cancer early detection and treatment (Anderson et al., 2008).

In addition, early detection of breast cancer is incredibly important, as it is a condition to decreasing mortality and morbidity rates (WHO, 2006). Moreover, early detection constitutes of two approaches; early diagnosis in symptomatic population and screening in a symptomatic population (WHO, 2015)

In low and middle-income countries where breast cancer diagnosis was in the very late stages due to limited resources, lack of strategies that aim to increase the possibility of the early detection which are extremely important and should be cost effective strategies (Yip et al., 2008). There are several methods that could be used for early detection of breast cancer namely; mammography, clinical breast examination (CBE) and breast self-examination (BSE) (Khatcheressian et al., 2006). The above-mentioned methods are used for both screening and diagnosis of breast cancer (NCI, 2015b).

Mammography is the most common and widely approach that could be used for the early detection of the breast cancer; it is used as screening and diagnostic purposes. The main purpose of screening is the early detection of breast cancer, which in turn will lead to effective treatment, better outcomes, and increase the chances of survival (NCI, 2015b).

Although, the sensitivity of mammogram is lower among younger women, U.S Preventive Services Task Force (USPSTF) recommends mammography for women older than 40 years who are in good health (Knutson, et al. 2007), and research studies have shown that women aged 40 to 74 who have performed mammography and diagnosed with breast cancer had a higher chance of survival than women who did not perform mammography (NCI, 2015b).

1.2 Problem statement

Globally and regionally, breast cancer ranks as the second leading cause of death among women. Several studies have shown that most women with breast cancer in the Eastern Mediterranean region including Palestine diagnosed in the late stages especially in the third or fourth stage of cancer. Worldwide, there is a variation in the breast cancer survival rates which greatly ranging from 80% or over in North America, Sweden and Japan to around 60% and 40% in low and middle-income countries (Coleman et al., 2008). The low survival rates in less developed countries can be explained mainly by the lack of the early detection program especially mammogram screening program and the lack of adequate diagnostic and treatment facilities resulting (WHO, 2015). The 5- year's survival rate among Palestinian women is between 30% and 40%; this reflects the late diagnosis of breast cancer and the poor prognosis (Bendel, 2005). Thus, there is a pressing need for implementing the early detection strategies including mammography-screening programs in order to detect breast cancer cases in early stages. In GS, the availability of mammogram units is low in comparison with other countries and eight mammogram facility-based units are available equally distributed between Non-Governmental Organization (NGOs) and the MoH (MoH, 2012). MoH mammograms are based at hospitals, and usually imaging is conducted for risky cases not as a part of the routine screening (The Organization for Economic Co-operation and Development, OECD, 2012). With regard to the governmental mammogram units, the presence of three units in hospitals and one unit in the primary health care center reflects the fact that women do not utilize mammogram-screening services unless they have a strong suspicion of breast cancer. However, only

27% of women living inside Gaza and 50% of women residing outside Gaza are willing to undergo screening mammography (Shaheen et al., 2011). Therefore, it is important to invest in early detection of breast cancer, including routine mammogram screening (MoH, 2014a).

Given the low survival rate of breast cancer, limited availability of mammogram facilities in the GS, and the low rate of mammogram screening, it is very important to assess and evaluate the current status of mammogram facilities in the GS. The researcher is aware of few studies that assessed separate component of mammography services. This study will be among the first studies to evaluate the mammography services in the GS, both screening and diagnostic services.

1.3 Justification and significance of the study

Breast cancer is the second leading cause of death among Palestinian women. In the GS, 60% of women diagnosed with breast cancer in late stages and the disease had already metastasized to other body parts (Bendel, 2006). Sadly, the 5-year survival rates in the Gaza strip is between 30 and 40% at best (Bendel, 2005). The low survival rate is due to several factors including: late-stage presentation, more aggressive forms of breast cancer, younger ages at diagnosis and a lack of resources for screening, diagnosis and treatment (El-Saghir, 2008). Studies have shown that breast cancer mortality rate declined by the early detection and treatment (Berry, 2005; Glass, 2007). Thus, given the high mortality rate and low survival rate from breast cancer pressing on propose and develop polices and recommendations that could be used to increase investment in the use of mammogram in the early detection of breast cancer as a routine screening approach. Thus, there is a need to evaluate the current mammogram services in the GS.

1.4 Overall aim of the study

The overall aim of this study is to evaluate the current mammogram services in the GS in order to propose recommendations to increase the uptake rate of mammogram services especially the screening services.

1.5 Objectives

1- To determine the current practices of mammography services in the GS.

2- To assess women's knowledge with breast cancer risk factors and mammogram services.

3- To assess the availability and affordability of mammogram services in the GS.

4- To determine to which extent the mammogram services meet the needs of women in the GS.

5- To access the main barriers that hinder women from the utilization of the mammogram services in the GS.

6- To propose recommendations for policy makers that might promote the mammogram services and enhance its benefits in the GS.

1.6 Research questions

This study addresses the following questions:

1- Are there specific guidelines for the mammogram services in the GS?

2- What is the extent of health providers experience and knowledge with the mammogram services?

3- Is there continuous training for health care providers concerning the mammogram services?

4- Are there sufficient mammogram units in the GS?

5- What is the extent of women's knowledge with risk factors of the breast cancer and mammogram services in the

6- Are the mammogram services meet the needs of the women for early detection of the breast cancer?

7- Are the mammogram services accessible and affordable for women in the GS?

8- What are the main challenges encountered mammogram services in the GS?

9- What are the main barriers that hinder the provision of effective mammogram services in the GS?

10- Are women satisfied with the mammogram services in the Gaza strip governorates?

1.7 Context of the study

1.7.1 Demographic context

The entire area of the occupied "Palestine" is about 27000 km2; extending from Ras El-Nakoura in the North to Om El-Rash Rash in the South. Palestine is boarded by Lebanon in the North, the Gulf of Aqaba in the South, Syria and Jordan in the East and by Egypt and the Mediterranean Sea in the West **(Annex 1)**.

Palestine was under the British mandate in 1919, which had been ended by the establishment of “Israel” in 1948; implementing the Balfour Declaration of 1917 had promised a homeland for Jews (Abu-Lughod, 1971).

GS is a narrow land, located on the Southwest of Palestine on the coast of the Mediterranean Sea **(Annex 2)**. GS is a high crowded area. The total estimated population in the end of 2014 was about 1.79 million with a population density 4900 person/km2 (Palestinian Central Bureau of Statistic, PCBS, 2015), and composed from 50.8% males and 49.2% females (PCBS, 2014b). The GS is divided into five governorates: North Gaza, Gaza, Deir al-Balah (Middle Zone), Khan-Younis and Rafah (PCBS, 2012).

1.7.2 Socio-economic context

Last years, the economic situation continued to decline severely due to the tight siege imposed on GS after the Palestinian Legislative Council election. The occupation, conflict, siege, closures and frequent wars have left the high densely populated GS in a state of severe vulnerability (MoH, 2014a). The siege that has been intensified by Israel on GS since June 2007 greatly harmed the health system at two levels; the provision of health services inside GS and access to treatment outside GS (MoH, 2014a).

Additionally, an exceptional level of humanitarian situation due to the intense isolation that has been taken on GS, with managing mechanisms depleted, popular absolute poverty and an inability of civil society organizations and formal authorities to meet even the basic needs of the population (MoH, 2014a). Moreover, the local communities become gradually unable to purchase required medicaments, contribute to medical fees and pay transport to reach health facilities (Palestinian Non-governmental organizations, PNGO, 2009).

Furthermore, the villainous attack of Israeli military forces in December 2008, November 2012 and July 2014 on GS has increased the burden of poverty due to the massive destruction of the public infrastructure and utilities including water, sanitation, electricity,

transportation networks, educational institutions and houses (MoH, 2014a). This situation manifested in the unemployment rates, more than 43.9 % in 2014 (PCBS, 2015) and the poverty rate was 38.8% in 2011 (PCBS, 2012b).

The Gross Domestic Product (GDP) in Palestine decreased by 2.5% during 2014 compared with 2013; GDP per capita has decreased by more than 5% during 2014 compared with 2013 (PCBS, 2014). The annual GDP for Gaza per capita in 2013 was $1182.9 (PCBS, 2015). The main sources of livelihood in the GS are employment at the services sector mainly at government, United Nations Relief and Works Agency for Palestine Refugees (UNRWA) and NGOs, rain-fed agriculture, livestock rearing and fishing (PCBS, 2012a). According to the PCBS Report (2014), the percentage of those who are older than 15 years in labor force is 44.4% and 55.6% are outside the labor force. The same source indicates that among those in labor force, only 56.1% are employed.

1.7.3 Palestinian health care system

The Palestinian Health sector is comprised of three major components, primary health care (PHC), secondary health care and tertiary health care. Four major service providers share responsibilities in health care service provision: governmental health sector (MoH), (UNRWA), NGOs and the private sector (MoH, 2014b)

Various providers providing primary health care including the MoH; non-governmental organizations; UNRWA and the Palestinian Red Crescent Society (PRCS) provide primary health care services. Primary health care centers throughout Palestinian governorates have expanded from 454 centers in 1994 to 750 centers in 2012, a 65.2% increase. The MoH is the main PHC operating 61.3% of the total PHC centers (MoH, 2014b)

The MoH is also the main provider of secondary health care services. It owns and operates 2,979 hospital beds distributed over 25 hospitals throughout the various Palestinian governorates. The overall number of hospital beds in Palestine is 5,414 beds distributed over 79 hospitals; 49 are in the WB with 3,163 beds, making up 57.6% of total hospital beds, the remainder is in the GS (MoH, 2014b).

1.7.3.1 Governmental hospitals in Gaza strip

MoH is responsible for the main portion of secondary and tertiary health care delivery system; in GS there are 13 hospitals managed by MoH. There are 6 specialized hospitals and 7 general Hospital, the hospital distributed by governorates as 2 in North of Gaza, 6 in

Gaza, 1 in Middle East, 2 in Khan-Younis and 2 in the Rafah Governorates (MoH, 2012). The total number of staff members who are working in different professions inside the MOH hospitals is 9061 members in the GS according the MoH report 2012. The number of physicians was 1072 while the total number of nurses was 1678. The number of other clinical staff total number was 1068, administrators, clerks or other non-clinical staff total was 1493 (MoH, 2012).

1.7.3.2 Primary health care centers

Primary health care system (PHC) is a major component of Palestinian health system: this system has provided health care to all Palestinian people especially for children and other venerable groups.

Primary health care centers in Palestine provide primary and secondary health care services. PHC centers try to offer accessible and affordable health services for all Palestinians regardless the geographical locations. According to MoH policy, PHC classified from level I to level IV. They offer different health services according to clinic level. These services include: maternal and child health, care of chronic diseases, daily care, family planning, dental, mental services and other services according to the center level (MoH, 2006).

1.7.3.3 NGOs hospitals

NGOs in GS are playing an important role in Palestinian healthcare system. NGOs play an essential role in promoting accessibility to health services of vulnerable and marginalized people and contribute to bridging the gaps and the perceived inequalities in the health system (Abu Hamad, 2009). NGOs include organizations with social, political, and religious motivations. Historically and today, NGOs in Palestine have provided services including outpatient and inpatient care, psychosocial support, rehabilitation, health education, emergency care and surgical care (Yaghi, 2009). **(Annex 3)**

1.8 Causes of death in GS

According to the PHIC-MoH, at the end of 2013, the total number of deaths was 5050 cases (2656 males and 2394 females). The crude death rate in 2013 was 2.9 per 1000 of the population and ranging from 2.9 and 3.9. In addition, the main causes of death were heart diseases and formed (25.1%) of total death rate, neoplastic malignancies (13%) and cerebrovascular diseases (8.8%) and all of these causes formed 46.9% of the total deaths in the GS. It is worth to mention that cardiovascular diseases were the first a main cause of deaths among population in GS (PHIC-MoH, 2014)

In males, the mortality rate was 52.6% of the total mortality rate in 2013 and the main causes of death were heart diseases (25%), neoplastic malignancies (12%) and accidents (8.7%). While, in females, the mortality rate was 47.4% of the total mortality rate and the main causes were heart diseases (25.2%), neoplastic malignancies (14.1%) and cerebrovascular diseases (10.2%) (PHIC-MoH, 2014)

1.9 Operational definitions

Breast cancer

Breast cancer is a malignant tumor that stars in the cells of the breast. A malignant tumor is a group of cancer cells that can growth into (invade) surrounding tissues or spread (metastasize) to distant areas of the body (American cancer Society, ACS, 2015).

Early detection of breast cancer

Early detection means using an approach that lets breast cancer get diagnosed earlier than otherwise might have occurred (ACS, 2015).

Screening

Refers to the use of simple tests a cross a healthy population in order to identify individuals who have disease, but do not yet have symptoms (WHO, 2015).

Mammography

Mammography is a specific type of imaging that uses a low-dose x-ray system to examine breast. A mammography exam, called mammogram, is used to aid in the early detection and diagnosis of breast diseases in women (Radiological Society of North America, RSNA, 2015). Within the context of this study, the focus is on mammography services for females only.

Breast self-examination

Breast self-examination is a systematic approach that a woman can use to look at and feel her breasts (Komen, 2015).

Clinical breast examination

A clinical breast exam is an examination by a doctor or nurse who uses his or her hands to feel for lumps or other breast changes (Centers for Disease Control and Prevention, CDC, 2014).

Evaluation

Evaluation is an independent, systematic investigation into how, why, and to what extent objectives or goals are achieved. It can help the Foundation answer key questions about grants, clusters of grants, components, initiatives, or strategy (Tawersky and Lindblum, 2012)

Chapter 2

Conceptual framework and Literatures review

2.1 Conceptual framework

Conceptual framework guides the research process, organizes the work and makes the research findings meaningful. The researcher builds up the conceptual framework **(Figure 2.1)** to address the main domains of the study in accordance with the previous studies. The proposed framework composed from three categories: individual factors, health care system factors and health care providers' factors.

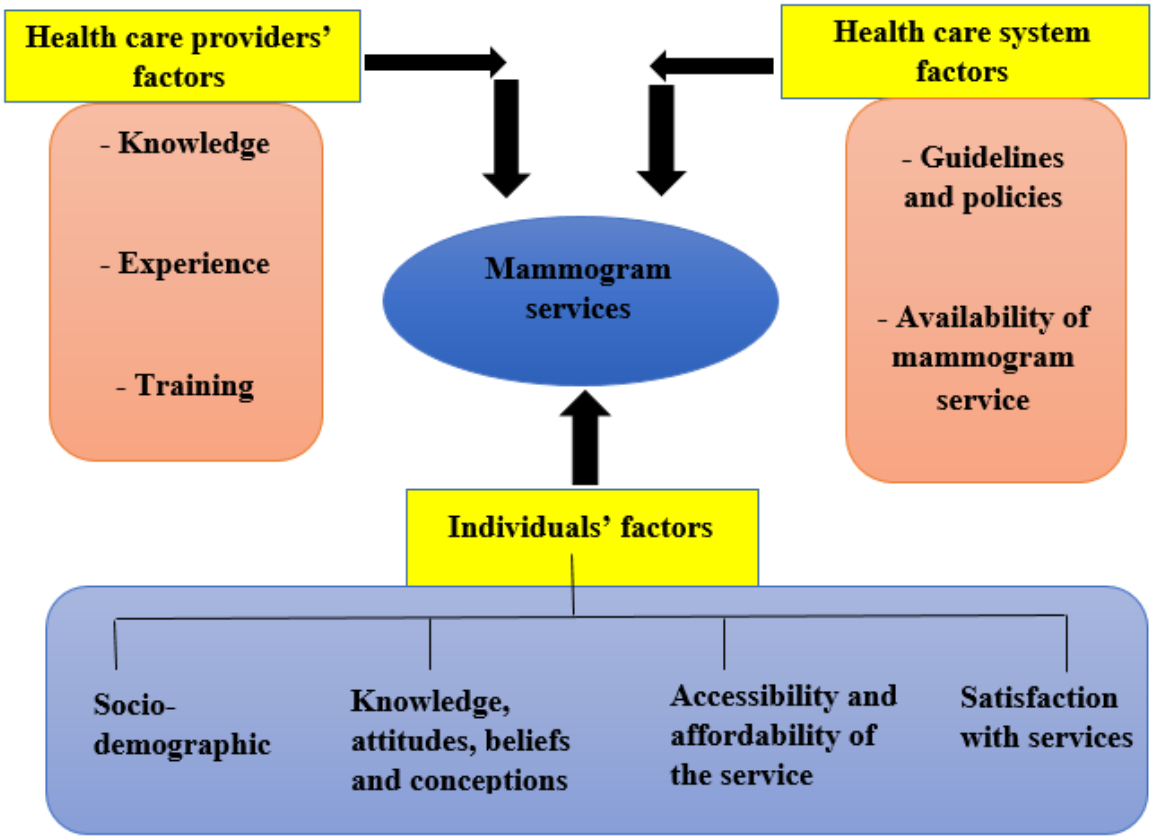


Figure (2.1) Conceptual framework for the study self-developed

A. Health care providers' factors

Several factors could play an important role in the health care providers' practices. Having the required knowledge, experience, and training are important factors that affect the effectiveness of the services and the outcomes.

Knowledge

Knowledge refers to awareness of or familiarity with various objects, events, ideas, or way of doing things (Henriques, 2013). Health care providers should have a high level of knowledge about the services that they offer and expected to provide patients with clear information about all of their health conditions (Coulter et al., 2008). Additionally, health care providers may act as a strong motivator for women to utilize health services, including screening mammogram by their recommendations (Bastani et al., 1991; Zakpa et al., 1990).

Additionally, it has been observed that for health workers to be effective as educators they should possess the appropriate knowledge, attitudes and beliefs concerning the health behavior being promoted (Bastani et al., 1994).

The awareness and knowledge of health professionals about breast cancer prevention is important, since their beliefs and behaviors may have a major impact on other women. Moreover, health professionals are a direct source of medical information to the public (Akpinar et al., 2011).

Experience

The concept of experience generally refers to know-how or procedural knowledge. The experience is important for health care providers when they introduce services because experience may help in decreasing errors and keeping resources from wasting.

Training

Training has been defined in various ways, as it is a planned process to modify attitude, knowledge or skill behavior through a learning experience to achieve effective performance in any activity or range of activities. In the work situation, it is to develop the abilities of the individual and to satisfy current and future manpower needs of the organization. Training is characterized as an instructor-led content-based intervention leading to desired change in behavior (Sloman, 2005). Training is important to the health care providers in order to improve their skills and attitudes, which will result in increasing the rate of mammogram accuracy and avoid false positive results.

B. Health care system factors

The value of any service is less when the healthcare system provides services that clients cannot access. The important features for access are access to information, financial access and affordability of services, availability of resources for diagnosis and availability of skilled health care professionals.

Guidelines and policies

Policy consists of governing laws and regulations, which can provide a course of action which guides and influences decisions. Thus, laws and regulations, standards of practices or best practices and institutional executive decisions governing a particular practice, drive the policies. Additionally, with the aims of ensuring appropriate consistency, the service providers create a descriptions of procedures, practices, and guidelines within the practice setting as a tool to help individuals perform their work within the organization and to facilitate decision-making.

Additionally, good implemented policies and guidelines ensure: good practice, help to establish a professional and effective organization, provide consistency among staff and the beneficiaries, prevent any ambiguity about how particular situation should be handled, promote harmony among staff, and it insures more efficient and effective delivery of services (International Finance Cooperation, IFC, 2010).

C. Individual factors

In this study, individual factors include socio-demographic, knowledge, attitudes, conceptions and beliefs, accessibility and affordability and finally satisfaction with the provided services.

Socio-demographic factors

In general, socio-demographic factors have an influence on women utilization to the health care services; there are differences in the relationship between socio-demographic factors and mammogram services utilization. Monthly household income, high-level education, health insurance coverage, age and marital status may increase the service utilization or not.

Knowledge, awareness, attitudes, beliefs and conceptions toward mammography

Knowledge refers to understanding and awareness of women toward breast cancer risk factors, early detection of breast cancer, methods used in early detection and attitudes, beliefs and conceptions toward mammography.

Accessibility and affordability

Within health care, access is always defined as access to service, a provider or an institution. It is also defined as the opportunity or case with which consumers or communities are able to use appropriate services in proportion to their needs (Whitehead, 1992; Daniels, 1981). Additionally, variations in access are presumed to influence patient satisfaction, service utilization, and provider practice patterns. Therefore, good accessibility to health care facilities is considered an important factor that reflects quality of health care (Berry et al., 2003), and one of the characteristics of client-centered care services (Davis et al., 2005). In addition, it is one of the main four pillars for human rights for health (World Health Organization, WHO, 2002a).

Satisfaction

Mahon, (1996) describes satisfaction as the positive evaluation by the patient of the health care they receive and suggests that it is affected by the degree to which the service has fulfilled any prior expectations. Otherwise, women's experience of screening mammography is important because the service must be acceptable to its intended population, so, women who have had a negative experience may discourage other potential participants from attending (Doyle and Stanton, 2002). Additionally, a previously painful experience may prevent the woman from adhering to the screening program (Kornguth et al., 1993). Therefore, satisfaction is especially important in screening mammography where participants have no symptoms and are not motivated by ill-health to comply.

On the other hand, various aspects may have an effect on the satisfaction of women with mammogram service; staff interpersonal skills, information giving, physical surroundings, convenience and accessibility and general satisfaction.

2.2 Literature review

2.2.1 Breast cancer

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it, too (ACS, 2015). Male breast cancer is a rare disease, accounting for less than 1% of all breast cancer diagnosis worldwide. It has a peak incidence at 71 years of age, while the incidence for female breast cancer has two peaks, at 52 and 71 years, respectively (Zygogianni et al., 2012). Male breast cancer is beyond the scope of this study.

There are many types of breast cancer; the most common two types are ductal and lobular carcinomas. Ductal carcinoma occurs in about 7 of every 10 women and originates in the cells that line the breast duct while lobular carcinoma originates in a lobule of the breast and occurs in about one of every 10 women (NCI, 2015b). The extent of the cancer in the body can be described as a staging process, which is the process of finding out how widespread a cancer is, when it is diagnosed and according to the stage of cancer, prognosis and treatment options that can be determined (ACS, 2015). As outlined by the American Joint Committee on Cancer (AJCC), Tumor Node Metastasis (TNM) is the most commonly used staging and classification system. The TNM staging system primarily depends on the tumor size, the presence of axillary node metastasis, and the confirmation of distant metastasis (ACS, 2015). Physicians describe the stages of the breast cancer using the Roman numerals 0, I, II, III, and IV and the letters A, B, and C. A cancer that is stage I is early-stage breast cancer, and a cancer with stage IV is advanced breast cancer that has spread to other parts of the body, such as the liver (NCI, 2012).

2.2.2 Burden of the breast cancer

Breast cancer is by far the most frequently diagnosed cancer and cause of death among women worldwide and the number of women and the number of women diagnosed with breast cancer was 1.7 million in 2012, and there were 6.3 million women with a breast cancer diagnosed in the previous five years. Moreover, it is now the cause of one in four of all cancers in women and the most frequent cancer among women in 140 of 184 countries (Ferlay et al., 2013).

Breast cancer represents the most common female malignancy in both developing and developed world, and is the primary cause of death among women globally (Benson and

Jatoi, 2012) and in developing countries, the majority of cases are diagnosed in late stages (WHO, 2015). Since the 2008 estimates, there is a sharp rise in breast cancer worldwide and the incidence has increased by more than 20%, while mortality has increased by 14% (Ferlay et al., 2013).

Burden of the breast cancer is high as, according to Forouzanfar and colleagues (2011), every 19 seconds, somewhere in the world, a case of breast cancer is diagnosed in a woman and globally, 1 out of every 18 women is at risk of developing breast cancer during her lifetime. Additionally, every 74 second, somewhere in the world, someone dies from the breast cancer (Forouzanfar et al., 2011).

Regionally, breast cancer ranks as the commonest malignancy among women in all countries of the Arab world, cases tend to be young, and almost half of patients are under the age of 50, with a median age ranged from 49 to 52 compared to 63 in industrialized nations (El-Saghir et al., 2007). The Age Standardized Incidence Rate (ASR) of breast cancer has increased in many countries in the region. In Lebanon, it is 69 in 2003, in Egypt, it is 49.6, Bahrain reported the highest incidence of breast cancer, which is 53.4, in Qatar is 48.2, in Kuwait is 46.6, United Arab Emirates, in UAE, it is 22.8, in Oman, it is 17.5 and in Saudi Arabia, KAS, it is 14.8 (Abulkhair et al., 2010).

In Palestine, breast cancer is the most common among Palestinian women and the proportion is similar to that in neighboring countries except Lebanon, where breast cancer accounts for nearly half of all cancer cases in women (Husseini et al., 2009; Shameseddine et al., 2004). According to the GCR-MoH in Gaza, the incidence rate of breast cancer is 60 per 100,000 population, making it the most prevalent type of cancer (16.4%) in the total population and occupied the most prevalent type in females (31%) (Abdeen, 2006), but in 2010, unpublished report from MoH mentioned that the average incidence rate among women in Gaza is 15.6 per 100,000 females and the ASR per 100,000 females was 33.1. In addition, the age groups 45 to 54 reported the maximum number of cases (334) forming 28.8% of the total cases (GCR-MoH, 2010).

2.2.3 Economic burden of breast cancer

Breast cancer with its expensive treatment puts a tremendous burden on the healthcare system resources and the purpose of the treatment does not cure the patient; rather, the intent is to control the disease for as long as possible. Furthermore, therapies often complicated, intensive, and costly, especially toward the end of life; inpatient costs in the

last 9 months for the terminal phase may be up to 8 times higher in the treatment phase (Roas et al., 2004).

The economic burden of any disease includes both direct and indirect costs. Therefore, breast cancer is not only hug health burden, but also a significant economic burden to society. The economic burden of breast cancer is not well documented and comprehensive estimations of the cost of breast cancer are limited (Lidgren et al., 2007)

In a review of US cost-of-illness studies for breast cancer, the lifetime per patient costs ranged from $20,000 to $100,000, with higher costs associated with managing patients with advanced stages of the disease. Additionally, multiple studies confirmed that costs increased with increased stage of disease and costs decreased with increased age of diagnosis (Campbell and Ramsey, 2009). An estimation of the Susan G. Komen foundation revealed that the average cost to manage early stages (0,I and II) completely differed from the cost of advanced stages (III and IV) where the cancer has spread to other parts of the body and the cost ranged from $22,000 to $120,000 (Bull, 2011). Moreover, the direct costs in 2010 for breast cancer care were $16.5 billion, which accounted 13% of all direct costs.

2.2.4 Societal burden of breast cancer

Breast cancer is a major societal problem. It does not affect an individual alone but the whole family unit. The impact of breast cancer is therefore profound upon both the woman diagnosed with the disease and her family. The fear and anxiety over the eventual outcome of the illness may manifest itself through behavioral changes (WHO, 2006).

Therefore, family members (spouses and children) try to find different ways to cope by undergoing a variety of emotional responses and take on new challenging roles while their daily routines are interrupted. Moreover, the costs of productivity loss associated with morbidity and premature mortality are much greater and formed 89% of all breast cancer costs (Broekx et al., 2010).

2.2.5 Risk factors for development of breast cancer

A "risk factor" can be anything from a lifestyle choice, a personal characteristic, and an environmental exposure that can influence a person's risk of developing a certain disease. The established risk factors for breast cancer may increase a woman's chances of developing the disease. However, having one or more risk factors does not necessarily

mean that a woman will get breast cancer, and no single factor can explain any given case of breast cancer as it is a complex disease with often many different contributing causes. There are some risk factors that women have control over, such as alcohol consumption, weight gain after menopause, and exercise, while others such as age, age of onset of menstruation or menopause are not within the woman's control (CHEM, 2008).

2.2.5.1 Gender, Age, and Geographical variations

Gender is by far the greatest risk factor. Breast cancer affects both men and women; however, the incidence is much higher for women. Overall, women are at 100-fold higher risk of breast cancer than men (Thomas, 1993). In women, incidence rates of breast cancer rise sharply with age until ages 45 to 50, when the rise become less steep (Smith et al., 1996). This change in slope probably reflects the impact of hormonal change (menopause) that occurs about this time.

Age is one of the best-documented risk factor for breast cancer. The incidence of breast cancer increases with age, doubling about every 10 years until the menopause, when the rate of increase slows dramatically and the incidence of breast cancer is higher at younger age (McPherson et al., 2000). The disease is less common in women younger than 40 years of age; only about 0.8% of breast cancers occur in women < 30 years old, and approximately 6.5% develop in women between 30 and 40 years old (Jardines et al., 2015).

Among Gaza's women most of breast cancer cases were reported among women aged between 45 and 54 years old, which represent 28.8% of the total cases (GCR-MoH, 2010).

Geographical variations or residence: Breast cancer incidence and mortality varies among population around the world. Age-standardized incidence rates vary by around fivefold, and are highest in the more affluent so-called "developed" countries and lowest in the less-developed countries (McPherson et al., 2000). Difference between Far Eastern and Western countries is diminishing but is still fivefold. Studies of migrants from Japan to Hawaii show that the rates of breast cancer in migrants assume the rate in the host country within one or two generations, indicating the environmental factors are of greater importance than genetic factors (McPherson et al., 2000)

2.2.5.2 Family history and genetics

A woman's risk of breast cancer is increased if she has a family history of breast cancer and approximately, from 15 to 20% of women who developed breast cancer had a family history of the disease and 5-10% hereditary (Pharoah et al., 2002; Claus et al., 1996).

Double breast cancer risk existed when first-degree relatives (mother, sister, or daughter) were diagnosed with the disease while 3-fold breast cancer risk existed when the two first relatives were diagnosed with the disease (ACS, 2015). A collaborative reanalysis of data from 52 epidemiological studies, including both women with breast cancer and others without has estimated the risks associated with varying degrees of breast cancer history among first-degree relatives. Compared with women reporting such family history of breast cancer, women with one, two, and three or more affected first-degree relative had relative risk and the findings were similar for women reporting mothers or sisters with breast cancer (Lancet, 2001). The relative risks associated with a family history were greater for younger women, and breast cancer risk for women of a given age was greater, the younger the relative was when diagnosed (Pharoah et al., 1997).

2.2.5.3 Higher-risk mutations

So far, at least five germline mutations that predispose to breast cancer have been identified. These include mutations in the genes BRCA1, BRCA2, P53, PTEN, and ATM. BRCA1 and BRCA2 are two genes that have been identified as having the strongest association with breast cancer risk. In a combined analysis of 22 studies, found that the cumulative risk of breast cancer by age 70 is 65% for those who inherited a BRCA1 variant and 45% for carriers of the BRCA2 (Antoniou et al., 2003). Although all women who inherit a BRCA1 or BRCA2 variant do not necessarily develop breast cancer, it is unclear what other factors (environmental or genetic) influence the risk of disease. There is also evidence emerging that risk factors for breast cancer might act differently for carriers of BRCA1 or BRCA2 variant than for women without genetic susceptibility due to these genes (Nkondjock et al., 2004). Statistical analysis also suggests that high-risk genes other than BRCA1 and BRCA2probbably contribute to risk of breast cancer, particularly, for younger women (Dite et al., 2003)

2.2.5.4 Breast conditions

A number of breast characteristics or changes that occur in the breast may have some association with the development of invasive cancers and some of these changes might represent earlier stages, or precursors of invasive disease. Others represent conditions that might increase risk of invasive breast cancer while still others may not influence cancer risk at all.

2.2.5.5 Carcinoma in situ

Breast carcinoma in situ (CIS) occurs when cells have the appearance of invasive cancer, but do not invade adjacent tissue. Ductal carcinoma in situ (DCIS) remains confined to the milk ducts and accounts for approximately 85% of breast CIS. Lobular carcinoma in situ (LCIS) remains confined to the lobules and accounts for approximately 10% of breast CIS (National Breast and Ovarian Cancer Center, NBOCC, 2009).

Ductal carcinoma in situ

The risk of being diagnosed with DCIS increases with age and, which is younger than for invasive breast cancer. At present, for women over 50, approximately 15-25% of all breast tumors diagnosed within mammography screening programs are DCIS (Erbas et al., 2006). Additionally, DCIS is a precursor lesion for invasive breast cancer, but also a marker of risk as revealed by the report of follow-up of cases of DCIS that were initially misdiagnosed as benign lesions and were not treated. Furthermore, in these studies, the proportion of women who developed invasive breast cancer ranged from 14% to 53% (Erbas et al., 2006).

Lobular carcinoma in situ

Lobular carcinoma in situ (LCIS) of the breast is challenging because it is not associated with clinical symptoms, cannot be detected at mammography and is usually an incidental finding in breast biopsies performed for other reasons (NBOCC, 2009). In contrast to DCIS, LCIS tends to be spread more diffused throughout the breast and women with LCIS are seven to nine times more likely to develop invasive breast cancer with 15 years than women with no LCIS (Hurley et al., 1997). On the other hand, few studies have evaluated risk factors for LCIS separately from DCIS, largely because the rarity of LCIS makes such studies difficult. To date, most risk factors for LCIS and DCIS appear similar (Claus et al., 2001, Trentham et al., 2000).

Benign breast disease

Benign breast disease (BBD) or "fibrocystic disease" is a general terms applied to a range of changes in breast tissue. These changes can be difficult to distinguish clinically from invasive cancer until a biopsy is conducted for definitive diagnosis (NBOCC, 2009).

Hartmann and colleagues, (2005) found that over a median follow-up length of 15 years, women with non-proliferative BBD, proliferative without atypia BBD and proliferative without atypia BBD, small, moderate and large increases in breast cancer risk were observed respectively (Hartmann et al., 2005).

The current consensus is that even atypical hyperplasia is merely a marker of increased breast cancer risk; because only around 19% of women with this diagnosis, develop breast cancer in the subsequent 10-15 years and risk of breast cancer is reduced further after that (Shirly, 1999). Additionally, McPherson and colleagues, (2000) found that women with severe atypical hyperplasia have a four to five time's higher risk of developing breast cancer than women who do not have any proliferative changes in their breast. Moreover,

women with palpable cysts, complex fibroadenomas, duct papilloma's, sclerosis, adenosis, and moderate or florid epithelial hyperplasia have a slightly higher risk of breast cancer (1.5-3 times) than women without these changes, but this increase is not clinically important (McPherson et al., 2000).

Mammographic breast density

Mammography has commonly been used to investigate breast disease. The mammographic appearance of breast tissue varies between women, due to the different proportion of fat and epithelial or connective tissue. The fat tissue appears dark on mammogram, whereas the epithelium or connective tissue appears light (NOBCC, 2009).

Mammographic breast density is emerging as one of the strongest risk factors for breast cancer. Women with the highest degree of breast density are at a four to six-fold increased risk of breast cancer compared with little or no breast density (McCormack et al., 2006, Torres et al., 2005, Maskarinec et al., 2005, Ziv et al., 2004).

Some of breast cancer risk factors associated with increased breast density and these factors include nulliparity, later age at first full-term pregnancy, lower parity and alcohol consumption. The association between denser breasts and lower body mass index (BMI)

for premenopausal women and current use of hormone replacement therapy (HRT) by postmenopausal women, are also consistent with relationship observed for breast cancer (Willett et al., 2004, Vachon et al., 2000).

2.2.6 Reproductive and menstrual history

Age at menarche and menstrual cycle length

Menarche, the time of commencement of menstrual cycles, is characterized by monthly fluctuations in hormone levels, ovulation and cellular proliferation in the breast.

Some studies found an association between age at menarche and breast cancer. Results from these studies revealed that women who had their first menstrual period at an age less than 12 years have a slightly higher risk of breast cancer (10 to 25%) than women who had their first menstrual period later (≥12 years) (Colditz et al., 2005, Willett et al., 2004, Bernstein et al., 2002, Kelsey et al., 1993). Early menarche also might be associated more with regular ovulatory cycles, which contributes to greater lifetime exposure of breast tissue to endogenous hormones. Similarly, shorter cycle length has been shown to increase breast cancer risk. This has been attributed to more frequent cycles and time spent in the luteal phase, when estrogen and progesterone levels are high and cell proliferation in the breast appears to be higher (Bernstein et al., 2002, Kelsey et al., 1993).

Parity and age at first full-term pregnancy

Studies revealed that, on average, women who have had children (parous women) have up to about a 30% lower risk of breast cancer than women who have had no children (nulliparous women) (Colditz et al., 2005, Willett et al., 2004, Kelsey et al., 1993, Ewertz et al., 1990). In parous women, breast cancer risk decreases with the number of children and increases with the age at first full-term pregnancy, and both associations appear to be an independent effect of breastfeeding (Lancet, 2002, Kelsey et al., 1993; Ewertz et al., 1990).

Results from reanalysis of 47 studies from 30 countries, including women with and without breast cancer, showed that each birth after the first reduced the risk of breast cancer by approximately 7%. Meaning that women who have given birth to at least four children, have a breast cancer risk 20-30% lower than that of women who have given birth to only one child (Lancet, 2002). For parous women, a younger age at first childbirth is associated

with a lower lifetime risk of breast cancer (Lancet, 2002; Ewertz et al., 1990). Additionally, for women who have their first child at younger ages (before 25 years) their breast cancer risk is about 43% lower than for women who have their first child late (after 29 years), irrespective of the number of children and the duration of breastfeeding. Moreover, for some women who have their first child at older ages (after 29 years), in particular those who had only one child and who did not breastfeed, breast cancer risk is higher than for nulliparous women. There is some evidence that the increased risk associated with late age at first birth is stronger for premenopausal breast cancer than for postmenopausal breast cancer (Colditz et al., 2005, Willett et al., 2004, Kelsey et al., 1993, Ewertz et al., 1990).

Breastfeeding

Breastfeeding reduces risk of breast cancer, probably through several mechanisms including differentiation of the epithelial cells, reduction in the cumulative number of ovulatory cycles due to delay in re-establishing ovulation after a completed pregnancy and the reduction of epithelial cells following completion of breastfeeding (Bernier et al., 2000). Studies suggest that breastfeeding may slightly lower breast cancer risk, especially if it is continued for 1½ to 2 years (ACS, 2015). Studies in Chinese populations show a progressive reduction in risk with increasing length of nursing years, but in Western populations, it is rare for mothers to have attained sufficiently long periods of nursing to estimate the effects of lactation on breast cancer risk (Henderson et al., 1996). Although not all studies are consistent, breastfeeding is now generally regarded as being associated with a modest decrease in risk of breast cancer and the relative risk of breast cancer for parous women decreased by 4% for every 12 months of breastfeeding (Lancet, 2002).

Age at menopause

During menopause, in addition to the gradual cessation of ovarian hormone production, a process called involution occurs in the breast; this process is characterized by decreased cell proliferation and an eventual reduction in the proportion of epithelial cells. Postmenopausal women have a 15- to 30% of lower risk of breast cancer than premenopausal women of the same age and childbearing (Coldtiz et al., 2005, Lancet, 1997). Additionally, breast cancer risk is lower than for premenopausal women, but it increases with age at menopause (Colditz et al., 2005, Lancet, 1997).

2.2.7 Endogenous and exogenous hormones

Endogenous hormones

A pooled analysis of nine prospective studies on the association between circulating levels of estrogens, other sex hormones and breast cancer risk for postmenopausal women showed that the risk of breast cancer was significantly associated with increasing concentration for each of the estrogens tested (nine estrogens) and the risk was approximately double for women whose estradiol levels were in the top quintile compared with women whose estradiol levels were in the bottom quintile (Key et al., 2002).

There are some of prospective studies have reported on premenopausal breast cancer. Some of these studies reported an association between circulating hormone levels and premenopausal breast cancer risk. It is possible that high level of sex hormones are associated with increased risk of premenopausal breast cancer, but the evidence remains inclusive (Hankinson and Eliassen, 2007; Eliassen et al., 2006; Kaaks et al., 2005).

Exogenous hormones:

Oral contraceptive: a small increase in the risk of breast cancer resulted from the use of pill containing combined oral contraceptives. Additionally, the risk increase also in the 10 years after stopping (Lancet, 1996). Moreover, the analysis found that, while women were taking the Pill, their risk was increased by an average of 24% compared with women who never used the pill (Lancet, 1996). Kumle and colleagues, (2002) reported an elevated risk of breast cancer for current or recent oral contraceptive users at start of follow-up, with similar findings for the combination pill and the progestin-only pill (Kumle et al., 2002). Other studies suggested that oral contraceptives do not increase the risk of breast cancer (Hannaford et al., 2007, Marchbanks et al., 2002). These inconsistent findings show that the association between oral contraceptive use and breast cancer risk, if any is likely to be modest.

Hormone replacement therapy (HRT): the Collaborative Group on Hormonal Factors in Breast Cancer conducted studies analysis concluded that HRT users had a 14% higher risk of breast cancer compared with never users and risk increased by 2.3% for each year of use for current or recent (within the past 1-4 years) users. Additionally, for women who had used HRT for five or more years (average 11 years), breast cancer risk was 35% higher than for never users (Lancet, 1997).

A later report from the trial of the women's health initiative (WHI) concluded that HRT based on estrogens does not increase breast cancer risk (Anderson, 2004). Other report from the National Cancer Institute's Surveillance, Epidemiology and End Results

(SEER) registries published in 2007 showed a sharp decline in breast cancer incidence rates in 2003 and the authors related this decrease in breast cancer incidence to the drop in the use of HRT by postmenopausal women in the US (Ravdin et al., 2007).

2.2.8 Obesity

BMI shows a significant inverse association with breast cancer risk for premenopausal women, but the inverse association was limited to women in the highest BMI categories, with obese women being at about half the risk of the leanest women (Van den Brandt et al., 2000). Van den Brandt and colleagues, (2000), found that breast cancer risk increased with increasing BMI in postmenopausal women (Van den Brandt et al., 2000). Otherwise, avoiding adult weight gain and maintaining a healthy body weight as well as normal BMI might contribute importantly to decreasing breast cancer risk and mortality especially in postmenopausal women (Friedenreich, 2001).

2.2.9 Lifestyle

Diet: Differences in diet have attracted much attention as a possible explanation for the international differences in breast cancer risk. Jardines and colleagues, (2015), found that diets that are high in fat have been associated with an increased risk for breast cancer. Additionally, women who have diets high in animal fat from high-fat dairy foods have and increased risk of developing breast cancer. Otherwise, there is no association between the consumption of red meat and an increased risk of breast cancer (Jardines et al., 2015).

Misser and colleagues, (2002), found from analysis of studies that, no significant associations were found between breast cancer risk and the consumption of either total meat, red meat, white meat, total diary fluids or total dairy solids (Misser et al., 2002). While, Boyed and colleagues, (2003) reported a small increase in breast cancer risk associated with high intake of total fat and saturated fat (Boyd et al., 2003).

Alcohol: Jardines and colleagues, (2015) found that moderate alcohol intake (two or more drinks per day) appears to modestly increase breast cancer risk (Jardines et al., 2015). The relative risk of breast cancer increase by 7% for each additional standard drink per day (Hamajim et al., 2002).

Smoking: The relationship between cigarette smoking and breast cancer risk is complicated. Some critical reviews for literature on smoking and breast cancer concluded that cigarette smoking might be associated with a small increase in breast cancer risk, particularly for smoking of long duration (Terry and Rhon, 2002; Morabia, 2002; Khuder et al., 2001). Moreover, Cui and colleagues (2006) found that breast cancer risk was associated with the duration, intensity, cumulative, exposure and time since starting of cigarette smoking (Cui et al., 2006).

2.2.10 Environmental exposure

Radiation (Ionizing radiation and electromagnetic fields). Ionizing radiation is an established cause of breast cancer, with evidence from studies of atomic bomb survivors, women exposed to radiation for medical purposes related to diagnosis or treatment of health conditions and women working with radiation in occupational settings (Willett et al., 2004, Boyd et al., 2002). In studies of exposed Japanese women 35 years after the atomic bomb, risk of breast cancer was 4-fold greater in women younger than 4 years of age and 2-fold greater in women 10-14 years of age compared with women 20-30 years of age at the time of the bombing. Women younger than 40 years of age had a greater risk than those older than 40 at the time of bombing (Land, 1995; Tokunaga et al., 1987).

Electromagnetic fields (EMFs) are invisible areas of low energy that result from the flow of electric current. The scientific literatures on EMFs exposure and breast cancer risk was reviewed and concluded that the weight of the evidence available today does not suggest an increased risk of breast cancer related to EMF exposure (Feychting and Forssen, 2006).

Environmental pollutants: more than 200 chemicals have been shown in animal studies to damage DNA, promote tumor development and growth, or alter mammary gland development (Rudel et al., 2007).

2.2.11 Breast cancer survival rate

The survival rate is the percentage of women who are still living a period after they are diagnosed with breast cancer (Warren, 2002). Breast cancer survival is described in several ways. The terms used focus either on; how long a women lives after being diagnosed with breast cancer (the five or ten years survival rates); her risk of getting a second tumor(recurrence); or her risk of death compared to other women with breast cancer (Warren, 2002).

The five-year survival rate is the percentage of people who survive at least five years after being diagnosed with cancer (ACS, 2015). If the cancer is located only in the breast, the five-year relative survival rate of people with breast cancer is 99% and if the cancer has spread to the regional lymph nodes, the five-year survival rate is 85% while if the cancer has spread to a distant part of the body, the five-year survival rate is 25%. Moreover, for all stages combined, the five-year survival rate for breast cancer is 89%, the ten-year rate is 83% and the 15-year rate is 78% (American Society of Clinical Oncology, ASCO, 2015).

Breast cancer survival rates vary greatly worldwide, ranging from 80% or more in North America, Sweden, Spain, Switzerland and Japan, to around 60% in middle-income countries and below 40% in low-income countries (Algeria 38.8%, Brazil 36.6% and 12% Gambia) (Sankaranarayanan et al., 2010; Coleman et al., 2008). The 5-years survival rate for women with breast cancer in Gaza was 53.4% (Al.Agha, 2014). The low survival rates in less developed countries can be explained mainly by the lack of early detection programs, resulting in a high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities (WHO, 2015). In addition, many factors may affect a person's survival, such as age and death, the presence of hormone receptors on the cancer cells, the treatment received, and how well the cancer respond to treatment (ACS, 2015).

2.2.12 Early detection of breast cancer

In order to improve breast cancer outcome and survival, early detection remains the cornerstone of increasing the 5-year survival rate and improves the quality of life (Anderson et al., 2008). Additionally, early detection of breast cancer plays the leading role in reducing mortality rates and improving the patients' prognosis (Hoerger et al., 2011; Elmore et al., 2005). The 5-year survival rate is 92% when the breast cancer detected early. However, with local invasion, the survival rate decreases to 71% and if it is diagnosed at the latest stage, only 18% of patients survive (Lauver et al., 1999). Unfortunately, high fraction of patients in the Arab countries presented in late stage at diagnosis; in Syria 73%, in Egypt 70%, in Sudan 78% and 69% in Jordan (WHO, 2009). Late stage at diagnosis lead to poor survival and the survival rate in developing countries is less than 50% (WHO, 2002b).

2.2.13 Mammogram

Mammography is a specific type of breast imaging that uses low-dose x-ray to detect cancer- early before women experience symptoms- when it is most treatable (RSNA, 2015). Mammograms are used as a screening tool to detect early breast cancer in women experiencing no symptoms and it can be used to detect and diagnose breast disease in women experiencing symptoms such as a lump, pain, skin dimpling or nipple discharge (RSNA, 2015).

2.2.13.1 Screening mammography

Screening mammograms are x-ray exams of the breast that are used for women who have no breast symptoms or signs of the breast cancer such as a previous abnormal mammogram (ACS, 2015). The goal of screening mammography is to find tumors before they are clinically palpable, more likely to be small, and less likely to have nodal involvement, minimizing the probability of diagnosing breast cancer at an advanced stage (Kimberly and Hogan, 2003) and, then greatly improves a woman's chance for successful treatment (ACS, 2015). Additionally, mammography has been found to be the most consistent of the screening methods and is considered the gold standards for early detection of breast cancer (Khatcheressian et al., 2006)

2.2.13.2 Diagnostic mammography

Diagnostic mammography is used to evaluate a patient with abnormal clinical findings such as a breast lump or nipple discharge, which have been found by the woman or her doctor (ACS, 2015). Diagnostic mammography may also be done after abnormal screening mammogram in order to evaluate the area of concern on the screening exam (ACS, 2015).

2.2.14 Limitations and Potential Harms of Mammography Screening

Brewer and colleagues, (2007) focused on five areas of potential harms, including pain, anxiety and psychological distress, radiation exposure, false positive or negative, and possible over-diagnosis. False-positive results from mammography screening remain an area of concern and lead to additional need for testing and biopsy (Brewer et al., 2007). The Task Force concluded that the cumulative risk of a false-positive screen over the course of a decade of screening is between 21% and 49% per patient (Hofvinds et al., 2004; Olivotto et al., 1998; Elamore et al., 1998).

Although mammography remains the most cost-effective approach for breast cancer screening, the sensitivity (67.8%) and specificity (75%) are not ideal. Mammography combined with clinical breast examination (CBE) slightly improves sensitivity (77.4%), with a modest reduction in specificity (72%) (Newton et al., 2015)

Mammographic sensitivity for breast cancer declines significantly with increasing breast density, and the risk of breast cancer is higher in women with dense breasts. Hormonal status has no significant effect on the effectiveness of screening independent of breast density (Newton et al., 2015).

Additionally, psychological consequences, including anxiety and associated behavioral implications, have been reported from abnormal mammography (Rimer and Bluman, 1997; Lerman et al., 1991).

2.2.15 Effectiveness of mammogram

The goal of breast screening is to find a tumor early enough that treatment can make a difference in survival. The evidence of a mortality reduction from screening is conflicting and continues to be questioned while many still insist that mammography saves lives and criticize the 2009 U.S Preventive Service Task Force (USPSTF). The analysis to date of all randomized controlled trials of mammography have shown that there is only a marginal benefit, and shows significant harms for breast cancer screening of healthy women (Gotzche and Nielsen, 2011; Nelson et al., 2009). Eight clinical studies discussed the impact of mammography on breast cancer mortality, and all of the trials were trials included women who were over 40 years old but under 70 years old except one trial, which looked at the impact of mammography screening in women during their 40s.

Gotzsche and Nielsen, (2011) reassessed screening mammography's effect on mortality and morbidity in eight eligible trials including 600,000 women and they concluded that screening is likely to reduce breast cancer mortality and the effect was lowest and a reasonable estimate is a 15% reduction and the screening led to 30% over-diagnosis and over treatment.

Nelson and colleagues (2009) incorporated new data since the 2002 USPSTF recommendation on breast cancer screening and the effectiveness of mammography screening in decreasing breast cancer mortality among average-risk women aged 40 to 49 and 70 and older, and the harms associated with mammography. They concluded that

screening mammography reduced the relative risk of breast cancer mortality in screened women as compared with unscreened women by 15%, for women aged 39 to 49 (Nelson et al., 2009).

Gotzsche and Nielsen (2006) found that mammography screening leads to more false positive, unnecessary surgeries, and more use of aggressive breast cancer treatments. They concluded that mammography screening increased the relative risk of over-diagnosis and overtreatment by 30% (Gotzsche and Nielsen, 2006).

2.2.16 Breast cancer-screening guideline

Numerous organizations have provided breast cancer screening recommendation and establishing an appropriate age guideline for screening women for breast cancer is controversial. The American Cancer Society recommend annual mammography beginning at 40 years and continuing as long as the woman is in reasonably good health and a candidate for treatment (Smith et al., 2015).

The American College of Physicians recommended screening mammography in women aged 40 to 49 years should be based on individualized assessment of risk for breast cancer. The clinicians should inform women aged 40 to 49 years about the potential benefits and harms of screening mammography; and that clinicians should base screening mammography decisions on benefits and harms of screening, as well as on a woman's preferences and breast cancer risk profile (Qaseem et al., 2007). In 2001, the Canadian Task Force on Preventive Health Care recommended mammography every 1 to 2 years beginning at the age of 40 years (Ringash, 2001). In 2003, the American College of Obstetrics and Gynecology recommended mammography every 1 to 2 years for women aged 40 to 49 years and annually after the age of 50 years (ACOG, 2003).

The USPSTF recommends against routine screening mammography in women aged 40 to 49 years. The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take into account patient context, including the patient’s values regarding specific benefits and harms. The USPSTF recommends biennial screening mammography for women between the ages of 50 and 74 years (USPSTF, 2009)

2.2.17 Understanding differences between ACS guidelines and USPSTF Guidelines

There is a debate on the appropriate screening guideline for 40-49 year old women and the debate started in 1975 when John Bailar, the editor of the journal of the National Cancer Institute, assumed that women in this group (40-49) should not be screened. He argued that there was no evidence of statistically significant mortality reduction in the 40-49 year bracket of all women in the Health Insurance Plan (HIP) of Greater New York Screening trial (1963-1969) and that the radiation risk from mammography exceeded that benefit of zero (Feig and Duffy, 2011). Although, these arguments lead to many healthcare professionals stopping the recommendation of the screening of women during their 40s, subsequent studies since that time have found a substantial benefit due to screening exists in that same age group leading to many medical organizations reaffirming their prior support of screening of women ages 40 to 49 (Feig and Duffy, 2011).

Nevertheless, the controversy persists. In 2009, the USPSTF recommends that 40-49 year old women should not undergo screening unless they are in a high-risk group (Feig and Duffy, 2011). That recommendation is at odds with current ACS guidelines, which recommends an annual screening mammography for all 40-49 year old women regardless of risk status. The difference between the USPSTF recommendations and the ACS guidelines is extremely consequential, because more than 80% of women with newly diagnosed breast cancer have no major risk factors (Feig and Duffy, 2011; Smith et al., 2011). Moreover, due to faster cancer growth rates in younger women, annual screening can detect cancers much earlier than biennial screening.

2.2.18 Controversies in mammography screening for breast cancer

Mammography, even at its best, is an imperfect cancer-screening test. The most optimistic estimates from observational data indicate a 63% reduction in death from breast cancer in women who are regularly screened with mammograms every 1-2 years (Tabar et al., 2001).

Data from the screening trials revealed a more modest but significant reduction, with the results of individual studies ranging from no effect to a 45% reduction in breast cancer deaths (Gotzsche and Olsen, 2000). Mammography is imperfect because it does not reliably detect lesions before they are cancerous while it does pick up in situ cancers, and therefore the proportion of such early-stage cancers has increased dramatically since the beginning of clinical use of mammography in the early 1980s (Emster et al., 1996).

Based on findings and conclusions drawn from several screening clinical trials conducted in the 1980s, most clinicians and researchers agree that mammogram screening every 1-2 years reduces breast cancer deaths by 30% for women older than age 50 years. On the other hand, for women younger than 50, the efficacy of mammography in reducing cancer deaths has in past years been the subject of considerable debate, in part because of greater difficulty of detecting lesions in the more dense breasts of younger women. Nevertheless, most clinical groups and cancer advocacy groups in the United States promote regular mammography beginning at age 40, or earlier if there is a family history of breast cancer developing at a young age (Smith et al., 2002).

The degree to which mammography reduces mortality is important aspect of debate. Because, population screening is expensive and in order for screening to be viewed as a cost effective by public health policymakers, the magnitude of its impact on mortality must be sufficient to offset the attendant costs and morbidities. Therefore, this is why some organizations recommend screening for women over 50 years of age, but do not recommend it for younger women.

2.2.19 Barriers to the early detection and breast cancer screening

Although mammography and its benefits is well known benefit in the early detection of breast cancer, women across the world are witnessing barriers to the screening behavior. According to the previous studies, women's perception of fewer barriers to mammography is the most significant predictor of adherence to mammography screening behavior (Lee-Lin et al., 2007; Soskolne et al., 2007; Russell et al., 2006; Yu and Wu, 2005; Allen et al., 2002; Black et al., 2001). In addition, analysis of the literature on barriers to breast cancer screening, it became evident that the barrier barriers identified could be characterized as personal, provider, or demographic (George, 2000).

Fear perceptions, lack of information and knowledge with mammography, misconceptions, pain and cost were the most barriers identified in the studies of (Abu-Helalah et al., 2015; Othman et al., 2013; Al-Naggar and Bobryshev, 2012; Shaheen et al., 2011; Aziza et al., 2010; Hanson et al., 2009; Schueler et al., 2008; Kwok et al., 2005; Garbers et al., 2003). Additionally, cultural attitudes toward breast cancer screening tests, modesty, lack of encouragement by family members and poor access to physicians and are the major inhibitors to women's participation in breast cancer screening (Abu-Helalah et al., 2015; Saadi et al., 2012; Soares et al., 2009; Schueler et al., 2008; Parsa et al., 2006). Moreover,

secrecy, embarrassment, and fatalism about breast cancer were significant cultural factors that may influenced the decision to seek mammogram (Kawar, 2013; Puschel et al., 2010; Hanson et al., 2009). Furthermore, there are a consistency between the results and the consensus on the barriers identified were personal, cultural, limited resources and lack of access to medical facilities (Abu-Shammala, 2013; Shaheen et al., 2011; Azaiza et al., 2010).

Several studies revealed that religion and religious beliefs might be barriers may influence on the decision to seek mammogram. The consistency and consensus was found between studies on that religion and religious beliefs may act as barriers to mammogram service utilization (Abu-Helalah et al., 2015; Donelly et al., 2013; Abu-Shammala, 2013; Kissal and Beser, 2011; Hanson et al., 2009). On the other hand, Shaheen and colleagues (2011) did not consider culture and religion as barriers to mammogram service utilization (Shaheen et al., 2011).

2.2.20 Role of health providers in mammogram service

Any health care system need to be sure that all the staff has the education that is needed to carry out their. Thus, continuing education of health professional is one of the major components of early detection program focuses on the role of health professional as the first point of contact between the potential cancer patients and the health care system (WHO, 2006). Continuing education programs focuses on training and the educational need of health care providers with the overall objectives of increasing their understanding and dealing with the need of patients and their families (WHO, 2002b).

The lack of knowledge and educational programs lead to less self-confidence of health care professionals and they may have limited ability to educate patients and perform referrals. This will have a negative impact on the delivery of health care and negative patient's attitudes, as a result limited access to health care.

One of the outstanding characteristics of an expert radiology is the speed and accuracy with which he or she decides whether an abnormality is present on a medical image (Lesgold et al., 1988). Acquiring expertise in radiology requires specialized training, experience, and some degree of talent. Therefore, Nodine and colleagues (1999) evaluated the influence of perceptual and cognitive skills in mammography detection and interpretation by comparing the performance of experienced radiologists, radiology residents, and mammography

technologists. The study focused on the performance of the radiology residents, who were receiving training and mentor-guided experiences during mammography rotations that presumably provided a basis for mammography expertise (Nodine et al., 1999).

Studies of radiologic error reveal high levels of variation between radiologists. A review by Goddard and colleagues (2001) suggests a range of 2%-20% for clinically significant or major error across radiologic investigations (Goddard et al., 2001).

Taylor (2007) carried out a review of research into the development of radiologic expertise by implications for computer-bases training. The study revealed that, the training of radiologists, particularly for the design of computer-based learning programs that are able to illustrate the similarities and differences between diagnoses, to give access to large numbers of cases and to help identify weaknesses in the way trainees build up a global representation from fixated regions (Taylor, 2007).

Baxi and colleagues (2010) assessed the experiences and preferences of radiology residents with respect to breast imaging. He found that radiology residents' negative and positive views about mammography seem to be independent of time spent training in mammography and of plans in the future to pursue fellowship training in breast imaging (Baxi et al., 2010).

Chapter 3

Methodology

Introduction

This chapter represents the methodology used in this study and provides a full description of the quantitative and qualitative data collection methods and tools. This chapter highlights the data collection methods, sample size, data collection tools, reliability, validity of the study instruments, and ethical considerations and the study limitations.

3.1 Study design

The design of this study is a descriptive analytical cross sectional design. It is a mixed methods study; it involves both quantitative and qualitative data. In mixed methods studies, researchers triangulate quantitative and qualitative data in order to collect rich data that cannot be collected by qualitative research or the household survey alone. Moreover, analysis of the triangulated data helps in maximizing the strengths and minimizing weaknesses of the collected data (Creswell and Plano Clark, 2011). The cross sectional design is appropriate for description of the practice and its relation to other variables. Exploratory descriptive studies can be low cost, relatively easy to implement, and able to yield results in a short period of time (Bickman and Rog, 2008). The quantitative part describes and measures the current utilization of mammogram services that help the researcher to identify weaknesses and strengths in the health care system from the women point of views. The qualitative part- the in-depth interviews with the Directors of centers that offer mammogram services- will help in understanding and interpreting the real causes of low uptake rate of mammogram and barriers to scaling up mammogram services.

3.2 Study population

Regarding to the quantitative data, the researcher collected the data from women who came to the health facility (governmental and NGOs sectors) to utilize mammogram services or other health services. With regard to the qualitative data, data were collected from the Directors of the mammogram units in both; the governmental and NGOs units.

3.3 Study setting

The study was conducted at six health care facilities from eight health care facilities of governmental and NGOs facilities that offer mammogram services. The study was taken place at the European hospital, Nasser hospital and Al Rimal PHC center as governmental

facilities and in Al- Ahli Arab hospital, Al- Awda hospital and Red Crescent Society for Gaza Strip center as NGOs facilities. Two health care facilities (Elshifa and Al-Quds hospitals) were excluded because their mammogram units were not functioning at the time of data collection.

3.4 Study period

The study has started after having the university's approval of the proposal and after obtaining the ethical approval from Helsinki Committee in October 2013. Pilot study was conducted in April 2014 then data collection began in May 2014. Quantitative data entry and cleaning were conducted in August 2014 and finally, data analysis was in September 2014. Qualitative data collection was conducted in January 2015. Transcription, coding and analysis of the qualitative data were in February 2015. The study final report was completed in October 2015.

3.5 Sample size

All governmental and NGOs facilities who have and offer mammogram services are selected (4 from MOH and 4 from NGOs) and the study was conducted only in 6 of them (3 from MoH and 3 from NGOs), as 2 mammography units were not functioning.

The researcher calculated the sample size according to the daily number of women who utilized the mammogram services in the mentioned health facilities. The Survey System 11- Evaluation Edition was used to calculate the study sample size; the required sample size was estimated to be 384 women, but the researcher increased the number to 400 women. The following parameters were used to calculate the sample **(Annex4)**

- Maximum acceptable percentage points of error 5%
- Confidence level
- Total population (880680).

The 400 women were distributed as 160 women come to the facility to utilize mammogram service (screening or diagnostic) and 240 women come to the facility to utilize other health services.

3.6 Eligibility criteria

1. Women who come to the health facility to utilize mammogram service

2. Women who come to health facility to utilize other health service in compatible with age and place.

3. Directors of mammogram units in the selected health facilities that offer mammogram services.

3.7 Exclusion criteria

- Urgent cases

3.8 Instruments of the study: Quantitative study

Semi-structured questionnaire was developed by the researcher to collect data from women who come to the facility to utilize mammogram services and other health services offered from the health facility **(Annex 5)**. The majority of questions were close-ended and only few one in the form of open-ended questions intended for further probing. The questionnaire was designed to cover the following categories:

- Socio-demographic characteristics of the women.

- Knowledge of women with breast cancer, risk factor of breast cancer, early detection of breast cancer, methods used in the early detection and mammography.

- Conceptions, beliefs, and attitudes of women about mammography.

- Accessibility and affordability of the mammogram services.

- Satisfaction of women with the mammogram services offered.

3.9 Instrument of the study: Qualitative study

To fulfill the requirements of the study and to complement the quantitative data, semi-structured in-depth interview with heads of mammogram units have been done **(Annex 6)**. These interviews used to gather, review, and understand the data and guiding questions were developed for that purpose. The questions were covered different issues as the followings:

- Availability of policies and guidelines for the mammogram services.

- Availability of the mammogram services.

-Knowledge of the health providers with the mammogram.

- Experience of the health providers

- Training of the health providers

- Barriers encountered the utilization of the mammogram services

- Means to scale up the mammogram services and increase the utilization of the service.

3.10 Scientific rigor

Reliability, face validity, content validity, and pilot study: Quantitative study

3.10.1 Reliability

Test-retest was conducted in the first stage of piloting. To help in collecting data, the researcher hired six research assistants. The research assistants were trained by the researcher to ensure collecting reliable data. The researcher has trained the six assistants on how to ask questions, how to select cases, and how to fill in the questionnaires. The researcher used to check and reviewed all the entire questionnaires that were completed by the research assistant day by day. In addition, the researcher re-entered 5% of the data.

Data were checked for internal consistency of its domains to demonstrate the appropriate clustering of items. Each domain was individually assessed using Cronbach's alpha, the standard statistical technique for assessing the coherency of each item within each domain.

Table (3.1): The breakdown of Cronbach's Alpha

Domain	No. of questions	Chronbach's Alpha
Conceptions	7	0.583
Beliefs	8	0.667
Barriers	9	0.667
Accessibility and affordability	7	0.762
Responsiveness	9	0.727
Communication	13	0.736

3.10.2 Face validity

Face validity is the extent to which a test is subjectively viewed as covering the concept it purports to measure. It refers to the transparency or relevance of a test as it appears to test participants (Holden, 2010). The questionnaire was structured in an organized way to allow easy smooth data collection and data entry. During the validation process, the questionnaire lay out was reviewed and formatted several times until a final version looked elegant.

3.10.3 Content validity

Content validity addresses how well the items developed to operationalize a construct provide an adequate and representative sample of all items that might measure the construct of interest (Kimberlin and Wintersten, 2008). Because there is no statistical test to determine whether a measure adequately cover a content area or adequately represents a construct, content validity usually depends on the judgment of experts in the fields so, thirteen experts with different backgrounds evaluated the questionnaire and interview questions **(Annex 7)**. The evaluation aimed to assess the relevance of each domain, the importance of each particular item, and to check if the contents of the questionnaire seem appropriate to its intended purpose and overall aim. Additionally, the researcher considers all experts' feedback and comments. Thus, the final version of the questionnaire and the interview questions incorporated all the experts' feedback. A pilot study was conducted before the actual data collection started. In addition, the researcher modified questionnaire according to feedback from the pilot study. Finally, as mentioned earlier, the 6-research assistants were trained well by the researcher to ensure accuracy of the data collection.

3.10.4 Pilot study

With an aim of exploring the appropriateness and the reliability of the questionnaire, the researcher has conducted a pilot study on a sample of 15 women who come to utilize mammogram services and 30 women who come to utilize other health services from the selected health facilities. Minor modifications were done including rephrasing many questions, changing the order of some questions, adding new questions, and removing other relevant questions. The 35- piloted cases were excluded from the study sample.

3.10.5 Trustworthiness: Qualitative study

To assess reliability and validity of qualitative data, Guba and Lincoln (1981) substituted reliability and validity with the parallel concept of “trustworthiness”, containing four aspects: credibility, transferability, dependability, and conformability.

To ensure trustworthiness of the qualitative data, the researcher implemented the following actions:

1. The researcher ensured methodological coherences of the study through ensuring congruence between the research questions, objectives, and methods of data collection.

2. The researcher recorded the interviews and produced transcripts of the data.

3. Multiple methods of data collection and data analysis enhance the credibility of the research. The researcher applied triangulation research to control bias and to establish valid proposition and relationships.

4. The researcher has developed a data collection tools, which was reviewed and revised by experts. The researcher has developed different guiding questions that were used to collect data through in-depth interviews.

5. The researcher select an appropriate sample.

6. The researcher collected and analyzed qualitative data concurrently. This enabled the researcher to link between what is known and what is needed to be known.

7. To ensure the integrity in data analysis, the researcher has used independent coding of the qualitative data, consistently recorded the observations, and used consensus discussions.

3.11 Data collection

3.11.1 Quantitative study

The researcher and six research assistants collected the data. The six research assistants were trained on how to ask questions, specifically questions that have the unprompted answers and the open-ended questions. Along with receiving training on how to select participants and how to enter the data, the six researcher assistants also have received full information about the purpose, the objectives, and the methodology of the study.

The collection of quantitative data started on May 25, 2014 and ended on June 26, 2014. All participants were selected randomly through simple random technique. After receiving full information about the study purposes and objectives, participants were informed that their participation is optional and they have the right not to answer any questions. After verbal approval, the researcher and the six research assistants collected face-to-face interviews to fill in the questionnaire. On average, each questionnaire required from 20 to 25 minutes to be completed and reviewed to make sure of no missing answers.

3.11.2 Qualitative study

The researcher conducted all the in-depth interviews and the collection of qualitative data started on January 2, 2015 and ended on January 31, 2015. Regarding to the in-depth interviews, the average time for each interview was 35-45 minutes. The researcher recorded the interviews and took notes during the interview.

3.12 Response rate

To increase study power 420 questionnaires were distributed and 400 were returned. Therefore, the response rate was 95 %. For in-depth interviews, four interviews were conducted and the response rate was 100%.

3.13 Data analysis

With regard to quantitative data, Statistical Package for Social Science (SPSS) version 22 was used for data analysis. The researcher has developed database for data entry. The data analysis included data cleaning, data coding, data recording, and data computing. The researcher conducted frequency distribution, cross tabulation, general scores, and mean percentages. To detect the differences and assess the significant relationships among variables, Chi-square test has been used.

With regard to qualitative data, the researcher used open coding thematic analysis method. During the data collection, the researcher took field notes regarding interviews and summarized the main findings immediately after the interviews. All interviews were recorded after getting verbal approval from participants.

Data analysis started by preparing word for word transcription of the data, data coding, identification of main themes, data analysis, and writing the main findings.

3.14 Ethical and administrative consideration

The ethical and administrative considerations are very important conditions in applying the research or performing any medical procedures. The following measures were followed:

- An official letter of approval to conduct the study was obtained from the Helsinki Committee in the GS, which allowed the researcher to carry out the study **(Annex 8)**.

- An official letter was obtained from the general director of MoH hospitals in order to conduct the study in governmental hospitals and facilitate the process of data collection **(Annex 9)**.

- An official letter was obtained from the general director of the primary health care in MoH in order to conduct the study in governmental PHC centers and facilitate the process of data collection **(Annex 9).**

- An official letters were obtained from the general directors of the NGOs in order to conduct the study in their organizations and facilitate the process of data collection **(Annex 10)**.

- To guarantee participants' rights of privacy and confidentiality, a covering letter indicating that the participation is optional was provided and confidentiality was promised and maintained. All the study participants were asked for their approval to participate in the study **(Annex 11)**.

Chapter 4

Findings

This chapter presents the main quantitative and qualitative findings of this study. It outlines the main descriptive and analytical quantitative and qualitative findings of the study in a comparative way between women who visited the health center to conduct mammogram and women who visited the center to utilize services other than mammogram.

I. Main quantitative findings

4.1 Descriptive analysis

4.1.1 Socio-demographic characteristics

Within the context of this study, the term case was used to describe women who visited the health center to conduct mammogram, either screening or diagnostic. While, the term control was used to describe participants who visited the center to utilize services other than mammogram.

Table (4.1) shows the socio-demographic characteristics of the study participants. The total number of participants in the study was 400 women, distributed as 160 cases (women who visited the center to conduct mammogram) and 240 controls (women who visited the center to utilize other health services). The table below summarizes the main characteristics of the study participants.

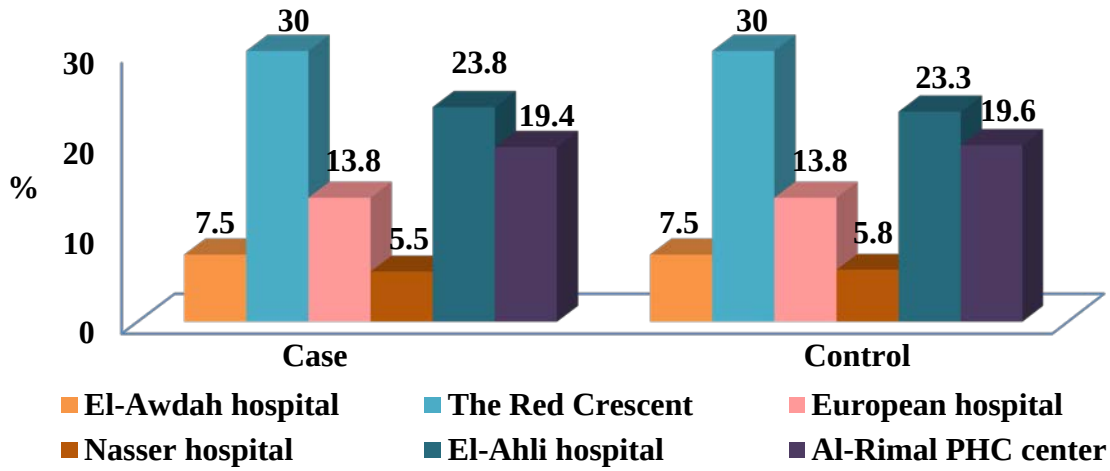
Table (4.1): Summary of socio-demographic charactiristics of study participants

Characteristics	Cases (n=160)		Controls (n=240)		Total (n=400)	
	No	%	No	%	No	%
Address						
• North Gaza	21	13.1	36	15	57	14.2
• Gaza	81	50.6	138	57.5	219	54.8
• Deir al-Balah	24	15	12	5	36	9
• Khan-Younis	24	15	33	13.7	57	14.2
• Rafah	10	6.3	21	8.8	31	7.8
Health care center						
• El-Awdah hospital	12	7.5	18	7.5	30	7.5
• The Red Crescent	48	30	72	30	120	30
• European hospital	22	13.8	33	13.8	55	13.7
• Naseer hospital	9	5.5	14	5.8	23	5.8
• El-Ahli hospital	38	23.8	56	23.3	94	23.5
• Al-Rimal PHC clinic	31	19.4	47	19.6	78	19.5
Age group						
• < 40	37	23.1	56	23.3	93	23.3
• From 40-50	83	51.9	107	44.6	190	47.5
• > 50	40	25	77	32.1	117	29.2
Marital status						
• Single	6	3.8	10	4.2	16	4
• Married	145	90.6	207	86.3	352	88
• Divorced	4	2.5	5	2	9	2.3
• Widow	5	3.1	18	7.5	23	5.7
Number of children						
• 5 children and less	70	43.8	92	38.3	162	40.5
• More than 5 children	90	56.2	148	61.7	238	59.5
Women educational level						
• Elementary	24	15	34	14.2	58	14.5
• Preparatory	46	28.7	74	30.8	120	30
• Secondary	55	34.4	85	35.4	140	35
• University	35	21.9	47	19.6	82	20.5
Employment status						
• Employed	21	13.1	16	6.7	37	9.3
• Unemployed	139	86.9	224	93.3	363	90.7
Health insurance						
• Yes	144	90	218	90.8	362	90.5
• No	16	10	22	9.2	38	9.5

Regarding to distribution of cases and controls by governorate. **Table (4.1)** showed that the majority of the participants were from Gaza governorate (50.6% of cases and 57.5% of controls), followed by Khan-Younis (15% of cases and 13.7% of controls), Deir al-Balah (with 15% of cases and 5% of controls), North Gaza (with 13.1% of cases and 15% of controls), and Rafah (with 6.3% of cases and 8.8% of controls).

With regard to the distribution of cases and controls by the health care centers. **Figure (4.1)** shows that, the most of data on cases and controls were collected from the Red Crescent center (30% of cases and controls), followed by El-Ahli hospital (with 23.8% of cases and 23.3% of controls), Al-Rimal primary health care clinic (with 19.4% of cases and 19.6% of controls), the European Gaza hospital (with 13.8% of cases and 13.8% of controls), El-Awdah hospital (with 7.5% of cases and 7.5% of controls), and finally, Nasser hospital (with 5.5% of cases and 5.8% for controls). As shown in **Figure (4.1)**, there were no significant differences among collected cases and controls across the study settings.

Figure (4.1): Distribution of cases and controls by health care center

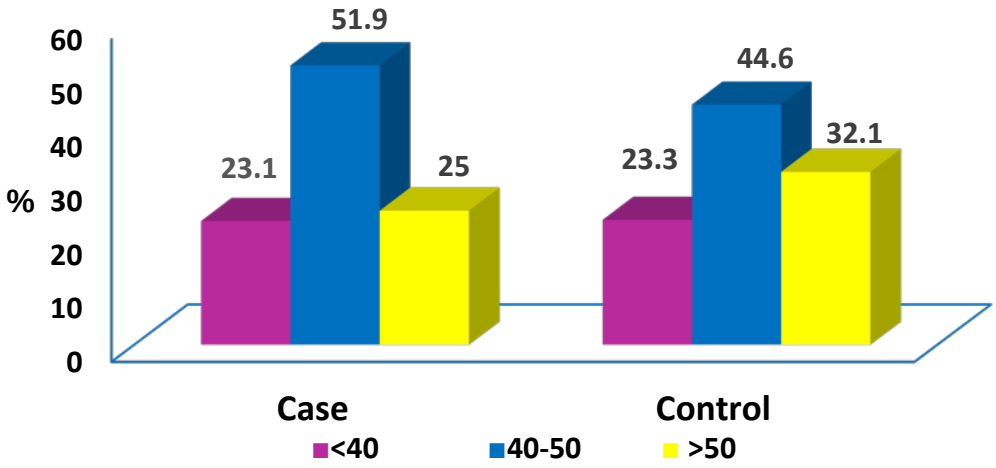


Concerning on the distribution of cases and controls by participants age groups. **Figure (4.2)** shows that the mean age of participants in general was 46.39 years with (SD 8.22, range 45). For cases, the mean age was 46.06 years with (SD 7.82, range 47), and the mean age for controls was 46.6 years with (SD 8.48, range 47).

Figure (4.2) shows that the commonest age group was the age group between 40 and 50 years old which represents 51.9% of cases and 44.6% of controls. The second reported age group was the age group older than 50 years, which represents 25% of cases and 32.1% of

controls. Finally, the last reported age group was less than 40 years old, with about 23.1% of cases and 23.3% of controls.

Figure (4.2): Distribution of cases and controls by participant's age groups



Regarding to marital status, as shown in **Table (4.1)**, the vast majority of participants (96%) were married at the time of data collection and 8% of the study participants were either divorced or widowed at the time of data collection. Single women represent only 4% of the study participants.

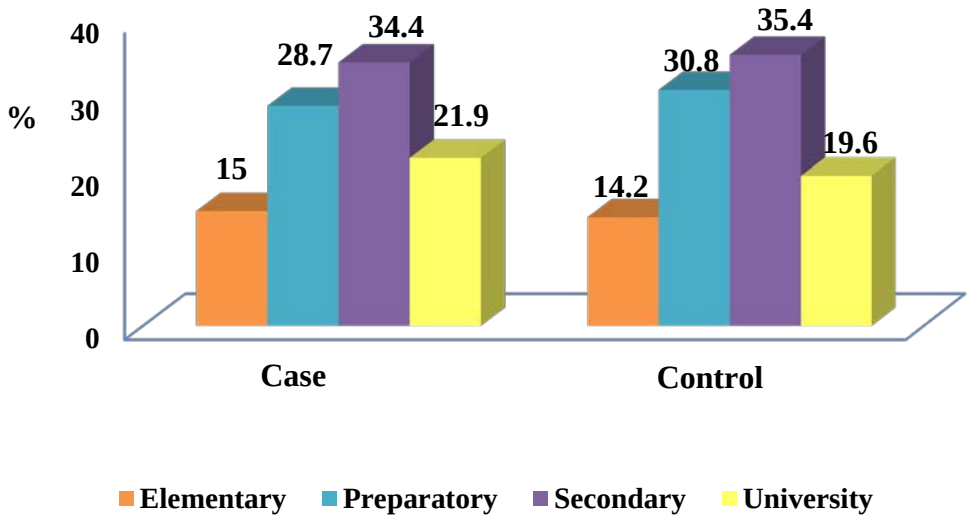
Regarding to the number of children ever born to the study participants, the mean number of children ever born to a woman was 6.12 children with (SD 2.97, rang 6). For cases, the mean number of children ever born to a woman was 6.03 children with (SD 2.86, range 6). While, for controls, the mean number of children ever born to a woman was 6.19 children with (SD 3.05, range 6.5).

Regarding to the study participants level of education, **Figure (4.3)** shows that the overall mean of the study participants years of schooling was 10.17 years with (SD 3.83, rang 10). For cases, the mean years of schooling was 10.39 years with (SD 3.85, range 11) and for controls, the mean years of schooling was 10.03 years (SD 3.81, range 10). There was no significant difference between cases and controls with regard to the years of schooling as shown in the **Table (4.1)**.

Figure (4.3) shows the distribution of the study participants by the women level of education. Almost there is an equal distribution of having secondary level of education between cases and controls with (34.4% for cases and 35.4% for controls). While, women

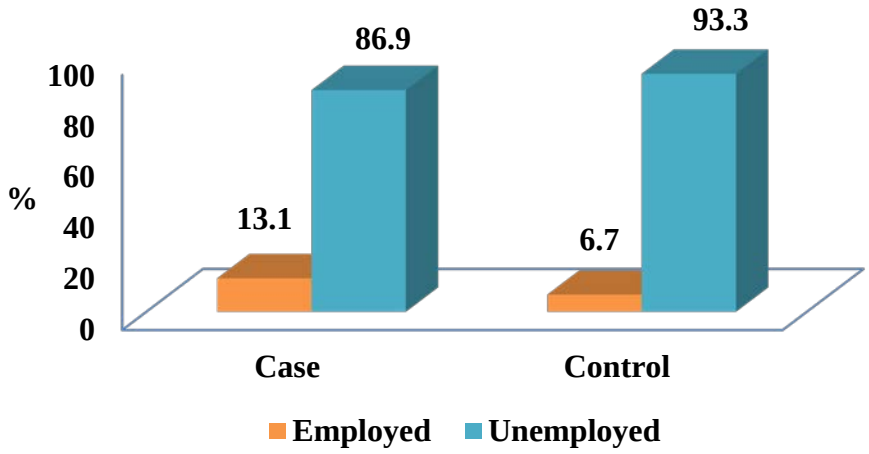
who have university level were higher among cases than among controls with (21.9% for cases and 19.6% for controls). Among the study participants, a total of 30.8% of controls and 28.7% of cases have preparatory level of education. Finally, 15% of cases and 14.2% of controls have elementary level of education.

Figure (4.3): Distribution of cases and controls by women level of education



Concerning participants' employment status, as shown in **Table (4.1)**, the total number of the employed participants was 37, which represents 9.3% of the total participants while the total number of the unemployed women was 363 women which represents 90.7% from the total participants.

Figure (4.4): Distrbution of participants by women employement status



It is interesting to note from **Figure (4.4)** that the percentage of the employed women was higher in cases in comparison with controls with (13.1% and 6.7 %, respectively). Moreover, most of the employed participants (15) were teachers with (38.1% of cases and 43.7% of controls). The high employment rate among cases is attributed to the screening program that has been implemented by the MoH jointly with the Ministry of Education, which targets female teachers aged 40 years and older.

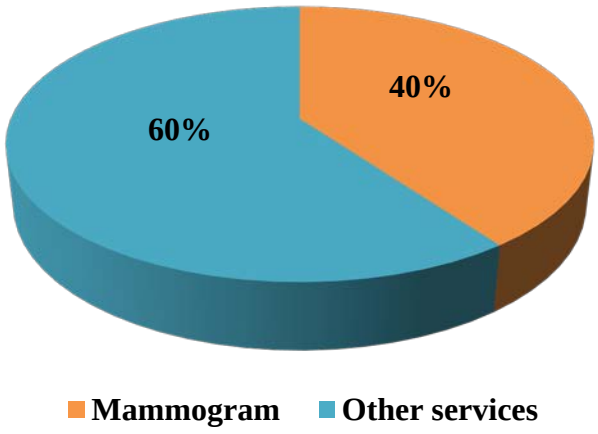
Concerning health insurance status, the vast majority of study participants (90.5%) have had health insurance at the time of data collection (90% among cases and 90.8% among controls). As expected, most of the participants have governmental health insurance (97.9% among cases and 98.6% among controls).

Regarding to income status, the median monthly family income in general was 900 NIS (SD 1304.71, range 1247.38). No significant differences were reported between cases and controls.

4.1.2 Main reason of center's visit

As shown in the below **Figure (4.5)**, during the data collection, 60% of study participants visited health care centers to utilize different health care services, while, 40% visited the health care centers to conduct mammogram. Of the total number of women who visited the centers to conduct mammogram, half of women (50%) visited the center to conduct screening mammogram and 50% visited the center to conduct diagnostic mammogram.

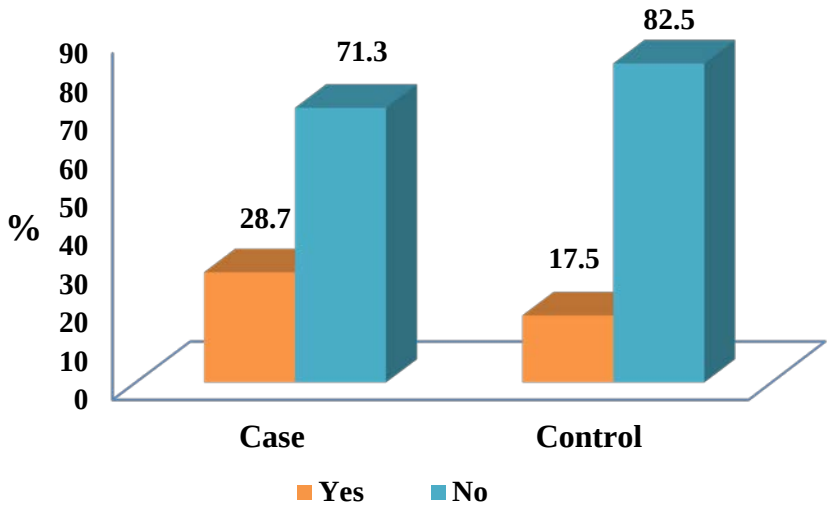
Figure (4.5): Distribution of participants according to the main visit reason



4.1.3 Family history of breast cancer

Concerning positive family history of breast cancer, the findings of this study have shown that 88 of women (22%) of the total participants had positive family history of breast cancer, while, a total of 312 women did not have positive family history of breast cancer. Of the total participants that had positive family history of breast cancer, 46 women (28.7%) were from cases and 42 women (17.5%) were from controls as shown in the **Figure (4.6)**.

Figure (4.6): Distribution of study participants by previous family history of breast cancer



4.1.4 Participants current level of knowledge on breast cancer

4.1.4.1 Knowledge with early detection of breast cancer

Table (4.2), highlights important aspects of current level of participants' knowledge about breast cancer and methods used for early detection.

Concerning the previous knowledge of the study participants about the early detection of breast cancer, more than two-third of the study participants (78.7%) have had heard about the early detection of breast cancer. The level of knowledge was higher among cases (85%) than among controls (74.6%). The main sources of knowledge were receiving health education at the primary health care centers with (53%), followed by TV/Radio advertisement with (19.5%) and friends or relatives with (13%).

4.1.4.2 Knowledge with early detection methods

Regarding the knowledge of breast cancer with early detection methods, **Table (4.2)** shows that more than two-third (70.2%) of the study participants were aware with different methods of the early detection of breast cancer. It is noticeable that the level of knowledge was higher among cases with (77.5%) than among controls with (65.4%). The most known method of early detection was monthly breast self-examination with (70.6% among cases and 63.3% among controls). Mammogram was known as a method used in the early detection of breast cancer with (17.5% of cases and 12.1% of controls).

4.1.4.3 Importance of early detection of breast cancer

Concerning the importance of the early detection of breast cancer, the vast majority of the study participants (97.5%) have confirmed that early detection of breast cancer is important and no significant differences were reported among cases and controls as shown in **Table (4.2)**. Regarding to the nature of lumps that may be detected, the majority of the study participants (78.5%) deny the possibility of that most of breast lumps detected are cancerous in nature and no significant differences were reported among cases and controls. Only 10.5% of the study participants have indicated that all of breast lumps are malignant and 11% of the study participants do not know anything about the nature of breast lumps. In addition, no significant differences were reported among cases and controls as shown in **Table (4.2)**.

Table (4.2): Summary of study participants knwledge with breast cancer

Item	Cases (n=160)		Controls (n=240)		Total (n=400)	
	No	**%**	**No**	**%**	**No**	**%**
knowledge with early detection of breast cancer						
• Yes	136	85	179	74.6	315	78.7
• No	24	15	61	25.4	85	22.3
Knowledge of different early detection methods						
• Yes	124	77.5	157	65.4	281	70.2
• No	36	22.5	83	34.6	119	29.8
Importance of early detection of breast cancer						
• Yes	158	98.8	232	96.7	390	97.5
• No	2	1.2	8	3.3	10	2.5
Most of breast lumps are cancerous						
• Yes	13	8.1	29	12.1	42	10.5
• No and not always	129	80.6	185	77.1	314	78.5
• I don’t know	18	11.3	26	10.8	44	11
Regular practice of monthly self-breast examination						
• Yes	74	46.3	57	23.8	131	32.8
• No	31	19.4	99	41.2	130	32.5
• Not always	55	34.3	84	35	139	34.7
Knowledge with breast cancer risk factors						
• Single women	13	8.1	13	5.4	26	6.5
• After forty	52	32.5	88	33.8	140	33.3
• Married without childern	22	13.8	25	10.4	47	11.8
• Married with children	16	10	26	10.8	42	10.5
• Had hystrectomy because of malignancy	1	.6	0	0	1	0.3
• At menopusal stage	10	6.3	17	7.1	27	6.8
• Use of oral contraceptive pill	10	6.3	7	2.9	17	4.3
• Previously had any problem in the breast/breasts	10	6.3	12	5	22	5.5
• Had family history of breast cancer	48	30	62	25.8	110	27.5
• I don’t know	43	26.9	62	25.8	105	26.5
Peak age to develop breast cancer						
• Twenties	1	0.6	0	0	1	0.3
• Thirties	14	8.8	22	9.2	36	9
• Forties	92	57.5	125	52.1	217	54.2
• Fifties	9	5.6	15	6.3	24	6
• Sixties	4	2.5	1	0.4	5	1.3
• I don’t know	40	25	77	32.1	117	29.2

4.1.4.4 Breast self-examination practice

Regarding to the practice of monthly breast self-examination (BSE), 32.8% of the study participants practiced monthly BSE regularly. As shown in **Table (4.2)**, practicing BSE was higher among cases (46.3%) than among controls (23.8%). On the other hand, more than one-third (32.5%) of the study participants have never practiced monthly BSE.

Finally, more than one-third (34.7%) of the study participants were practicing BSE, but not regularly.

4.1.4.5 Knowledge with breast cancer risk factors

By assessing level of participants knowledge with the risk factors of breast cancer. The findings in **Table (4.2)** showed that the most known risk factor for women form participants' point of view was age, in particularly after the age of forty with (33.3%), with no significant differences were reported among cases and controls. The second known risk factor was positive family history of breast cancer with (27.5%) of the study participants and level of knowledge with this risk factor was higher among cases (30%) than among controls (25.8%). Only, 11.8% of the study participants have known as that married women who did not have children is one of the risk factors of breast cancer and the level of knowledge was higher among cases (13.8%) than among controls (10.4%). Moreover, 10.5% of the study participants have known that married woman with children is one of the breast cancer risk factors but no significant differences were reported between cases and controls. It is noticeable from the **Table (4.2)** that 26.5% of the study participants do not know any of breast cancer risk factors and no significant differences were reported among cases and controls.

4.1.4.6 Knowledge with peak age to develop breast cancer

Regarding to the peak age for development of breast cancer, nearly more than half (54.2%) of the study participants have reported that breast cancer will be developed in the age of forties and the level of knowledge was higher among cases (57.5%) than among controls (52.1%). Only 9% of the study participants have known that women may develop breast cancer at the age of thirties with no significant differences were reported among cases and controls. Moreover, 6% of the study participants have known that the age of fifties is the peak age for breast cancer development and no significant differences were reported between cases and controls. It is interesting to note that 29.2% of the study participant do

not know the peak age of the breast cancer development, which reflect the low level of knowledge and awareness of these participants. The lack of knowledge level was reported higher among controls (32.1%) than among cases (25%).

4.1.5 Knowledge of the study participants with mammogram

Table (4.3) below summaries important aspects of study participants' knowledge about mammogram.

Table (4.3): Participants knowledge about mammogram

Item	Cases (n=160)		Controls (n=240)		Total (n=400)	
	No	%	No	%	No	%
Heard about mammogram						
• Yes	111	69.4	123	51.2	234	58.5
• No	49	30.6	117	48.8	166	41.5
Recommended to conduct mammogram						
• Yes	130	81.3	81	33.8	211	52.7
• No	30	18.7	159	66.2	189	47.3
Availability of mammogram in the center						
• Yes	146	91.3	106	44.2	252	63
• No	14	8.7	134	55.8	148	37
Proper age to conduct mammogram						
• Before the age of forty	31	19.4	30	12.5	61	15.2
• At the age of forty before fifty	68	42.5	97	40.4	165	41.3
• After the age of fifty	3	1.9	3	1.3	6	1.5
• When a problem occurs in the breast	36	22.5	34	14.2	70	17.4
• Others	1	0.6	0	0	1	0.3
• I don't know	21	13.1	76	31.7	97	24.3
Frequency of coducting mammogram						
• Once every 6 months	58	36.3	90	37.5	148	37
• Once a year	68	42.5	50	20.8	118	29.5
• Biennial	13	8.1	7	2.9	20	5
• Once in the life	2	1.3	5	2.1	7	1.8
• I don't know	19	11.8	88	36.7	107	26.7
Previous performance of mammogram						
• Yes	59	36.9	46	19.2	105	26.3
• No	101	63.1	194	80.8	295	73.7

Regarding to the previous knowledge about mammogram, less than 60% of the study participants have heard about mammogram as in the **Table (4.3)**. The level of knowledge was higher among cases (69.4%) than among controls (51.2%). The main source of knowledge among study participants was receiving health education at the primary health care centers with (30%) and it was higher among controls (34.6%) than among cases (23.1%). The second reported source was health care providers (20.3%). It was higher among cases (33.1%) than among controls (11.7%).

By asking the study participants if someone had recommended and advised them to conduct mammogram; more than 50% of the study participants indicated that they were advised to conduct mammogram. **Table (4.3)** shows that the percentage of cases that received advice and recommendation to conduct mammogram (81.3%) was 2.4 times higher than among controls (33.8%). A health provider was the main recommender for the study participants (61.1%) and health provider recommendations were higher among cases (69.2%) than among controls (48.1%). The second recommenders were friends and relatives (24.2%) and their recommendations were higher among controls (37.1%) than among cases (16.2%). Finally, the husband was the recommender for (14.7%) of the study participants and no significant differences in recommendation were among cases and controls.

Regarding to the availability of mammogram in the centers of the study settings and knowledge of the study participants with the availability of mammogram, about two-third (63%) of the study participants were aware with the availability of mammogram services before the time of data collection and the level of knowledge was higher among cases (91.3%) than among controls (44.2%). Unfortunately, about one-third (377%) of the study participants were not aware that the centers offer the mammogram services before the time of data collection. As expected, the level of knowledge was higher among cases (44.3%) than among controls (23.8%).

Regarding to the proper age that women should conduct mammogram, about 41.3% of the study participants indicated that, mammogram should be conducted between forties and fifties. No significant differences were reported between cases and controls. About 17.4% of the participants indicated that mammogram should be conducted if there is a problem in the breast/s. Interestingly; this view was expressed by more cases (22.5%) than controls (14.2%). In addition, about 15.2% of the participants indicate that mammogram should be conducted before the age of forty and this view was expressed by more cases (19.4%) than

controls (12.5%). Finally, about 24.3% of the study participants did not know when they should conduct mammography, either diagnostic or screening and this view was expressed by more controls (31.7%) than cases (13.1%).

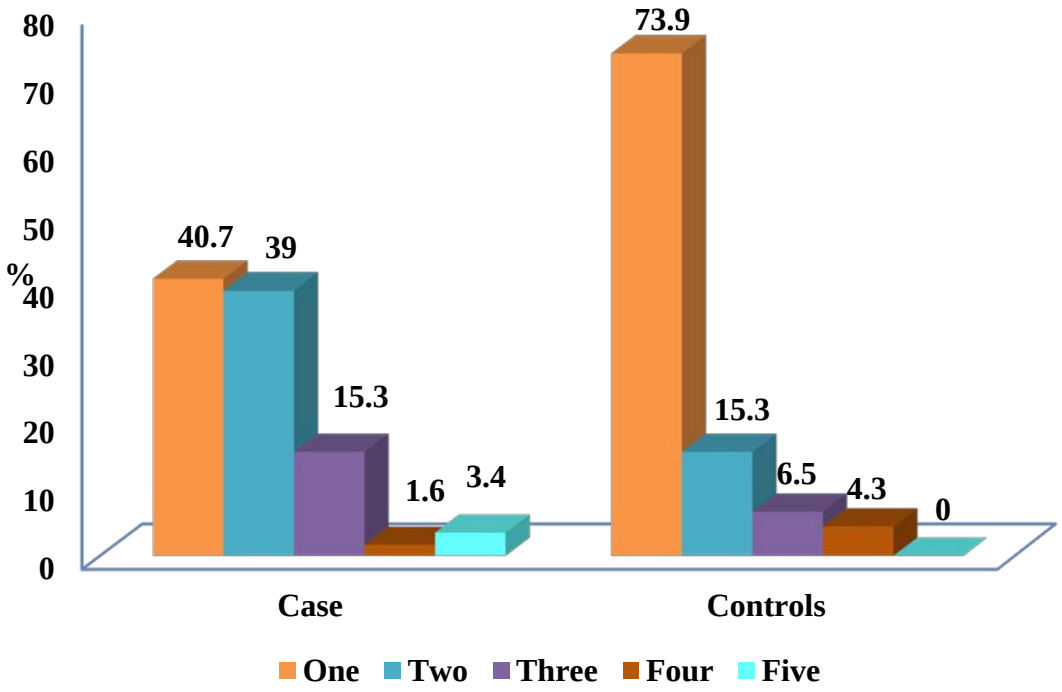
By asking the study participants about the frequency of conducting mammogram as screening for early detection of breast cancer, about 37% of the participants indicated that mammogram should be conducted once every six months. No significant differences were reported between cases and controls. About 29.5% of the study participants indicated that mammogram should be conducted annually; this view was higher among cases (42.5%) than among controls (20.8%). Some of 5% of the study participants have indicated that mammogram should be conducted biennially. Furthermore, 26.7% of the study participants did not know the interval of conducting mammogram as shown in **Table (4.3)**.

Regarding the previous history of conducting mammogram, less than one-third (26.3%) of the study participants have conducted mammogram previously and it was higher among cases (36.9%) than among controls (19.2%). Unsurprisingly, more than 70% of the study participants have not conducted mammogram before and this view was expressed higher among controls (80.8%) than among cases (63.1%).

Regarding to the number of previous mammogram conducted, **Figure (4.7)** shows the distribution of the participants by number of conducted mammogram previously. About 26.3% (105 women) of the study participants have conducted mammogram previously, distributes as 36.9% (59 women) of cases and 19.2% (46 women) of controls.

The Figure shows that more than one-third (40.7%) of cases conducted mammogram at least for one time and more than two-thirds (73.9%) of controls did that also. About 39% of cases who performed mammogram previously did it twice and 15.3% of controls who performed mammogram previously did it twice. In addition, 15.3% of cases who performed mammogram previously did it three times while 6.5% of controls did the same number of mammogram.

Figure (4.7): Distribution of study participants by number of mammogram performance



4.2 Inferential analysis

Table (4.4) illustrates the relationship between some of socio-demographic characteristics of the study participants and utilization of the mammogram services.

Table (4.4): Relationship between socio demographic characteristics of study participants and utilization of the mammogram services

Variable		Mammogram services		Total	χ^2-value	P-value
		Yes	No			
Age group						
< 40	**No.**	37	56	93	2.723	0.256
	%	**39.8**	**60.2**	**100**		
40-50	**No.**	83	107	190		
	%	**43.7**	**56.3**	**100**		
> 50	**No**	40	77	117		
	%	**34.2**	**65.8**	**100**		
	Total	160	240	400		
	%	**40**	**60**	**100**		
Education level						
Elementary	**No**	24	34	58	0.461	0.927
	%	**41.4**	**58.6**	**100**		
Preparatory	**No**	46	74	120		
	%	**38.3**	**61.7**	**100**		
Secondary	**No**	55	85	140		
	%	**39.3**	**60.7**	**100**		
University	**No**	35	47	82		
	%	**42.7**	**57.3**	**100**		
	Total	160	240	400		
	%	**40**	**60**	**100**		
Employment status						
Yes	**No**	21	16	37	4.77	0.023*
	%	**38.3**	**61.7**	**100**		
No	**No**	139	224	363		
	%	**42.7**	**57.3**	**100**		
	Total	160	240	400		
	%	**40**	**60**	**100**		

* Statistically significant

As shown in **Table (4.4)**, Chi-Square test revealed that there is no significant relationship between age and different age groups and conducting mammogram with (χ^2=2.723, P= 0.256).

With regard to the relationship between the educational level and the utilizing mammogram services, as shown in **Table (4.4)**, there is no significant relationship between the level of education and utilization of mammogram services (χ^2=0.461, P=0.927).

With regard to the employment status and utilizing mammogram services, **Table (4.4)** showed the relationship between the employment status and the utilization of the mammogram services. The relationship was statistically significant with (χ^2=4.77, P=0.023).

Table (4.5): Relationship between selected variables and previous experience with mammogram

Variable		Previous mammogram experience		Total	χ^2-value	P-value
		Yes	No			
Family history of breast cancer						
Yes	**No.**	30	58	88	3.583	0.041*
	%	**34.1**	**65.9**	**100**		
No	**No.**	75	237	312		
	%	**24**	**76**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		
Knowledge with early detection of breast cancer						
Yes	**No.**	98	217	315	18.094	0.000*
	%	**31.1**	**68.9**	**100**		
No	**No.**	7	78	85		
	%	**8.2**	**91.8**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		
Knowledge of different early detection methods						
Yes	**No.**	95	186	281	27.869	0.000*
	%	**33.8**	**66.2**	**100**		
No	**No.**	10	109	119		
	%	**8.4**	**91.6**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		
Importance of early detection of breast cancer						
Yes	**No.**	105	285	390	3.651	0.046*
	%	**26.9**	**73.1**	**100**		
No	**No.**	0	10	10		
	%	**0**	**100**	**100**		
	Total	105	295	400		
	%	**26.3**	**76.7**	**100**		
Regular practice of monthly SBE						
Yes	**No.**	53	78	131	31.627	0.000*
	%	**40.5**	**59.5**	**100**		
No	**No.**	13	117	130		
	%	**10**	**90**	**100**		
Not always	**No.**	39	100	139		
	%	**28.1**	**71.9**	**100**		
	Total	105	295	400		
	%	**26.6**	**76.7**	**100**		

* Statistically significant
BSE: Breast self-examination

Table (4.5) showed the relationship between the selected variables and the previous performance of mammogram. As shown in **Table (4.5)**, about 26.3% of the study participants have performed mammogram previously and 73.7% of the study participants have not performed mammogram previously. With regard to the positive family history, about 34.1% of the study participants who have positive family history of breast cancer have performed mammogram previously, while, more than two-third (65.9%) of the study participants have positive family history of breast cancer but have previously not performed mammogram. On the other hand, about 24% of the study participants who did not have positive family history of breast cancer have previously performed mammogram , while 76% of the study participants who did not have positive family history of breast cancer have not conducted mammogram at all. Findings of Chi-Square test revealed a significant relationship between positive family history of breast cancer and previous utilization of mammography services. The relationship is statistically significant with (χ^2=3.583, P=0.041).

With regard to participants knowledge on early detection of breast cancer and utilization of mammogram services, about 31.1% of the study participants who had knowledge about early detection of breast cancer had performed mammogram while, 68.9% of the participants who had knowledge about early detection of breast cancer but have not conducted mammogram previously. On the other hand, 8.2% of the study participants who had no knowledge about early detection of breast cancer, have performed mammogram previously, while 91.8% of the study participants who did not have any knowledge about early detection of breast cancer never performed mammogram.

As clearly appeared from **Table (4.5)**, there was a highly statistically significant relationship between knowledge of early detection of breast cancer and previous experience with mammogram (χ^2=18.094, P=0.000).

Regarding to the participants knowledge of different early detection methods of breast cancer and its relationship with previous performance of mammogram, as in the **Table (4.5)**, there was a high statistically significant relationship between having knowledge about methods of early detection of breast cancer and previous performance of mammogram with (χ^2=27.869, P=0.000). As shown in the **Table (4.5)**, 33.8% of the study participants who have had knowledge about different breast cancer early detection methods have had previously conducted mammogram, while, 66.2% of the study participants who

have had knowledge about early detection methods of breast cancer never performed mammogram. On the other hand, only 8.4% of the participants who do not have knowledge on early detection methods of breast cancer have previously conducted mammogram, while, 91.6% of the participants who do not have knowledge about early detection methods of breast cancer did not have any experience with mammogram.

Regarding to participants knowledge about the importance of breast cancer early detection and its relationship with previous performance of mammogram, as in the **Table (4.5)**, there was statistically significant relationship between having knowledge about the importance of early detection of breast cancer and previous performance of mammogram with (χ^2=3.651, P=0.046).

As shown in the **Table (4.5)**, 26.9% of the study participants who have had knowledge about the importance of breast cancer early detection have performed mammogram previously, while, 73.1% of the study participants who have had knowledge about the importance of breast cancer early detection never performed mammogram. On the other hand, 100% of the study participants who do not have knowledge about the importance of breast cancer early detection did not have previous experience with mammogram.

Regarding to the participants practice to monthly BSE and its relationship with previous performance of mammogram, as shown in the Table (5), there was a high statistically significant relationship between regular practice of BSE and previous performance of mammogram with (χ^2=31.627, P=0.000). As shown in the **Table (4.5)**, 40.5% of the participants who have practiced regular BSE have performed mammogram previously, while, 59.5% who have practiced regular BSE never performed mammogram. On the other hand, 10% of the study participants who do not practice regular BSE have performed mammogram previously, while, 90% who do not practice regular BSE, did not perform mammogram.

Table (4.6): Relationship between participants' knowledge about mammogram and previous mammogram experience

Variable		Previous mammogram experience		Total	χ^2-value	P-value
		Yes	No			
Knowledge with mammogram						
Yes	**No.**	96	138	234	63.587	0.000*
	%	**41**	**59**	**100**		
No	**No.**	9	157	166		
	%	**5.4**	**94.6**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		
Recommendation to conduct mammogram						
Yes	**No.**	91	161	252	48.554	0.000*
	%	**36.1**	**63.9**	**100**		
No	**No.**	14	134	148		
	%	**8.2**	**91.8**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		
Knowledge with centers offer mammogram services						
Yes	**No.**	95	186	281	34.21	0.000*
	%	**33.8**	**66.2**	**100**		
No	**No.**	10	109	119		
	%	**8.4**	**91.6**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		

* Statistically significant

Table (4.6) showed the relationship between participants' knowledge about mammogram and their previous performance of mammogram.

Regarding to participants knowledge about mammogram and its relationship with previous performance of mammogram, as shown in the **Table (4.6)**, there was a high statistically significant relationship between having knowledge about mammogram and previous performance of mammogram (χ^2=63.587, P=0.000). As shown in the **Table (4.6)**, 41% of

participants who have knowledge about mammogram, had performed mammogram, while, 59% of participants who do not have knowledge about mammogram never performed mammogram. On the other hand, 5.4% of the study participants who do not know about mammogram have performed mammogram previously, while, 94.6% of the study participants who do not have knowledge about mammogram did not have any experience with mammogram at all.

With regard to the relationship between the previous recommendation to participants to conduct mammogram and the previous performance of mammogram, as revealed in **Table(4.6)**, there was a high statistically significant relationship between previous recommendation to participants to conduct mammogram and their performance of mammogram with (χ^2=48.554, P=0.000). As shown in **Table (4.6)**, 40.8% of the study participants who have received recommendation previously to conduct mammogram have performed mammogram, while, 59.3% of the study participants who have received recommendation to conduct mammogram did not performed mammogram. In addition, 10.1% of the study participants have performed mammogram without previous recommendation, while, 89.9% of the study participants did not performed mammogram because they never received recommendation to conduct mammogram.

Regarding to the relationship between participants knowledge with centers offer mammogram services and their mammogram performance, as shown in the **Table (4.6)**, there was a high statistically significant relationship between participants knowledge with centers offer of mammogram services and their mammogram performance with (χ^2=34.210, P=0.000). As shown in **Table (4.6)**, 36.1% of the study participants who had knowledge with centers offer of mammogram services, had performed mammogram, while, 63.9% of the study participants who had knowledge with centers offer mammogram services never performed mammogram. In addition, 9.5% of the study participants who do not have knowledge about centers offer of mammogram services have performed mammogram previously, while, 90.5% of the study participants did not performed mammogram because they did not have knowledge with the centers offer of mammogram services.

Table (4.7): Relationship between previous problems in the breast/s and participants previous mammogram experience

Variable		Previous mammogram experience		Total	χ^2-value	P-value
		Yes	No			
Previous problem/s in the breast/s						
Yes	**No.**	56	44	100	60.957	0.000*
	%	**56**	**44**	**100**		
No	**No.**	49	251	300		
	%	**16.3**	**83.7**	**100**		
	Total	105	295	400		
	%	**26.3**	**73.7**	**100**		

* Statistically significant

Table (4.7) showed the relationship between previous problems in the breast/s and participants performance of mammogram. As shown in the **Table (4.7)**, there was a high statistically significant relationship between mammogram performance and the presence of problems in the breast/s with (χ^2=60.957, P=0.000). Results in **Table (4.7)**, showed that, 56% of the study participants who have suffered from problem/s in their breast/s have performed mammogram previously, while 44% who have suffered from problem/s never performed mammogram. Otherwise, 16.3% of the study participants who had no problem/s in their breast/s have performed mammogram while, 83.7% of the study participants who had no problem/s in their breast/s did not performed mammogram.

4.3 Participants conceptions and beliefs about mammogram

Health beliefs and conceptions about mammogram have an important role in women decision toward performance of mammogram.

Table (4.8) illustrates some of participants' conceptions about mammogram.

Table (4.8): Participants conceptions about mammogram

Statement	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	W. Mean
1- A mammogram may diagnose cancerous breast problems which cannot be detected in any other ways							
No.	18	26	48	260	48	3.74	74.8
%	4.5	6.5	12	65	12		
2- Mammography helps in early detection of breast lumps							
No.	3	2	9	302	84	4.16	83.2
%	0.7	0.5	2.3	75.5	21		
3- A mammogram can detect breast masses before being discovered by women							
No.	19	61	30	254	36	3.57	71.4
%	4.8	15.3	7.4	63.5	9		
4- Mammogram should be conducted only once in the life							
No.	104	197	58	39	2	2.1	42
%	26	49.3	14.5	9.8	0.4		
5- Women should do mammogram every one year or two years after the age of 40 or 50							
No.	9	58	49	257	27	3.59	71.8
%	2.3	14.4	12.3	64.2	6.8		
6- Breast cancer has strong link with family history							
No.	54	69	40	164	73	3.33	66.6
%	13.5	17.3	10	41	18.2		
Mean: 68.24 Median: 70 SD: 7.84							

As shown in the **Table (4.8)**, there was a mixture of conceptions consist from positive and negative ones about mammogram and the overall mean of the study participant's conceptions about mammogram was 68.24% (SD: 7.84). As shown in the **Table (4.8),** more than two-third (77%) of the study participants agreed on the benefit and accuracy of mammogram in the early detection of breast problems. About 23% of the study participants were either uncertain of the benefits of mammogram in the early detection of breast lumps or think that no benefits from the usage of mammogram to detect breast problems. The mean percentage was 74.8%. Additionally, the vast majority of the study participants (96.5%) agreed on that mammogram helps in the early detection of breast lumps. About 3.5% of the participants were either uncertain or disagreed on the benefit of mammogram in the early detection of breast lumps. The mean percentage was 83.2%.

Furthermore, 72.5% of the participants agreed on the sensitivity of mammogram and its ability to detect breast masses before being discovered by women, while, 27.5% of participants were either uncertain or disagreed on that mammogram can detect breast masses before being discovered by women. The mean percentage was 71.4%.

Regarding to participants conceptions about mammogram frequency of performance, 75.3% of the study participants disagreed on that mammogram should be conducted once in the life. About 24.7% of the study participants were either uncertain of the frequency of mammogram performance or agree on that mammogram should be conducted once in the life. The mean percentage was 42%. Moreover, two-thirds of the study participants (71%) were aware of the age of mammogram performance and agreed on that woman should do mammogram every one-year or two years after the age of 40 or 50. About 29% of the participants were either uncertain of the appropriate age of mammogram performance or disagreed on the frequency of mammogram performance on the age 40 or 50. The mean percentage was 71.8%. Finally, more than half of the study participants (59.2%), agreed on the relation of positive family history of breast cancer with development of breast cancer. About 40.8% of the study participants were either uncertain of the relation of positive family history of breast cancer and breast cancer development or think that no relationship between positive family history of breast cancer and breast cancer development. The mean percentage was 66.6%.

4.4 Participants beliefs about mammogram

Table (4.9) illustrates some of participants' beliefs about mammogram.

Table (4.9): Participants beliefs about mammogram

Statement	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	W. Mean
1- If mammogram does not detect anything morbid in the first time, a woman does not need to do a mammogram again.							
No.	63	197	24	103	13	2.52	50.4
%	15.7	49.3	6	25.8	3.2		
2- If mammogram did not show any abnormalities, I would not be afraid of having breast cancer in the future.							
No.	21	102	12	228	37	3.4	68
%	5.3	25.5	3	57	9.2		
3- Women should do mammogram only if there are abnormalities in the breast/s							
No.	43	110	11	203	33	3.18	63.6
%	10.8	27.5	2.8	50.7	8.2		
4- If the lumps detected early by mammography, the treatment of these lumps will be more successful							
No.	2	4	11	266	117	4.23	84.6
%	0.5	1	2.8	66.4	29.3		
5- Early diagnosis of breast cancer by mammogram increases the chance of survival from breast cancer							
No.	6	16	50	240	88	3.97	79.4
%	1.5	4	12.5	60	22		
6- Mammogram often gives wrong results							
No.	59	156	115	59	11	2.52	50.4
%	14.8	39	28.7	14.8	2.7		
7- Mammogram itself could lead to breast cancer							
No.	105	145	104	41	5	2.24	44.8
%	26.1	36.3	26	10.3	1.3		
Mean : 63			**Median: 62.85**		**SD: 9.28**		

As shown in the **Table (4.9)**, the overall mean of the study participants' beliefs about mammogram was 63 % (SD: 9.28). As shown in the Table (9), about 65% of the study participants believed that women should repeat mammogram again if the mammogram does not detect lumps in the first time. About 35% of the participants were either uncertain of the necessity of repeated mammogram in the future or think with the unnecessary of mammogram repetition if everything is normal in the first conducted mammogram. The mean percentage was 50.4%.

Otherwise, 66.2% of the study participants believed in that, if the first mammogram reading was free, they will not have the chance to develop breast cancer in the future. While, about 33.8% of the participants were either uncertain if they will develop breast cancer in the future or disagreed on that if the mammogram was free from abnormalities, they will not develop breast cancer in the future. The mean percentage was 68%.

Moreover, more than half of the study participants (58.9%) believed that women should perform mammogram only if there were abnormalities in their breast/s. While, 41.1% of the participants were either uncertain of the importance of mammogram when there were or disagreed on the importance of mammogram in diagnosis if there were abnormalities in the breast/s. The mean percentage was 63.6%.

On the other hand, the vast majority of the study participants (95.7%) believed in that, when the lumps early detected, the treatment would be more successful. About 4.3% of the participants were either uncertain about the importance of the early detection and early treatment of breast cancer or disagreed on the effects of early detection on the results of treatment of breast cancer. The mean percentage was 84.6%. Furthermore, the majority of the study participants (82%) believed in that, chances of survival from breast cancer will increased if breast cancer early detected with mammogram. While, 18% of the participants were either uncertain of the effects of early detection and diagnosis of breast cancer by mammogram usage and chances of survival or disagreed on the existence relationship between the early detection and diagnosis of breast cancer by mammogram usage and chances of survival of breast cancer. The mean percentage was 79.4%. On the other hand, 53.8% of the study participants believed with the accuracy of mammogram in detection of breast lumps and disagreed on that mammogram often gives wrong results. About 46.2% of the participants were either uncertain of mammogram results or agreed on that mostly of mammogram results are wrong. The mean percentage was 50.4%.

Finally, 62.4% of the study participants believed in that, mammogram itself could not lead to breast cancer and disagreed on the relationship between mammogram and breast cancer. About 37.6% of the participants were either uncertain of the relationship of mammogram and breast cancer or believed in that mammogram itself could lead to breast cancer. The mean percentage was 44.8%.

4.5 Access and barriers to mammogram services

Table (4.10) shows some access and barriers encountered the study participants to perform mammogram.

Table (4.10): Access and barriers to mammogram services

Statement	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	W. Mean
1- Mammography could cause pain and discomfort							
No.	54	107	95	120	24	2.88	57.6
%	13.5	26.8	23.7	30	6		
2- Mammogram is embarrassing							
No.	57	121	36	153	33	2.96	59.2
%	14.3	30.3	9	38.2	8.3		
3- Mammogram causing a lot of fear and anxiety (to be diagnosed with breast cancer)							
No.	14	61	12	240	73	3.74	74.8
%	3.5	15.3	3	60	18.2		
4- Mammogram costs a reasonable amount of money, out of my pocket							
No.	125	94	80	83	18	2.44	48.8
%	31.3	23.5	20	20.7	4.5		
5- I am scared of doing the mammogram because I don't know exactly how they perform mammograms							
No.	46	168	28	121	37	2.84	56.8
%	11.5	42	7	30.3	9.2		
6- Mammography procedures take a lot of time							
No.	43	182	92	71	12	2.57	51.4
%	10.8	45.5	23	17.7	3		
7- Culturally, it is not acceptable to do mammogram							
No.	263	109	7	17	4	1.48	29.6
%	65.7	27.3	1.7	4.3	1		
8- Religion prohibits conducting mammogram							
No.	305	75	8	9	3	1.33	26.6
%	76.3	18.6	2	2.3	0.8		

As shown in **Table (4.10)**, 40.3% of the study participants indicated that mammogram could not cause pain and discomfort. About 59.7% of the study participants were either, uncertain or agreed on that mammogram could cause pain and discomfort. The mean

percentage was 57.6 %. In addition, 44.6% of the study participants were not embarrassed to conduct mammogram, while, 55.4% of the study participants were either uncertain if the mammogram performance is embarrassing or agreed on that conducting mammogram is embarrassing. The mean percentage was 59.2%.

More than two-thirds of the study participants (78.2%) considered that mammogram causes a lot of fear and anxiety. About 18.8% of the study participants considered that mammogram is safe and does not cause a lot of fear and anxiety. The mean percentage was 74.8%.

More than half of the study participants (54.8%) indicated that mammogram was free of cost. About 45.2% of the study participants were either, uncertain of the mammogram was costly. The mean percentage was 48.8%.

On the other hand, more than half of the study participants (53.5%) had a knowledge about the mammogram and its procedures while, 46.5% of the study participants were either uncertain of procedures or scared because they had no knowledge about the procedures of mammogram. The mean percentage was 56.8%. Additionally, 56.3% of the study participants indicated that mammogram procedures are not time consuming procedures, while, about 43.2% of the study participants were either uncertain of the time consumed in mammogram procedures or agreed on that mammogram procedures are time consuming procedures. The mean percentage was 51.4%.

Otherwise, the vast majority of the study participants (93%) have indicated that culturally it is acceptable to do mammogram. Less than 6% of the study participants considered conducting mammogram as culturally not acceptable health behavior. The mean percentage was 29.6%. Moreover, the vast majority of the study participants (94.6%) indicated that religion did not prohibit conducting mammogram. Less than 4% of the study participants considered religion prohibits conducting mammogram. The mean percentage was 26.6%.

4.6 Accessibility and affordability of mammogram services

This part discusses the accessibility and affordability of mammogram services. It is worth mentioning that this part is only for the women (160 cases) who visited the health centers to conduct mammogram.

4.6.1 Physical accessibility

Table (4.11) shows the physical accessibility of mammogram services.

Table (4.11) :Aspects of physical accessibility of mammogram services

Item	Cases		Total (n=160)	
	No	**%**	**No**	**%**
First visit to conduct mammogram				
• Yes	118	73.7	160	100
• No	42	26.3		
Easy to reach center				
• Yes	151	94.4	160	100
• No	9	5.6		
Means of transportation				
• Walking	3	1.9	160	100
• Public transportation	134	83.7		
• Private car	23	14.4		
Distance from participants house to the center				
• Distance is reasonable	21	13.1	160	100
• The center is near the participants' house	68	42.5		
• The center is far away from the partcioants' house	71	44.4		

As shown in the **Table (4.11)**, 73.7% of the cases utilized mammogram services for the first time and 26.3% of the cases have previously conducted mammogram.

Concerning the accessibility of the health care center, from participants point view, the health care center was accessible by the vast majority cases (94.4%). In addition, more than two-thirds of the cases (83.7%) used public transportation to reach the center and about 14.4% have used private vehicles to reach the center. With regard to the financial accessibility of transportation, the overall average of the transportation cost was 4.44 NIS with (SD 3.56).

Concerning the distance between the health care center and the participants' houses, about 44.4% of the cases indicated that they live far away from the health care center and 42.5%

indicated that they live relatively near the center. The overall average of time to reach centers by using all means of transportation was 23.46 minutes with (SD 15.95).

4.6.2 Financial accessibility

Table (4.12) below shows the financial accessibility of mammogram services.

Table (4.12): Aspects of finanicial accessibility of mammogram services

Item	Cases		Total (n=160)	
	No	%	No	%
Free cost mammogram service				
• Yes	72	45	160	100
• No	88	55		

As shown in the **Table (4.12)**, about 45% of the cases have performed mammogram free of charge because of free campaign from some centers, while, more than half of the cases (55%) have paid fee for the service. The mean average of cost paid by cases performed mammogram was 16.9 NIS with (SD 17.3).

4.6.3 Accessibility of information

Table (4.13) shows the accessibility of information about mammogram for cases.

Table (4.13): Aspects of accessibility of information about mammogram services

Item	Cases		Total (n=160)	
	No	%	No	%
Health education through the visit				
• Yes	21	13.1	160	100
• No	139	86.9		
Educational materials on mammogram				
• Yes	0	0	160	100
• No	160	100		

As shown in **Table (4.13)**, 86.9% of the cases that conduct mammogram did not receive health education about mammogram through their visit to the health care facility and none of the cases (100%) received educational materials about mammogram and its role in the early detection of breast cancer.

4.6.4 Affordability of the mammogram service

Table (4.14) shows the affordability of mammogram services for cases who came to utilize the service.

Table (4.14): Aspects of affordability of mammogram services

Item	Cases		Total (n=160)	
	No	**%**	**No**	**%**
Long waiting list to conduct mammogram				
• Yes	36	22.5	160	100
• No	124	77.5		
Waiting time				
• ≥15 minutes	101	63.1	160	100
• From 16 to 30 minutes	38	23.8		
• < 30 minutes	21	13.1		
Mammogram is time consuming process				
• Yes	30	18.8	160	100
• No	130	81.2		
Time consumed in imaging process				
≥15 minutes	19	63.3	160	100
< 15 minutes	11	36.7		

As shown in **Table (4.14)**, 77.5% of the cases indicated that no long waiting list to perform mammogram, about 63.1% of the cases waited 15 minutes or less to conduct mammogram. The mean average of waiting time to conduct mammogram was 23.53 minutes (SD 29.56). In addition, mammogram itself was not a time consuming process as indicated by 81.2% of the cases and the mean average of time consumed in the process of imaging was 16.83 minutes (SD 4.83).

4.7 Satisfaction

Three categories were used to study the satisfaction of cases with the mammogram services offered that were from the visited centers. The first category studied the satisfaction with the accessibility and affordability of the service, the second category studied the satisfaction with responsiveness, and the last category studied communication and patients' rights and finally, the overall satisfaction with mammogram service offered from the visited centers.

4.7.1 Satisfaction of cases with the accessibility and affordability of the mammogram service

Table (4.15) shows aspects of satisfaction of cases with accessibility and affordability of mammogram services.

Table (4.15): Satisfaction of cases with accessibility and affordability of the mammogram services

Statement	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	W. Mean
1- It was easy to reach to this health facility							
No.	8	11	7	98	36	3.89	77.8
%	5	6.8	4.4	61.3	22.5		
2- The location of this health facility is not far from your place of residence							
No.	24	44	16	54	22	3.04	60.8
%	15	27.4	10	33.8	13.8		
3- The cost of the mammogram was reasonable							
No.	4	7	28	76	45	3.94	78.8
%	2.5	4.4	17.5	47.5	28.1		
4- The waiting time in health facility was not long							
No.	9	19	16	100	16	3.59	71.8
%	5.6	11.9	10	62.5	10		
5- The time of conducting the mammogram was not long							
No.	46	168	28	121	37	2.84	56.8
%	2.5	8.1	5.6	70	13.8		
6- The working hours of this center are appropriate							
No.	1	3	8	124	24	4.04	80.8
%	0.6	1.9	5	77.5	15		

The overall mean of satisfaction with the accessibility and affordability of the mammogram services was 76.05% with (SD: 11.73). As shown in **Table (4.15)**, most of cases (83.8%) indicated that the health facility was easy to reach. Less than 15% of the cases indicated

that it was not easy to reach the health facility. The mean percentage was 77.8%. Additionally, 47.6% of the cases indicated that the health facility was near to their place of residence. More than half of the cases (52.4%) were either neutral or indicated that the health facility was far from their place of residence. The mean percentage was 60.8%.

Regarding to the cost of service, more than two-thirds of the cases (75.6%) indicated that the cost of the mammogram was reasonable, while, less than 10% of the cases indicated that the services was costly and was not reasonable. About 17.5% of the cases were neutral in their expression. The mean percentage was 78.8%.

With regard to the waiting time, two-thirds of the cases (72.5%) indicated that the waiting time in the health facility was short, while, less than 30% of the cases were either neutral in their expression or indicated that the waiting time in the health facility was long. The mean percentage was 71.8%. In addition, most of the cases (83.8%) indicated that the time consumed to conduct mammogram was short, less than 20% of the cases were either neutral or indicated that the time consumed to conduct mammogram was long. The mean percentage was 76.8%.

Regarding to the working hours in the health facility, the vast majority of cases (92.5%) indicated that the working hours were appropriate in the visited centers, while, less than 10% of the cases were either neutral or unsatisfied with the working hours in the visited centers. The mean percentage was 80.8%.

4.7.2 Satisfaction of cases with Responsiveness of the health facility

Table (4.16) shows aspects of cases satisfaction with responsiveness of the health facility

Table (4.16): Satisfaction of cases with responsiveness of the health facility

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	W. Mean
1- The waiting room was clean and comfortable							
No.	1	1	6	102	50	4.24	84.8
%	0.6	0.6	3.7	63.8	31.3		
2- Means of entertainment and health promotional materials are available in the waiting room (TV, M. journals,…etc)							
No.	50	58	10	31	11	2.34	46.8
%	31.3	36.3	6.2	19.3	6.9		
3- The mammography room is equipped with curtains							
No.	2	6	14	97	41	4.06	81.2
%	1.3	3.7	8.8	60.6	25.6		
4- The physical environment in the health facility was suitable (Good ventilation and suitable heating)							
No.	2	3	3	128	24	4.06	81.2
%	1.3	1.9	1.9	80	14.9		
5- Clean water was available in the health facility							
No.	29	7	19	77	28	3.44	68.6
%	18.1	4.4	11.9	48.1	17.5		
6- Electricity has been always available during your visit to the center							
No.	1	3	8	115	33	4.1	82
%	0.6	1.9	5	71.9	20.6		
7- Waiting time at the stage of registration was not long							
No	1	11	6	123	19	3.93	78
%	0.6	6.9	3.7	76.9	11.9		
8- The welcome from service providers was good							
No	0	2	3	113	42	4.22	84.4
%	0	1.3	1.9	70..6	26.3		

The overall mean percentage of cases satisfaction with responsiveness of the health facility was 75.92% with (SD 9.44). As shown in **Table (4.16)**, the vast majority of cases (95.1%) were satisfied with the cleanliness and comfortable measures of the waiting room. Less than 5% of the cases were either neutral with their expression or disagreed on the cleanliness of the waiting room. The mean percentage was 84.8%. On the other hand, about 67.7% of the cases indicated that means of entertainment and education materials are unavailable in the waiting room. Less than 30% of the cases were either neutral or agreed

on the availability of means of entertainment and health promotional materials in the waiting room. The mean percentage was 46.8%.

Regarding to the equipment of mammogram room, most of the cases (86.2%) indicated that the room equipped with curtains, while, less than 15% of the cases were either neutral or disagreed on the room equipment. The mean percentage was 81.2%. In addition, the vast majority of cases (95%) indicated that the physical environment in the health facility was suitable, while, about 5% of the cases were either neutral or unsatisfied with the physical environment in the health facility. The mean percentage was 81.2%. Moreover, about 65.6% of the cases indicated that clean water was available in the health facility, while, about 34.4% of the cases were either neutral or indicated with the unavailability of clean water in the health facility. The mean percentage was 68.6%.

Regarding to the availability of electricity during the visit, the vast majority of cases (92.5%) indicated that the electricity was always available during the visit to the health facility. Less than 10% of the cases were either neutral or indicated that the electricity was not always available during the visit to the health facility. The mean percentage was 82%.

Regarding to the waiting time at the stage of registration, most of the cases (88.8%) indicated that the waiting time at the stage of registration was short, while, about 11% of the cases were neutral or indicated that the waiting time at the stage of registration was long. The mean percentage was 78%.

Finally, nearly all of the cases (96.9%) confirmed that the welcome of the service providers was good with them. Less than 3% of the cases were either neutral or disagreed on the welcome of the service providers. The mean percentage was 84.4%.

4.7.3 Satisfaction of cases with communication and patients' rights

Table (4.17) shows aspects of cases satisfaction with communication and patients' rights.

Table (4.17): Satisfaction of cases with communication and patients' rights

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	W. Mean
1- When you arrived at the center, the registration was easy							
No.	7	3	18	110	22	3.86	77.2
%	4.4	1.9	11.1	68.8	13.8		
2- The service provider introduces the enough explanation about the procedures before the imaging process							
No.	8	34	9	96	13	3.45	69
%	5	21.3	5.6	60	8.1		
3- The provider showed an interest with regard to your questions							
No.	0	1	25	108	26	3.99	79.8
%	0	0.6	15.6	67.5	16.3		
4- The service providers answer all your questions in a professional way							
No.	1	1	25	107	26	3.98	79.6
%	0.6	0.6	15.6	66.9	16.3		
5- You were given the opportunity by the service providers to inquire about your case							
No.	1	10	26	97	26	3.86	77.2
%	0.6	6.2	16.3	60.6	16.3		
6- You were given enough time to explain your condition/concern							
No.	0	7	30	100	23	3.87	77.4
%	0	4.3	18.8	62.5	14.4		
7- Service providers used clear language to talk with you (clear, easy and understandable vocabularies for you)							
No.	1	3	7	110	39	4.14	82.8
%	0.6	1.9	4.3	68.8	24.4		
8- The service providers respected my privacy through the whole process of mammogram							
No.	0	1	2	116	41	4.23	84.6
%	0	0.6	1.3	72.5	25.6		
9- The service providers welcomed you in a good way							
No.	0	2	11	117	30	4.09	81.8
%	0	1.3	6.8	73.1	18.8		
10- The service provider introduces her/ himself before introducing the requesting service							
No.	48	74	18	18	2	2.08	41.6
%	30	46.3	11.2	11.2	1.3		
11- In general, the performance of the service providers was good							
No.	0	2	6	100	52	4.26	85.2
%	0	1.3	3.7	62.5	32.5		
12- You are satisfied about the service that has been provided from the center							
No.	0	7	5	116	32	4.08	81.6
%	0	4.4	3.1	72.5	20		

The overall mean percentage of cases satisfaction with communication and patients' rights was 76.19% with (SD 6.48). As shown in **Table (4.17)**, the registration process was easy to most of the cases (82.6%). Less than 20% of the cases were either neutral in their expression toward the registration process or considered the registration process was difficult. The mean percentage was 77.2%.

Regarding to the service providers, about 68% of the cases considered that the service providers introduced an enough explanation about the mammogram procedures before imaging, while, 32% of the cases were either neutral in their expression or considered that the services providers did not introduce an enough explanation about the mammogram procedures before imaging. The mean percentage was 69%. Additionally, about 83.8% of the cases have an interest from the service providers with their questions, while, 27% of the cases were either neutral or did not feel the interest from the service providers with their questions. The mean percentage was 79.8%. Moreover, most of the cases (86%) have answered on their questions, while, less than 20% of the cases were either neutral or unanswered about their questions. The mean percentage was 79.6%.

Regarding to the opportunity, which was given by the service providers to the cases to inquire about their situations, more than two-thirds of the cases (76.9%) were given the opportunity to inquire about their situations, while less than 30% of the cases were either neutral or were not given the opportunity to inquire about their situations. The mean percentage was 77.2%. In addition, most of the cases (76.9%) were given enough time to explain their situations, while, 23.1% of the cases were neutral or were not given enough time for explanation. The mean percentage was 77.4%.

Regarding to the language used from the service providers, the majority of cases (93%) considered that the service providers used clear and understandable language through the visit, while, less than 10% of the cases were either neutral or have difficulties from the language used from the service providers through the visit. The mean percentage was 82.8%.

Otherwise, the service providers respected the privacy of cases through the whole process of mammogram as indicated by the vast majority of cases (98%). About 2% of the cases were neutral or felt lack of privacy through the process of mammogram. The mean percentage was 84.6%. In addition, the vast majority of cases (91.9%) indicated that the service providers welcomed them in a good way, while, less than 10% of the cases were

either neutral or disagreed on the way, which the service providers welcomed them. The mean percentage was 81.8%.

Regarding to the self-introduction of the service providers to the cases before mammogram processing, more than two-thirds of the cases (76.3%) indicated that the service provider did not introduce her/himself before mammogram process, while, 22.7% of the cases were neutral or indicated that the service provider introduce her/himself before mammogram processing. The mean percentage was 41.6%.

Regarding to the general performance of the service providers, the vast majority of cases (95%) indicated that the performance of the service providers was good while, about 5% of the cases were either neutral or unsatisfied with the performance of service providers. The mean percentage was 85.2%.

Finally, the vast majority of cases (92.5%) satisfied with the service provided from the health facility, while, about 7.5% of the cases were either neutral or unsatisfied with the service provided. The mean percentage was 81.6%.

4.8 Overall satisfaction with mammogram services

Table (4.18) shows aspects of the overall satisfaction of the cases with the mammogram service they have received.

Table (4.18): Overall cases satisfaction with mammogram services

Item	Cases		Total (n=160)	
	No	**%**	**No**	**%**
Recommendation to others				
• Yes	156	97.5	160	100
• No	4	2.5		
Meeting expectations				
• Strongly agree	58	36.3	160	100
• Weakly agree	96	60		
• I don't agree	6	3.7		
Desire for follow-up				
• Regularly	73	45.6	160	100
• When necessary	86	53.8		
• Idont feel with the need for follow-up	1	0.6		

In general, the overall mean of satisfaction was 76.19%. As shown in Table (18), the vast majority of cases (97.5%) will recommend mammogram to others (friends and relatives). On the other hand, the service met weak expectation from 60% of the cases; while, about 36% of the cases expectations were met strongly form the provided service. Furthermore, more than half of cases (53.8%) will follow up when the need arise, while, about 45.6% of the cases will follow-up regularly.

II. Main qualitative findings

This part of chapter presents the results from in-depth interviews with the heads of mammogram units in the data collection settings.

4.9 Theme 1: Breast cancer is a problem for women in the GS

From participants' point of view, breast cancer is a multi-faceted health problem that faces every woman in the GS. It is a multi-faceted problem due to high prevalence at young ages, late detection and diagnosis of breast cancer, which result in low survival rates. In addition, the main reasons for late diagnosis are; the limited availability of mammogram screening facilities, low level of women's knowledge and awareness with the importance of the early detection of the breast cancer and fear from conducting mammogram. One of the health providers said that "*fear*" is one of the reasons, which encounters women to conduct mammogram for the early detection of breast cancer. Finally, within the context of the GS, from participants' point of view, some risk factors might increase the prevalence of breast cancer such as environmental factors, positive family history of breast cancer and genetic factors.

4.10 Theme 2: Methods of early detection of breast cancer

All of the health providers said that early detection of breast cancer is important and many methods could be used to do so. These methods are; BSE, CBE, and mammogram. According to participants of the in-depth interviews, BSE could be useful in detecting some breast abnormalities; however, it is not effective as mammography. There was a consistent view among all the interviewed participants that mammography is a very effective and efficient method in the early detection of breast cancer. One participant said, *"Mammography is an important method for early detection of the breast lumps."*

With regard to timing of mammogram, all of the interviewed participants revealed that diagnostic mammogram should be performed for every woman complains from any

problem/s in the breast/s. Additionally, participants agreed on that screening mammogram should be conducted regularly after the age of 40. With regard to the current mammogram units, according to participants, these units are used mainly for diagnostic purposes not for screening purposes.

4.11 Theme 3: Current mammogram services

4.11.1 Availability of mammogram services

Currently, there are eight units of mammogram, 4 units are bases in governmental hospitals and 4 units are bases at private and NGOs centers.

Most of the interviewed health providers indicated that the available units are fully functioning and service women mainly for diagnostic purposes, except one unit that has been used primarily for screening purposes. However, according to the Director of Women's Health Department within the MoH, this unit operates with limited resources. Additionally, the Director of Women's Health Department within the MoH stated that mammogram-screening services within the MoH are weak and not enough to serve all women across the GS. The Director added, the screening unit always experiences shortages in films and lack of spare parts. Additionally, in-depth interview with the director of the only screening unit in the MoH revealed that the available mammogram is very old and outdated. It is not a digital one and it is very hard to find films and spare parts for it. Additionally, she stated that the quality of the films is not high and sometimes of low quality as a result of the shortage of those films. All of the interviewed participants have confirmed that the mammogram service is available for each woman, either for diagnostic or screening purposes but mammogram is preferred for women aged over 40 years. This is because of the sensitivity of test in this group of age. Additionally, in some centers, the mammogram service is free of charge but in some centers, it costs nominal amount of money as mentioned above.

4.11.2 Availability of guidelines

No written guidelines for mammogram were available in the mammogram units at the time of data collection stated "*no protocols for mammogram screening are available; the team depends on the WHO guidelines for mammography.*" There were consensus about the age of conducting screening mammogram; all the interviewed health providers indicated that they recommend screening mammogram for women aged 40 and older and for women aged 35 years old if they have positive family history of breast cancer.

With regard to diagnostic mammogram, all health providers linked performing mammogram with the presence of any abnormalities in the breast/s including pain and lumps.

4.11.3 Experience and training of the staff

Most of the staff members working in the mammogram units were well-trained professionals with different academic background and most of them were females. In-depth interviews with health providers revealed that most of working staff have received training on mammogram imaging. Some participants of in-depth interviews have indicated that they have continuous training programs within their organization.

4.12 Theme 4: Access barriers to mammogram services

In-depth interviews with heads of mammogram units revealed several barriers encountered mammogram utilization. The most common barriers were; Low level of knowledge with the availability of mammogram services, Low level of awareness with the benefits of the early detection of the breast cancer,, Fear from mammogram results, Cultural constrains, Lack of motivation from family members (men may prevent their wives from conducting mammogram), high cost of conducting mammogram, and pain.

4.13 Theme 5: Scaling up mammogram services in the GS

To scale up the mammogram services in the GS, there is a need to increase awareness about the importance of the early detection of breast cancer and the importance of mammogram as a method for early detection of breast cancer. Additionally, there is a need to increase the number of mammogram units in the GS, to have at least a unit that should be used for screening purposes in each governorate. Finally, it is very important to supply the currently working units with the required films and spare parts.

Chapter 5

Discussion

Breast cancer is by far the most frequently diagnosed cancer and cause of cancer death among women worldwide, Arab countries are not an exception (Ferlay et al., 2012). Moreover, breast cancer among Arab women generally occurs at younger ages as half of patients were under 50 years old, with a median age ranged from 49 to 52 years old compared to 63 years in industrialized nation (El-Saghir el al., 2007). It is well known that early detection of breast cancer increases the 5-years survival rate, thus, implementing strategies that aim for early detection of breast cancer should be in place. There are several early detection methods that could be used but the three methods recommended are; mammography, BSE, and CBE (Khatcheressian et al., 2006). However, mammography is the most common that is used for screening and diagnostic purposes (NCI, 2015b).

This quantitative/qualitative mixed method study evaluated the current mammogram services in the GS and the following discussion summarizes the key findings from the quantitative and qualitative studies. It also compares the findings of this study with other studies and it proposed research areas that need to be explored.

Women's knowledge with early detection of breast cancer, methods used and risk factors of breast cancer.

The main goal of early detection of breast cancer is to diagnosis cancer cases at earliest possible stage to increase patients' survival rates and to improve the disease outcomes.

The findings of this study have shown that women's level of knowledge with early detection of breast cancer was high as more than two-thirds of the study participants (78.7%) have had heard about the early detection of breast cancer. The main sources of knowledge were health education at the primary health care centers (53%), followed by TV/Radio advertisement (19.5%) and friends or relatives (13%). The study results are consistent with several studies that found that women have high level of knowledge on early detection of breast cancer (Mohammed et al., 2014; Abu Shammala, 2013; Allam and Elaziz, 2012; Guvenc et al., 2012; Nergiz-Eroglu and Kilic, 2011). The main source of information in this study was health education at the primary health care centers while in

other studies were books, magazines, TV, Radio and health care professionals (Mohammed et al., 2014; Abu Shammala, 2013; Allam and Elaziz, 2012; Guvenc et al., 2012; Nergiz-Eroglu and Kilic, 2011). Therefore, it is recommended to conduct more health education sessions at the primary health care centers. It is also recommended to use different methods to educate women about the methods and the importance of early detection of breast cancer.

The findings of this study have shown that, more than two-thirds (70.2%) of the study participants were aware of the different early detection methods of breast cancer and the most known method was BSE (70.6% among cases and 63.3% among controls). These results are consistent with the studies of Abu Shammala (2013), Sadikoglu and colleagues (2010) and Alaziza and colleagues (2010). These studies have shown that participants have high level of knowledge about BSE. Additionally, the vast majority of the study participants (97.5%) indicated that the early detection of breast cancer is important and this is consistent with the studies of Anderson and colleagues (2008), Elmore and colleagues (2005) in that the early detection remains the cornerstone of breast cancer control and in reducing mortality rates and improving patient's prognosis.

The study participants have mentioned three methods of early detection, namely, mammography, BSE, and CBE. These results are inconsistent with the study of Chipfuwa and colleagues (2014) which found that 60.3% of the study respondents had not heard of BSE but consistent with the studies of (Chipfuwa et al., 2014; Mohammed et al., 2014) that found inadequate knowledge and awareness about mammogram and CBE. Additionally, the study results were consistent with the results of Abu Shamallah (2013) which indicated that the most familiar early detection method was BSE followed by mammography. Furthermore, one-third (32.8%) of the study participants have never practiced BSE regularly. These results are consistent with the studies of (Abu Shammala, 2013 ; Alaziza et al., 2010, Osime et al., 2008; Parsa et al., 2008) which found that only 25.4%, 29.4%, 35% and 19%, respectively performed monthly BSE on the regular basis. From the researcher perspectives, BSE is an important early detection method that is simple, and non-invasive procedure requiring little time and effort, and does not require consulting health professionals. Moreover, BSE is perceived as a method of empowering women to take responsibility for their own health and women need to be taught to examine their breasts competently with the recommended frequency.

Concerning the risk factors of breast cancer and the knowledge of the study participants with these risk factors, only 33.3% of the study participants knew that age is a risk factor and breast cancer may developed after the age of forty. Also, less than one-third (27.5%) of the study participants knew that a positive family history of breast cancer is a risk factor, while, 11.8% of the study participants knew that married women without children is one of the breast cancer risk factors. On the other hand, 26.5% of the study participants did not know any of the risk factors of breast cancer. These results are consistent with studies of McPherason and colleagues (2000), Cady, and colleagues (1998), in that the incidence of breast cancer is higher at younger age and increasing with advancing age. Moreover, the study results are consistent with the results of Osime and colleagues (2008) which found that 37.8% of the study participants knew that positive family history of breast cancer is a risk factor of the breast cancer. Additionally, knowledge of women with risk factors increases women's awareness and may increases their adherence to screening programs. Thus, it is important to educate women about risk factors of breast cancer.

Concerning the knowledge with mammogram, less than 60% of the study participants have heard about mammography and the main source of information was health education at the primary health care centers (30%), followed by health care providers (20.3%). Moreover, 50% of the study participants have recommendations to conduct mammogram and the health care providers were the main recommender (61.1%) followed by friends (24.2%) and husband (14.7%) respectively.

Women's knowledge of mammogram and mammography services

Concerning the previous knowledge of women about mammogram, less than 60% of the study participants have heard about mammogram and the main sources of information were health education at the primary health care centers (30%), followed by health care providers (20.3%). The results are consistent with results of (Al-Dubai et al., 2011) study in that half of the study respondents had heard about mammography. Otherwise, the results are inconsistent with results of several studies of (Chipfuwe et al., 2014; Mohammed et al., 2014; AbuShammala, 2013; Opoku et al., 2012; Alaziza et al., 2010; Rosmawati, 2010; Sait et al., 2010; Osime et al., 2008; Montazeri et al., 2008) in that in all studies the knowledge of mammogram was at low level and inadequate. Additionally, there were differences in the sources of information. Moreover, it is inconsistent with the study of (Dundar et al., 2006) in that 72.1 % had heard about mammography. From researcher

perspectives, health education about mammography and its benefits should be encouraged, so primary health care providers should be involved in such education program and encouraged to participate in health education by providing information on breast cancer and methods used in the early detection of breast cancer. Moreover, the role of mass media should be stressed as it was found to play a key role in imparting health education and belief changes.

Additionally, more than half of the study participants (50%) have recommendations to conduct mammogram and health care providers were the main recommender (61.1%), the second recommender were friends and relatives (24.2%), while husband was the last recommender (14.7%). These results are consistent with the results of (AbuShammala, 2013) which found that half of the teachers received advice from doctors or nurses for breast screening, whereas, only 18.4% received advice for mammography and approximately 27.6% had an invitation for mammography. From researcher perspectives, health care workers play an important role in health education and changes in beliefs and attitudes and lack of health professionals' recommendation may act as a barrier for breast screening.

With regard to participants' knowledge with the availability of mammogram services in the study settings more than 60% of the participants have known about the availability of mammogram services in the study settings, while, 37% of the study participants did not know about the availability of mammogram service. Therefore, healthcare providers need to intensify health education awareness sessions focusing on the importance of early detection of breast cancer and the screening practices among targeted women across GS.

Age and mammogram performance

In this study, the quantitative findings showed that 41.3% of the study participants indicated that mammogram should be conducted between forties and fifties, while 24.3% had no idea about the appropriate age to conduct mammogram.

The qualitative findings are consistent with the quantitative findings as all of the interviewed participants indicated that diagnostic mammogram should be performed for every woman who complains from any problem/s in the breast/s. Additionally, participants agreed on that screening mammogram should be conducted regularly after the age of 40. The results are consistent with the recommendation of several organizations (NCCN, 2015;

ACS, 2015; AMS, 2002) which recommended annual mammography beginning at age of 40. Additionally, the results are also consistent with the recommendation of the Canadian Task Force on Preventive Health care, which recommended mammography every 1 to 2 years beginning at the age of 40 years (Ringash, 2001). On the other hand, the results are inconsistent with the recommendation of (USPSTF, 2009) which recommended mammography every 1 to 2 years for women aged 50 to 69 years. From researcher perspectives, there is a lack of knowledge about the appropriate age to conduct mammogram for screening purposes. Many research studies have argued that the mammogram should be conducted after the ages of forties, latest by age of fifties. It is worth mentioning that conducting mammogram before age forties is not recommended. As breasts are still dense and, thus, it is hard to detect any small lump.

Quantitative findings revealed that 37% of the study participants indicated that mammogram should be conducted once every 6 months, 29.5% annually and 5% biennially. Additionally, 26.7% of the study participants did not know the interval of conducting mammogram. These results are inconsistent with the recommendations of numerous organizations (NCCN, 2015; ACS, 2015, USPSTF, 2009; AMS, 2002; Ringash, 2001) which recommended mammography annually or biennially according to the age. From researcher perspectives, there is a need to educate women about the timing and interval of conducting mammogram screening.

Effect of socio-demographic characteristics on the mammogram services utilization

By studying the effect of some socio-demographic characteristics on the mammogram services utilization, Chi-square test results revealed that there is no significant relationship between age and educational level and the conducting mammogram (χ^2=2.723, P= 0.256;χ^2=0.461, P=0.927) respectively. While, there is a statistically significant relationship between employment status and the conducting of mammogram (χ^2=4.77, P=0.023). The results of the study are consistent with the results of (Ahmadian et al., 2012) which found that mammography screening was related to higher self-efficacy and women's occupation but inconsistent with (Ahmadian et al., 2012) which found a significant relationship between age, education, marital status, income, and insurance status and conducting mammography. Additionally, the results are consistent with the results of (Parsa et al., 2008) study which found that there was no significant relation between age and conducting mammogram breast screening. While, the results are inconsistent with

several studies results (Abu Shammala, 2013; Abu-Samah and Ahmadian, 2012; Park et al., 2011; Euler-Chelpin et al., 2008; Duport and Ancelle-Park, 2006) which found that several socio-demographic characteristics such as age, high monthly income, high educational level, and private health insurance increased the probability of using mammogram services. From researcher perspectives, there is no relationship between ages and utilizing of mammogram service because, no guidelines and policies are available to determine the age groups of conducting mammography. Additionally, mammogram services in the GS are used mainly for diagnostic purposes, so it is normal to find differences in the age groups which utilizing mammogram services. Moreover, the statistically significant relationship of the employment status with the utilization of mammogram services result from that some of the study participants were teachers and mammogram test is conducted routinely for all teachers aged 40 years and older.

Effect of positive family history on mammogram utilization

Positive family history of breast cancer is one of the risk factors of the disease and knowledge and awareness with this factor are important. Chi-square findings revealed that there is a statistically significant relationship between positive family history and the utilization of mammogram services (χ^2=3.583, P=0.041). The results are consistent with the results of several studies (Abu-Helalah et al., 2015; Abu Shammala, 2013; Haber et al., 2012; Khalili and Shahnazi, 2010; Tracy et al., 2008; Keinan-Boker et al., 2007; Murabito et al., 2001). The studies found relationships between family history of breast cancer and screening behaviors and mammography use was high among women with a family history of breast cancer. Moreover, the family history of breast cancer was the most predictive of undergoing mammography. On the other hand, the results are inconsistent with the results of (Subramanian et al., 2013; Sadikoglu et al., 2010; Parsa et al., 2008) study, which found that adequate knowledge of breast cancer risk factors and poor cancer screening practice among women with family history of breast cancer. It is recommended to educate women with positive family history of breast cancer about the importance of regularly conducting mammogram as 15-20% of women who developed breast cancer had a family history of the disease (Pharoah et al., 2002; Claus et al., 1996). This requires more efforts from various NGOs societies and governmental facilities to increase the awareness and knowledge of women through health education program about the disease, risk factors and the guidelines of breast cancer screening, if any.

Effect of knowledge with early detection of breast cancer, methods used and its importance on the utilization of mammogram services

Chi-Square finding revealed that there was a statistically significant relationship between women knowledge with the early detection of breast cancer, methods used in the early detection, and the importance of the early detection with the utilization of mammogram services (χ^2=18.094, P=0.000; χ^2=27.869, P=0.000; χ^2=3.651, P=0.046), respectively. The results of the study are consistent with results of several studies (Naghibi et al., 2013; Nergiz-Eroglu and Kilic, 2011; Sadikoglu et al., 2010) in that participants have had knowledge with the early detection of breast cancer, positive attitudes toward mammography and other breast cancer screening methods and the importance of early detection of breast cancer. It is important to increase the awareness and knowledge about the early detection of breast cancer, methods that used and the importance of early detection and its impact on the survival. This is by providing regular information to women on breast cancer and screening methods through the clinics and community awareness, and sensitization programs. Additionally, media programs in language that can be easily understood by people could be used to provide necessary information.

Additionally, in this study, the quantitative findings have shown a highly statistically significant relationship between regular practice of BSE and utilization of mammogram services (χ^2=31.627, P=0.000). The results are inconsistent with the results of (Susan et al., 2005) study, which found no significant relationship between performance of BSE and subsequent performance of mammography. From researcher perspectives, BSE is one of the screening methods, which is simple, inexpensive and need little time and efforts to do. Additionally, practicing BSE regularly is important in that women become aware of their breast health and can determine any changes may be occur. In our study, the relation between practicing BSE and mammogram utilization may be result from that 40.5% of the study participants who have practiced regular BSE utilized mammogram previously for screening or diagnostic purposes. Additionally, health education at the primary health care centers may contribute to increasing the awareness and knowledge of women with the importance of early detection of breast cancer with the different methods, especially with BSE, mammography, and CBE. Moreover, teaching women with the appropriate technique for doing BSE is important in increasing the sensitivity of women toward their

breasts and the ability for them to determine and detect any changes or abnormalities at earliest possible time.

Effect of women's knowledge with mammogram and centers offered the service on mammogram utilization

Additionally, the findings show a high statistically significant relationship between the knowledge of women with the centers that offer mammogram services and utilization of the services (χ^2=63.587, P=0.000; χ^2=34.210, P=0.000) respectively. These results are inconsistent with results of (Chipfuwa et al., 2014; Mohammed et al., 2014; Naghibi et al., 2013; Opoku et al., 2012, Al-Dubai et al., 2011; Azaiza et al.,2010; Rosmawati, 2010; Sadikoglu et al., 2010; Amin et al., 2009; Osime et al., 2008) studies. In these studies, participants have knowledge with mammogram but with limited utilization of mammogram services and with low level of performing mammogram. Additionally, the lack of knowledge about mammogram was associated with the low screening rate (Azaiza et al., 2010). The results are consistent with the results of (Petroc-Nastas, 2001) study which found a high significant relationship between hearing or reading about mammogram and conducting mammogram.

Previous recommendations to conduct mammogram and mammogram utilization

In this study, quantitative findings show a high statistically significant relationship between previous recommendation to the study participants to conduct mammogram and mammogram utilization (χ^2=48.554, P=0.000). These results are consistent with the results of (Abu-Helalah et al., 2015; Al-Naggar and Bobryshev, 2012; Ahmadian et al., 2012) studies. The results of these studies show that most of women significantly recognized the influence of friends and family members in encouraging them to have mammogram. Additionally, perceived severity and advice from friend, family member and doctor were the most reasons to conduct mammogram. Therefore, from researcher perspectives, recommendations from others (doctors, friends and family members) may be classified as a facilitator to conduct mammogram and the lack of these recommendations may be classified as a barrier to mammography. As reported in the study of Alexandraki and Mooradian, (2010) that the lack of physician recommendation is one of the barriers that may limit the utilization of mammography. Additionally, involvement of health professionals in education program about breast cancer and early detection is important in

shaping health behaviors for participants in these programs and may increase the utilization of mammogram services.

Effects of previous problems in the breast/s on mammogram utilization

In this study, the quantitative findings show a statistically high significant relationship between existence of problem/s in the breast/s and mammogram utilization (χ^2=60.957, P=0.000). The findings are inconsistent with the results of (Al-Mulhim, 2001) which found that the study participants have had no motivation to conduct mammography. The reasons for non-motivation were that they had no breast problems or were afraid of discovering that they had cancer. Additionally, the results of this study are also inconsistent with the results of (Sadikoglu et al., 2010) which found that no statistically significant relationship between history of breast problems or family history of breast cancer and use of mammography.

Women's conceptions about mammogram

Although there were some misconceptions about breast screening methods, and importance of early detection, the quantitative findings shows that 68.24% of women reported their different conceptions about mammogram and breast cancer. The findings shows that more than two-thirds (74.8%) of women agreed on that mammogram may diagnose cancerous breast problems which cannot be detected in any other ways. These results are inconsistent with the study of (Miller et al., 2014) in that mammography is an imperfect screening test, missing biologically aggressive cancers and picking up indolent cancers that do not need treatment.

The findings shows that 83% of women agreed on that mammography helps in early detection of breast lumps and these results are consistent with the results of (Montazeri et al., 2008; Khatcheressian et al., 2006) studies. The studies showed that, mammography has been found to be the most consistent of the screening methods and is considered as the gold standard for early detection of breast cancer.

Additionally, the quantitative findings show that 71.1% of women agreed on that mammogram can detect breast masses before being discovered by women. These results are also consistent with the results of (Montazeri et al., 2008; Khatcheressian et al., 2006) studies. The studies showed that mammography remains the most effective screening tool

in comparison to CBE and BSE. While, the results are inconsistent with (Miller et al., 2014) study in that mammography cannot detect all types of breast masses.

On the other hand, one of the misconceptions reported by less than half (42%) of the study participants that women should do mammogram only once in the life and this is inconsistent with the recommendations of (ACS, 2015; NCCN, 2015) which recommend annual mammography beginning at the age of 40. It is also inconsistent with the recommendations of (USPTF, 2009; ACOG, 2003; Rangish, 2001) which recommended mammography every 1 to 2 years for women depending on the age.

Finally, one of the positive conceptions reported by 66.6% of the study participants, which agreed on that breast cancer, has strong link with family history. The result is consistent with (Pharoah et al., 2002; Claus et al., 1996) as they found that 15-20% of women who developed breast cancer had family history of the disease. More health education is needed to increase the level of knowledge and awareness of women about early detection of breast cancer, methods used, risk factors of breast cancer and recommendations for screening to encounter misconceptions, which may lead to barriers to mammogram utilization.

Women's beliefs about mammogram

The quantitative findings show that 63% of women recorded their different beliefs toward mammogram. The findings shows some wrong beliefs reported by women as that half of women (50.4%) believed in that if the first mammogram does not detect any abnormalities, women do not need to do it again. Additionally, 68% of women believed in that if the mammogram did not detect any abnormalities, woman will not be afraid to develop breast cancer in the future and 63.6% of women believed in that woman should do mammogram only if there are abnormalities in the breast/s. These beliefs are inconsistent with the recommendation of screening guidelines (ACS, 2015; NCCN, 2015; USPTF, 2009, Rangish, 2001) as many factors determined the usage of mammogram in spite of detection of abnormalities or not.

On the other hand, the study results have shown that some of true beliefs about mammogram. A total of 84.6% and 79.4 % of the study participants believed in that early detection of breast lumps by mammogram will increase the chance of successful treatment and so increase the chances of survival from breast cancer. These results are consistent with (Anderson et al., 2008; Elamore et al., 2005; Sliverman et al., 2001). The consistency

was in that early detection remains the cornerstone in breast cancer control and in reducing mortality rates and improving the patient prognosis. It also consistent with Kopans and colleagues (2014), and Tabar and colleagues (2011). The two studies have approved that, mammography with all limits, is still the only test proven to decrease mortality through early detection of small lumps on imaging before they are palpable. It also improves survival, as well as treatment options and outcomes. From researcher point of view, these positive beliefs about mammogram are one of the health education outcomes. Therefore, the enhancement of the health education programs may play a vital role in increasing the level of knowledge and awareness of women toward the importance of early detection, and the role of mammogram in the early detection of the breast cancer. On the other hand, change the negative beliefs and behaviors of women's toward mammogram benefits and encountered misconceptions about mammogram and early detection is important and may trigger the positive behavior toward mammogram utilization. Additionally, healthcare providers should be involved in the education process by providing systematic information about early detection and its benefits to their clients, which may increase their level of knowledge and change their behaviors.

The quantitative findings have illustrated some wrong beliefs about mammogram, as 50.4% of women believed in that mammogram often gives wrong results and 44.8% believed in that mammogram itself could lead to breast cancer. These results are consistent with (Silverman et al., 2001) in that most of women considered that mammography is highly sensitive. Additionally, the study results are consistent with (Yaffe et al., 2011) which indicated that the risk of development of breast cancer will be increased by a screening regimen that includes annual to biannual mammography screening between ages of 40-75. On the other hand, the study is inconsistent with (Nekhlyudov et al., 2003) in that despite having either personal experience or awareness of false-positive results of mammogram, it is not common to consider conducting mammogram as a risk, thus, a deterrent from future screening. Above inconsistency could be explained by the fact that it is also inconsistent with the level of radiation from a mammogram does not significantly increase the breast cancer risk for a woman who gets regular mammograms (ACS, 2015). Contrary to the theory of that, repeated x-rays might have the potential to cause cancer, the benefits of mammography outweigh any possible harm from the radiation exposure (ACS, 2015). From researcher perspectives, there is uncertainty about mammogram benefits and harms and these benefits and harms should be communicated with all women older than

40 years. Educating women about benefits of mammogram may increase the utilization of it. It also decreases some barriers of mammogram utilization, namely the barriers that are attributed to misconceptions.

Mammogram services utilization

Barriers to mammogram services utilization

Participants of the study have identified several barriers of mammogram services utilization. The quantitative findings show that pain and discomfort from mammogram are among the main barriers for mammogram update as indicated by more than half of the study participants (57.6%). Moreover, there is a consistency between the qualitative findings and quantitative findings as the interviewees of the qualitative study have reported several barriers that could prevent women from utilizing mammogram services, among theses barrier pain. The results of this study are consistent with (Othman et al., 2013; Hanson et al., 2009; Soares et al., 2009; Schueler et al., 2008; Garbers et al., 2003) studies which found that pain and discomfort are among the most barriers to mammography services utilization.

Additionally, more than half of the study participants (59.2%) considered that mammogram is embarrassing and this result is consistent with the findings of other studies (AbuShammala, 2013; Kawar, 2013; Othman et al., 2013; Kissal and Beser, 2011; Hanson et al., 2009; Puschel et al., 2009; Aziza and Cohen, 2006).

Moreover, the quantitative findings revealed that more than two-thirds (74.8%) of the study participants reported fear and anxiety from mammogram results as barriers to mammogram utilization. Additionally, there is a consistency with the qualitative findings. As all the interviewees of in-depth interviews mentioned that fear and anxiety from mammogram results could discourage some women from utilizing mammography services. All of these results are consistent with the findings of other studies (Ahu-Helalah et al., 2015; Kawar, 2013; Al-Naggar and Bobryshev, 2012; Kissal and Beser, 2011; Soares et al., 2009; Kwok et al., 2005; Garbers et al., 2003) which identified fear and anxiety as barriers that may hinder mammography services utilization.

Additionally, cost is one of the main barriers that may prevent women to utilize mammogram services as revealed from the quantitative findings. These results are consistent with the qualitative findings, as all the participants in the in-depth interviews

have mentioned that high cost of mammogram hinder mammogram services utilization. All of these results are consistent with the findings of other studies that reported cost as a barrier to mammogram utilization (Abu-helalah et al., 2015; Aziza et al., 2010; Schueler et al., 2008; Garbers et al., 2003; Modeste et al., 1999).

Lack of accurate information about mammogram procedure, including the time consumed to conduct the procedure were also reported as barriers by more than half of the study participants (56.8% and 51.4%, respectively). The study results are consistent with the findings of other studies (Al-Naggar and Bobryshev, 2012; Kissal and Beser, 2011; Mendez et al., 2009; Soares et al., 2009; Garbers et al., 2003)

It is interesting to mention that, most participants of the study did not consider culture and religion as barriers to mammogram services utilization. Less than one third of the study participants (29.9%) indicated that, culture is a barrier that hinders them from conducting mammogram. While, two-thirds of the study participants (70.1%) did not consider culture as a barrier to mammogram services utilization. There is inconsistency with the results of the qualitative findings, as all the participants of in-depth interviews have considered culture as a barrier that may hinder women from utilizing mammogram services. The quantitative results of this study are consistent with the findings of Shaheen and colleagues (2011) study that found culture, including religion is not a barrier to mammogram services utilization. Additionally, the quantitative findings of this study are inconsistent with the findings of other research studies (Abu Shammala, 2013; Kawar, 2013; Donnelly et al., 2013; Kissal and Beser, 2011; Saadi et al., 2011; Puschel et al., 2009; Parsa et al., 2006; Modeste et al., 1999). On the other hand, the qualitative findings are consistent with the other research studies (AbuShammala, 2013; Kawar, 2013; Donnelly et al., 2013; Kissal and Beser, 2011; Saadi et al., 2011; Puschel et al., 2009; Parsa et al., 2006; Modeste et al., 1999).

Religion and religious beliefs may considered as barriers that may prevent some women from utilizing mammogram services. In this study, the quantitative findings show that 26.6% of the study participants reported that religion as a barrier that could prohibit them from conducting mammogram, while, more than two-thirds of the study participants (73.4%) indicated that religion is not a barrier to mammogram utilization. These results are consistent with the findings of Shaheen and colleagues (2011) study, which considered religion and culture were not barriers to mammography. Additionally, the results are

inconsistent with the finding of (Abu-Helalah et al., 2015; Donnelly et al., 2013; Kissal and Beser, 2011; Hanson et al., 2009; Benjamins et al., 2006) studies, which indicated that religion and religious beliefs as barriers to mammography.

Furthermore, the qualitative findings show identified barriers such as low level of knowledge with availability of mammogram services, low level of awareness with the benefits of the early detection of breast cancer and lack of motivation from family members to conduct mammography. These findings are consistent with the findings of other research studies (Abu-Helalah et al., 2015; Kawar, 2013; Othman et al., 2013; Al-Naggar and Bobyrshev, 2012; Shaheen et al., 2011; Aziza et al., 2010; Mendez et al., 2009; Parsa et al., 2006; Garbers et al., 2003; George, 2000).

From researcher perspectives, most of the above-mentioned barriers resulted from the lack of knowledge toward mammography procedures and consequences. Therefore, the recognition of these barriers is important and should be encountered through health education. The health education should focus on mammography procedure, accuracy, timing, and importance of conducting mammogram. Moreover, pre-mammography counseling should be given to increase women's level of confidence in imaging results and reducing fear and anxiety.

Additionally, the fear of the study participants from doing mammography and the time consumed in conducting mammogram procedures may be caused by the lack of knowledge and awareness with procedures. Therefore, healthcare providers employ a more personable approach by providing step by step description on what women can expect during mammography screening. Moreover, media campaign, and social networking intervention designed to ease each concern may also be beneficial.

Certainly, the identified barriers in this study can be used as a base of interventional educational programs to increase awareness about the importance of conducting mammography to ensure early detection of breast cancer.

Accessibility and affordability of mammogram services

Accessibility and affordability of the mammogram services are important determinants of the utilization of mammogram services, as they may facilitate or hinder utilization of mammogram services. The quantitative findings show that healthcare facilities are accessible to the vast majority of the cases that conducted mammogram (94.4%).

Interestingly, a total of 42.5% of the cases that conducted mammogram have mentioned that physical locations of the health care centers, the study settings, are, nearby their houses. Most of cases use public transportation to reach the mammogram centers (83.7%) and the mean of transportation cost is 4.44 NIS, and the mean time consumed to reach the healthcare facilities is 23.46 minutes. The quantitative findings reflect good physical accessibility to the health care facilities and consistent with the findings of (Anan, 2011; PCBS, 2004) studies which found good physical accessibility to the healthcare facilities. Onitilo (2014) argued that, travel time to the nearest mammogram centers appear inversely related to regular mammogram screening and breast cancer stage at diagnosis. Thus, giving the high accessibility of health care centers in Gaza, there is a good potential to increase the uptake of mammogram services by increasing the number of mammography units within the primary health care centers. Additionally, the quantitative findings show that about half of the study participants who have conducted mammogram did it free of charge, funded by different organizations.

With regard to cases that visited the health center to conduct mammogram, most of them (86.9%) have not received health education or any educational material about mammogram and, no mammographic cases (100%) receive promotional materials.

The quantitative findings show that, 77.5% of the cases that conducted mammogram have indicated that the waiting time was not long, as they waited about 15 minutes to conduct mammogram. Additionally, from participants point view, the mammogram procedure is not time-consuming process. All of these results mean that, mammogram services are timely affordable.

On the other hand, the qualitative findings of this study are consistent with the most of the quantitative findings especially in the availability of mammogram services for all women and in that, mammogram services are not free in all centers. Most of the participants of in-depth interviews have indicated that mammogram services are accessible to all women and that the cost of conducting mammogram is affordable

Satisfaction of mammographic cases with Accessibility and affordability of mammogram services

The quantitative findings of this study show that, the overall mean of the satisfaction with accessibility and affordability of the mammogram services is (76.05%). The quantitative

findings show that participants who conducted mammogram are satisfied with the physical and financial accessibility (77.8%, 60.8%, and 78.8%, respectively). Additionally, the findings show that (71.8%, 76.8% and 80.8%) of the cases are also satisfied with the affordability of services. These results are consistent with the findings (Smokin et al., 2004; Decker et al., 1999) studies in that accessibility of the services is the main factors of satisfaction for women. While, it is inconsistent with the findings of Cockbum and colleagues (1993) study that found satisfaction is related to different factors mostly are staff interpersonal skills, information giving, physical surroundings, convenience and accessibility.

Satisfaction of mammographic cases with the responsiveness of the health facility

The quantitative findings show that, the overall mean of satisfaction with the responsiveness is (75.92%). The quantitative findings show that cases who have conducted mammogram are satisfied with the physical surroundings and preparedness of mammogram rooms as (84.8% with the cleanliness of the waiting room, 81.2% with the room equipment, and 81.2% with the availability of suitable physical environment, 68.6% with the availability of clean water, and 82% with the availability of electricity). Moreover, the quantitative findings show that (78% and 82%, respectively) of cases who have conducted mammogram are satisfied with the waiting time and with the welcome from health care providers. These results are consistent with the findings of (Wiratkapun et al., 2006; Dolye and Stanon, 2002; Loken et al., 1998) studies in that polite and gentle radiographer, good physical and pleasant surroundings are the factors associated with the satisfaction of women. It is well documented that an attractive environment can help to create calm, relaxing atmosphere (Ong and Austoker, 1997). Therefore, efforts should be aimed at creating a calm, relaxing atmosphere conductive to minimizing fear and apprehensions.

Satisfaction of mammographic cases with communication and patients' rights

The quantitative findings show that, the overall mean of satisfaction of the cases who have conducted mammogram with communication and patients' rights is (76.19%). This level of satisfaction is rooted from the satisfaction of women with many aspects as: staffs' interpersonal skills, information sharing, privacy maintenance, perceived technical competence of staff and general satisfaction.

The quantitative findings of this study show that women are satisfied with the interpersonal communication with the health care providers, enough explanation introduced about the procedures before the imaging, interest of the health care providers with their questions and with the time they offered to ask and receive the answers in regarding to their questions. Additionally, the findings show that most of cases are satisfied with the performance of the health care providers in the mammogram units and health care facilities. These results are consistent with (Wiratkapun et al., 2006) which revealed that the factors associated with satisfaction with the mammography service were older age, polite and gentle radiographer and well-performed mammography procedure. Additionally, radiographer delivery of the mammography service seemed to be the most important modifiable reason for breast pain during mammography and dissatisfaction with the mammography services. It is also consistent with (Tang et al., 2009) which found that women's satisfaction with clinic service and communication with staff were positively associated with high satisfaction. Moreover, the results of this study are consistent with the findings of Ndikum-Moffor and colleagues (2013) which revealed that having a mammogram technologist who is friendly, knowledgeable, respectful, competent, and explained the test are main determinants of satisfaction. The study indicated that staff interpersonal skills were the most important factor that contributed to the general satisfaction. Additionally, it is also consistent with the findings of Kumar and colleagues (2011) which found a positive relationship between satisfaction and the availability of health education program, interaction with the staff, examination procedures, technical competence, privacy maintenance and examination room. On the other hand, these results are inconsistent with Cockbum and colleagues (1993) which found that lower satisfaction levels were reported due to poor staff interpersonal skills. From researcher perspectives, patient satisfaction with mammography services is an important facet of mammography utilization. More than 30% of women reported that their first mammogram experience affected their decision to have subsequent mammograms (Fine et al., 1993). Satisfaction especially is important in screening mammography where participants have no symptoms and are not motivated by ill-health to comply.

Communication between women and health care providers in the mammogram units is an important factor that reflects health care quality. Proper communication would enhance the caring process, allow for more information exchange and finally reaching the best clinical decisions. Thus, mammogram technologists may serve as an important point of

intervention to increase women's satisfaction with mammography, by having a respectful and positive attitude and by providing women with accurate information and positive expectations that would dispel the myths about mammograms and reduce women's fears and concerns about mammography.

Current mammogram services

Currently, eight mammogram units are available in GS, four units are based at governmental facilities, and four units are based at private and NGOs centers. The qualitative findings have shown that the available units mainly serve women for diagnostic purposes. According to the participants of the in-depth interviews, mammogram-screening services within the MoH are weak and not enough to serve all the targeted women across the GS. Additionally, the available mammogram units are very old and out dated. Moreover, the only screening unit in the GS operates with limited resources. It experiences shortage in films and unavailability of spare parts. In addition, the quality of films used in the imaging is not high and sometimes the staff use films that are expired and should be discarded.

Additionally, no written guidelines are available in the mammogram units, however, but there a consensus on that screening mammogram should be performed after the age of 40 and diagnostic mammogram should be performed if there are any breast abnormalities. The staff working in the mammogram units is well trained, professional with different backgrounds. Finally, the mammogram services in GS are in need to be scaled up by increasing the functioning mammogram units in the GS and providing enough films and spare parts for the currently working units.

Chapter 6

Conclusion and recommendations

6.1 Conclusion

In GS, breast cancer accounts for more than 30% of all female cancers and early detection of this type of cancer is incredibly important. There are several methods that could be used for early detection of breast cancer; mammography is one of these methods. This study aimed to evaluate the mammogram services in the GS in order to promote the service and to enhance its benefits for the GS women. The findings of the study have shown that more than two-thirds of the study participants have good level of knowledge about the early detection of breast cancer and the importance of early detection of breast cancer. According to the study participants, the main sources of their information were health education sessions at the primary health care centers, TV/Radio programs and friends. Additionally, nearly two-thirds of the study participants have a good knowledge about methods used in the early detection of the breast cancer; the most commonly known method is BSE. On the other hand, more than one-quarter of the study participants were not fully aware of breast cancer risk factors, the most commonly mentioned the risk factors were age, positive family history of breast cancer and married women without children.

With regard to mammogram services, half of the study participants have heard about mammogram and the main sources of information were health education at the primary health care centers and health care providers. Moreover, more than half of the study participants were advised to conduct mammogram. In addition, the study reflected a low level of knowledge with the appropriate age and interval of conducting mammogram. The findings of the study showed that no association between age groups, educational level, income status and marital status with mammogram services utilization. While, there was a statistically significant relationship between employment status and mammogram services utilization. Additionally, the study revealed a statistical significant relationship between family history of breast cancer and mammogram utilization, as women with positive family history of breast cancer tended to utilize mammogram services more than women who do not have positive family history. There was a significant relationship between conducting mammogram and other factors, namely, having knowledge about early detection of breast cancer, methods used for early detection, having knowledge about the

importance of the early detection of the breast cancer, and previous utilization of mammogram services.

Furthermore, the study findings have revealed a mixture from conceptions and beliefs toward mammography. More than two-thirds of the study participants have positive beliefs and concepts about mammography and its importance in the early detection of breast cancer. Therefore, more attention toward health education and providing accurate information about breast cancer screening methods should be given to increase the awareness of women and to change their behaviors toward mammography.

The study findings revealed some barriers that may encounter mammogram services utilization. More than half of the study participants identified pain, discomfort, fear, scared from mammogram procedures, and time consumed in conducting mammogram procedures as barriers that hinder utilization of mammogram services. Additionally, the cost was not a barrier for more than half of participants. Moreover, culture and religion were not barriers that hinder mammogram services utilization; thus, there was no access problem. Regarding to the financial accessibility, more than half of cases have paid fee for the mammogram service utilization. Regarding to the information accessibility, the majority of cases were not received health education through their visits to the health care facilities and none of them received educational materials talking about breast cancer and early detection of it.

With regard to the affordability of mammogram services, the findings showed that mammogram services were timely affordable for more than two-thirds of cases. Moreover, more than two thirds of cases were satisfied with the accessibility and affordability of mammogram services, responsiveness of the health facility and with communication and human rights.

6.2 General recommendations

1- There is a need to develop a national policy for early detection of breast cancer screening. The policy should include clear guidelines for mammogram.
2- There is a need to implement health education program with particular focus on:
    - Emphasizing the benefits of the early detection of breast cancer.
    - Providing systematic and accurate information to overcome misconceptions about breast cancer and mammography.
    - Providing accurate information to reduce the barriers

3- There is a need to enhance the role civil society in increasing awareness about breast cancer and benefits from early detection through conducting more workshops and educational campaigns.
4- Establishing sustained institutional framework and nationwide policy guidelines to enhance an adequate dissemination of information about risk factors of breast cancer, methods of screening and the other recommended approaches to control the disease.
5- Review and update the training curricula of health institutions to include cancer awareness and screening methods. This may positively influence on the health behavior of those who are expected to teach others.
6- Enhancement the role of media (TV/Radio, newspaper and magazines) in the providing of information and increasing awareness about breast cancer and screening.
7- Pre-mammography counseling should be given to increase the level of confidence in imaging the disease and to reduce fear and anxiety.
8- Increasing the number of mammogram units with at least one unit in each governorate and providing it with films and spare parts. These units should focus on screening rather than diagnostic purposes.

6.3 Recommendations for further research

1- Conduct more research including both qualitative and quantitative methods to deeply explore mammogram services utilization and factors influencing it.
2- Conduct community-based studies to explore the beliefs about screening mammogram among those who do not routinely access medical care.
3- Conduct comparative studies to compare the mammogram services in the NGOs centers with mammogram services in governmental centers.
4- Conducting studies among health care professional to assess their knowledge, awareness and behaviors toward breast cancer, early detection and screening.
5- Conducting studies to explore the relationship between different risk factors of breast cancer and mammogram services utilization.

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Annexes

Annex (1): Palestine map

Annex (2): Gaza Strip map

http://www.wafainfo.ps/pics/GazaStrip

Annex (3): Summary of main hospitals and health care centers that provide mammogram services

Nasser medical complex

Nasser medical complex is one of the most important hospitals in the Gaza strip. It is considered the second medical institute in GS after Al Shifa hospital that provides health care services and provides tertiary services for Khan-Younis governorates population. It was established in 1958 and located in the west of Khan-Younis governorate.

Nasser medical complex includes many various departments which offer medical services and theses departments include: Medical departments, nursing departments and administrative and financial departments. In addition, mammogram services offered at the hospital.

In the beginning of 1994, the hospital has 240 beds, 73 doctors and 135 nurses but in 2013, Nasser hospital forms 15.5% of the total employees of the MOH and it has 330 beds, 169 doctors and 252 nurses (MoH, 2013).

European hospital

European hospital is located in the southern part of Khan-Younis governorate. It was built in 1993 and is considered one of the biggest hospitals in the Gaza strip. The hospital conceived by UNRWA and funded by the European co-operation to be a center of excellence, providing much needed secondary care services and aids to the southern area in particular and the strip in general. The hospital services started on 15th of July 2000 according to a scheduled program; it offers services to population of 500000 inhabitants (European Gaza Hospital Records, EGH, 2012). Mammogram services is one of the services which offered for the population in addition to other services. In 2013, European hospital employees form 12.1% of the total MOH employees (MoH, 2013). It has 261 beds, 60 doctors and 204 nurses.

Al Ahli Arab hospital

Al Ahli Arab hospital is located in the center of the Gaza city in Gaza governorate.

The hospital offers various types of services and treatment in many departments including general surgery, internal medicine, emergency and outpatient clinics and others.

Al Ahli runs completely free of charge a program for early detection of the breast cancer in addition to other programs. The hospital has capacity of 80 beds of which 50 are used and the occupancy rate is around 78.6% and monthly, the statistics is 3500 outpatient visits, 400 inpatients, surgeries 300, lab 2800 tests and radiology examination 608 (The Episcopal Diocese of Jerusalem, 2011).

In 2013, the hospital has 92 beds, 25 doctors and 17 nurses (MoH, 2013).

Al Awda hospital

Al Awda hospital is the largest and the most important facility for Union of Health Work Committees (UHWC). It was established in the most deprived area, was inaugurated in 1997 as the first line hospital in the Northern governorate in the GS with a capacity of 53 beds to reach now 75 beds in total, and can be extended to 100 beds in case of emergency. The total number of doctors is 40 and the number of nurses is 52 (MoH, 2013).

The hospital provides health services to all inhabitants in the Northern part of the GS (62 km2), with population around 323,000 inhabitant and the total beneficiaries of Al Awda in 2012 were 108,321 beneficiaries which represent 33.5% of the total population of the Northern part of the GS. Al Awda hospital is the only provider for mammogram services in the Northern part of the GS. Moreover, Al Awda hospital authorized as an educational hospital from some universities in the GS to train nursing students (UHWC, 2015).

Palestinian Red Crescent Society for GS (PRCS)

Red Crescent Society is a civil, non-governmental, independent, democratic and

developmental in nature and a non-profit society. It aimed and contributing to the improvement of health, cultural, educational and humanitarian conditions of the citizens in the Gaza Strip. The Red Crescent Society of the GS founded in 1969, practiced their activities in the year 1972, and was one of the first eligible institutions operating in the Gaza Strip. The association provides various cultural, educational and humanitarian health services through their own centers. Health services provided include: therapeutic and women health services. Diagnostic services provided include diagnostic radiology and laboratories services. Moreover, it includes dental clinic and pharmacies.

The Red Crescent Society is one of the mammogram service provider in the Gaza Strip and 794 women performed mammography in 2014(Red Crescent Society of Gaza Strip, 2015).

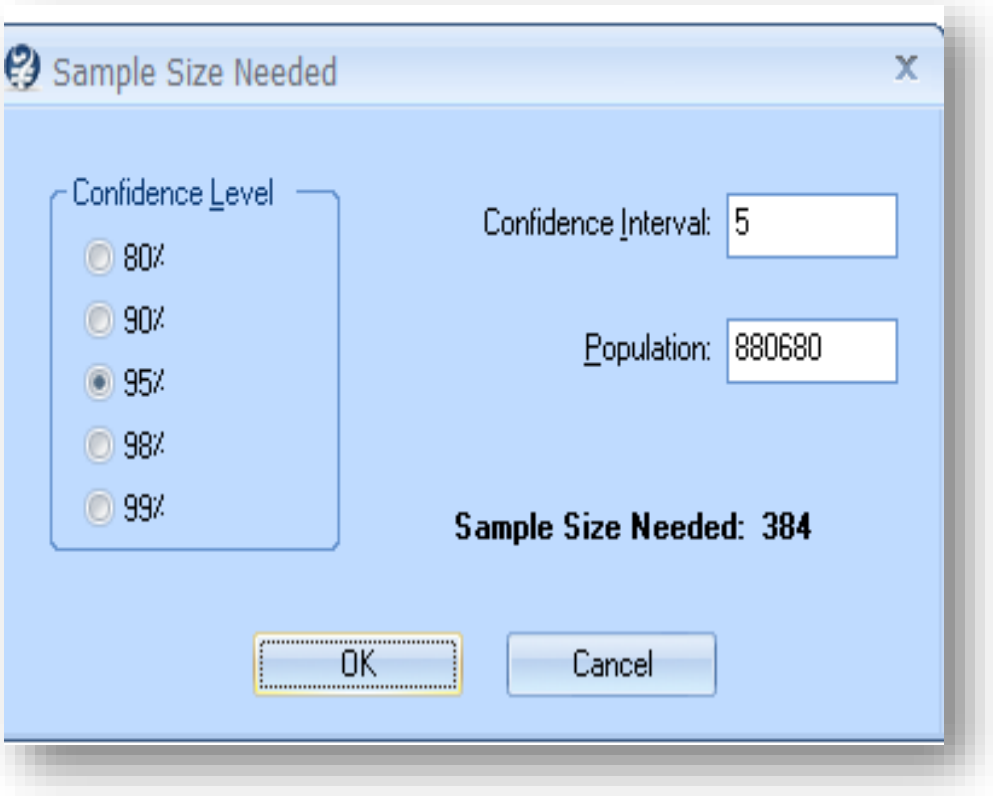
Al Rimal Primary Health Care Center

Al Rimal PHC is located in the Gaza city and established in 1972 and rebuilt in 1998 on the

expenses of the World Bank in cooperation with the Palestinian MoH. It is one of the important health centers in the GS because the center serves more than 150 thousand people with 300 cases per day. Al Rimal PHC center consisting of 87 employees and the building of the center include department of the general administration of the primary care and department of financial affairs of the primary care and some other departments. The system of work in the center is two shifts in a day and classified as level IV center.

Mammogram service is one of the services offered at Al Rimal PHC center (MoH, 2012).

Annex (4): Sample Size Calculation



Annex (5): Questionnaire (Arabic and English version)

هذه الاستبانة خاصة لتقييم خدمة تصوير الثدي بالأشعة (الماموجرام) في محافظات قطاع غزة

الجزء الاول : المعلومات الشخصية		
١-	اسم المحافظة (منطقة المركز)	( ) الشمال ( ) غزة ( ) الوسطى ( ) خانيونس ( ) رفح
٢-	اسم المركز (عيادة او مستشفى)	( ) مستشفى العودة ( ) مستشفى القدس ( ) مركز الهلال الاحمر ( ) مستشفى الشفاء ( ) المستشفى الاوروبي ( ) مستشفى ناصر ( ) المستشفى الاهلي ( ) عيادة الرمال
٣-	العمر	.....سنة
٤-	الحالة الاجتماعية	( ) انسة ( ) متزوجة ( ) مطلقة ( ) ارملة
٥-	عدد الاولاد (للمتزوجات فقط)	.....اولاد
٦-	سنوات التعلم	.....سنة
٧-	هل تعملين حاليا؟ **(غير منطوق)**	( ) نعم ( ) لا اذا كانت الاجابة نعم ، فما هو عملك؟..... ( ) مدرسة ( ) طبيبة ( ) ممرضة ( ) ادارية ( ) غير ذلك، حددي.....
٨-	ما هو معدل الدخل الشهري تقريبا للعائلة من جميع المصادر؟	.....شيكل

٩-	هل لديك أي تامين صحي؟	( ) نعم ( ) لا اذا كانت الاجابة نعم فهل هو( ) حكومي ( ) خاص
١٠-	العيادة او المركز الذي تتابعين فيه عادة هو (اكثر من خيار)	( ) حكومي ( ) وكالة غوث ( ) مركز خاص (غير حكومي) ( ) عيادة خاصة
١١-	ما هو السبب الذي جعلك تزورين المركز اليوم؟	( ) لتلقي خدمات الرعاية اليومية ( ) لتلقي العلاج للأمراض المزمنة ( ) لتلقي خدمات تنظيم الاسرة ( ) مرافقة لطفلي، زوجي، الخ.... ( ) زيارة شخص في المستشفى او المركز ( ) لإجراء تصوير الثدي بالأشعة (الماموجرام) ( ) للقيام بفحوصات اخرى غير تصوير الثدي بالأشعة (الماموجرام) ( ) غير ذلك، حددي.....
الجزء الثاني :أ) المعرفة بتصوير الثدي بالأشعة (الماموجرام)		
١-	هل احد من اقاربك شخص بمرض سرطان الثدي؟	( ) نعم ( ) لا اذا كانت الاجابة نعم فما هي العلاقة: ( ) الام ( ) الاخت ( ) العمة ( ) الجدة ام الوالدة ( ) الجدة ام الوالد ( ) غير ذلك، حددي.....
٢-	هل سمعت من قبل عن الكشف المبكر لسرطان الثدي؟ **(غير منطوق)**	( ) نعم ( ) لا اذا كانت الاجابة نعم، فما هو المصدر؟..... ( ) التثقيف الصحي في مركز رعاية اولية ( ) تيلفزيون او اعلانات من الراديو ( ) صديق ( ) طبيب او ممرض ( ) غير ذلك ، حددي.....

٣-	هل تعرفين الطرق المستخدمة في الكشف المبكر عن سرطان الثدي؟ **(غير منطوق)**	( ) نعم ( ) لا اذا كانت الاجابة نعم ، اذكري هذه الطرق؟..... ( ) الفحص الذاتي الشهري للثدي ( ) الفحص السريري (الاكلينيكي) للثدي ( ) تصوير الثدي بالأشعة (الماموجرام)
٤-	هل سمعت سابقا عن فحص الثدي بالأشعة (الماموجرام)؟ **(غير منطوق)**	( ) نعم ( ) لا اذا كانت الاجابة نعم، فما هو المصدر..... ( ) التثقيف الصحي في مركز الرعاية الاولية ( ) تيلفزيون او اعلانات من الراديو ( ) صديق/ اقارب / الناس ( ) طبيب او ممرض ( ) غير ذلك ، حددي.....
٥-	هل عانيت من أي مشاكل سابقة في الثدي؟ **(غير منطوق)**	( ) نعم ( ) لا اذا كانت الاجابة نعم ، فما هي هذه المشكلة؟..... ( ) التهابات بالثدي ( ) ورم حميد ( ) تليف بالثدي ( ) خراج بالثدي ( ) غير ذلك، حددي.....
٦-	هل تعتقدين ان الكشف المبكر عن سرطان الثدي مهم؟	( ) نعم ( ) لا
٧-	هل هناك أي شخص اقترح عليك القيام بتصوير الثدي بالأشعة (الماموجرام)؟	( ) نعم ( ) لا اذا كانت الاجابة نعم ، فذلك الشخص هو: ( ) طبيب او طبيبة ( ) ممرض او ممرضة ( ) زوج او قريب ( ) صديق ( ) غير ذلك، حددي.....
٨-	هل تعرفين ان هذا المركز يقدم خدمات تصوير الثدي بالأشعة (الماموجرام) ؟	( ) نعم ( ) لا

٩-	هل تعرفين مراكز اخرى تقدم خدمة تصوير الثدي بالأشعة (الماموجرام)؟	( ) نعم ( ) لا اذا كانت الاجابة نعم ، حددي.....
١٠-	من وجهة نظرك، المرأة اكثر عرضة للإصابة بمرض سرطان الثدي اذا كانت: **(غير منطوق)**	( ) غير متزوجة ( ) بعد سن الاربعين ( ) متزوجة ولديه اولاد ( ) متزوجة وليس لديها اولاد ( ) تم استئصال رحمها ( ) تجاوزت سن اليأس ( ) تتناول حبوب منع الحمل ( ) اصيبت سابقا بأي مشكلة في الثدي ( ) اصابات بسرطان الثدي سابقة في الاسرة(العامل الوراثي) ( ) ليس لدي فكرة
١١-	في المتوسط، فان فرصة الاصابة بمرض سرطان الثدي تكون اكبر في عمر: **(غير منطوق)**	( ) العشرينيات ( ) الثلاثينيات ( ) الاربعينيات ( ) الخمسينيات ( ) الستينيات ( ) ليس لدي فكرة
١٢-	هل تمارسين الفحص الذاتي للثدي بانتظام؟	( ) نعم ( ) لا ( ) ليس دائما
١٣-	معظم الكتل التي تكتشف في الثدي ممكن ان تكون كتل سرطانية	( ) نعم ( ) لا ( ) ليس دائما ( ) لا اعرف
١٤-	العمر المناسب للقيام بتصوير الثدي بالأشعة (الماموجرام) **(غير منطوق)**	( ) قبل سن الاربعين ( ) بعد سن الاربعين ( ) بعد سن الخمسين ( ) عند حدوث مشكلة في الثدي ( ) اخرى، حددي..... ( ) ليس لدي فكرة

١٥-	الوقت المناسب للقيام بتصوير الثدي بالأشعة (الماموجرام) خلال الشهر هو **(غير منطوق)**	( ) قبل الدورة الشهرية ( ) بعد الدورة الشهرية ( ) في منتصف الدورة الشهرية ( ) ليس لدي فكرة
٦-	بشكل عام، كم مرة يجب على المرأة القيام بتصوير الثدي بالأشعة (الماموجرام) **(غير منطوق)**	( ) مرة كل ٦ شهور ( ) مرة كل سنة ( ) مرة كل سنتين ( ) مرة واحدة في العمر ( ) ليس لدي فكرة
١٧-	هل قمت سابقا بعمل تصوير للثدي بالأشعة (الماموجرام)؟	( ) نعم ( ) لا اذا كانت الاجابة نعم فكم مرة قمتي بتصوير الثدي بالأشعة (الماموجرام)؟.....

ب) المفاهيم والمعتقدات

يما يلي بعض العبارات التي تعبر عن بعض المفاهيم والمعتقدات الخاصة بتصوير الثدي بالأشعة (الماموجرام)، لذا يرجع وضع علامة

(x) تحت الرقم الانسب لكل عبارة تمثل موافقتك او عدم موافقتك حيث ان:

١= لا اوافق بشدة ٢= لا اوافق ٣= غير متأكد ٤= موافق ٥= موافق بشدة

الرقم	العبارة	١	٢	٣	٤	٥
١-	تصوير الثدي بالأشعة (الماموجرام) ربما يشخص مشكلات الثدي الغير سرطانية والتي لا يمكن ان تكتشف بأي وسائل اخرى					
٢-	اذا كان تصوير الثدي بالأشعة (الماموجرام) في المرة الاولى لا يشخص أي شيء مرضي فان المرأة ليست بحاجة لان تقوم بالتصوير بالماموجرام مرة اخرى					
٣-	تصوير الثدي بالأشعة (الماموجرام) يستطيع ان يكتشف الكتل في الثدي قبل ان تكتشفها المرأة بنفسها					
٤-	تصوير الثدي بالأشعة (الماموجرام) يمكن ان يؤدي الى سرطان الثدي					
٥-	تصوير الثدي بالأشعة (الماموجرام) ينبغي اجراؤه مرة واحدة في الحياة					
٦-	ينبغي على المرأة ان تقوم بتصوير الثدي بالأشعة (الماموجرام) فقط اذا كان هناك أي شيء غير طبيعي بالثدي					

٧-	ينبغي على المرأة القيام بتصوير الثدي بالأشعة (الماموجرام) كل سنة او سنتين بعد سن الاربعين او الخمسين					
٨-	الاصابة بالسرطان له صلة قوية بتاريخ العائلة(الوراثة)					
٩-	في العادات والتقاليد، من غير المقبول القيام بتصوير الثدي بالأشعة (الماموجرام)					
١٠-	دينيا، من الممنوع القيام بتصوير الثدي بالأشعة (الماموجرام)					
١١-	تصوير الثدي بالأشعة (الماموجرام) يسبب الالم وعدم الراحة					
١٢-	تصوير الثدي بالأشعة (الماموجرام) محرج					
١٣-	تصوير الثدي بالأشعة(الماموجرام) يكلفني مبلغ من المال					
١٤-	تصوير الثدي بالأشعة (الماموجرام) يسبب الكثير من الخوف والقلق (لأكون مصابة بالسرطان)					
١٥-	اذا لم يظهر تصوير الثدي بالأشعة (الماموجرام) أي شيء غير طبيعي فلن اكون كثيرا قلقة من مرض سرطان الثدي في المستقبل					
١٦-	تصوير الثدي بالأشعة (الماموجرام) يساعدني في الكشف المبكر عن الكتل في الثدي					
١٧-	اذا تم الكشف المبكر عن الكتل في الثدي بواسطة التصوير بالأشعة (الماموجرام) فان علاج هذه الكتل سيكون اكثر نجاحا					
١٨-	الكشف المبكر لسرطان الثدي بتصوير الثدي بالأشعة (الماموجرام) سيؤدي الى زيادة فرص الحياة من مرض سرطان الثدي					
١٩-	القيام بتصوير الثدي بالأشعة (الماموجرام) يعطي غالبا نتائج خاطئة					
٢٠-	انا خائفة من القيام بتصوير الثدي بالأشعة (الماموجرام) لعدم المعرفة بكيفية التصوير					
٢١-	اجراءات تصوير الثدي بالأشعة (الماموجرام) تأخذ الكثير من الوقت					

ملاحظة: الى هنا تنتهي الاسئلة الموجهة للسيدات القادمات الى المركز للحصول على خدمة غير خدمة تصوير الثدي بالأشعة (الماموجرام) وتستمر الاسئلة للسيدات القادمات الى المركز للحصول على خدمة تصوير الثدي بالأشعة (الماموجرام)

ما هو السبب الرئيسي الذي جعلك تقومين بتصوير الثدي بالأشعة في هذا اليوم؟	( ) فحص عام/ وليس لدي أي مشكلة في الثدي ( ) متابعة حيث قمت بهذا الفحص سابقا ( ) انا هنا بسبب مشكلة جديدة بالثدي ( ) تم تحويلي من قبل صاحب العمل (وزارة التربية) ( ) شرط لإتمام عملية التوظيف

الجزء الثالث: القدرة على الحصول على الخدمة **- هذا الجزء من الاستبانة يقيس القدرة على الحصول على خدمة تصوير الثدي بالأشعة (الماموجرام)** **- هذا الجزء من الاستبانة تتم تعبئته فقط من السيدات اللواتي حصلن على خدمة تصوير الذي بالأشعة (الماموجرام)**		
١-	هل هذه اول زيارة لك للمركز (مستشفى او عيادة) للقيام بتصوير الثدي بالأشعة (الماموجرام)؟	( ) نعم ( ) لا اذا كانت الاجابة لا فكم مرة قمتي بتصوير الثدي بالأشعة (الماموجرام) سابقا؟.....
٢-	هل كان من السهل الوصول الى المركز (مستشفى او عيادة)؟	( ) نعم ( ) لا
٣-	كيف وصلت الى المركز (عيادة او مستشفى)؟	( ) مشيا على الاقدام ( ) مواصلات عامة ( ) سيارة خاصة ( ) غير ذلك، حددي.....
٤-	كم كانت تكلفة الوصول الى المركز؟	.....شيكل
٥-	ما هو رأيك في المسافة بين مكان سكنك ومكان المركز؟	( ) المركز قريب من مكان سكني ( ) المسافة مناسبة بين مكان سكني والمركز ( ) المركز بعيد عن مكان سكني
٦-	هل كانت الخدمة (الماموجرام) مجانية ؟	( ) نعم ( ) لا اذا كانت الاجابة لا ، اجب على السؤال رقم ٦(١)
٦(١)	كم كانت التكلفة للقيام بتصوير الثدي بالأشعة (الماموجرام) ؟	.....شيكل
٧-	للوصول الى المركز للحصول على خدمة تصوير الثدي بالأشعة (الماموجرام) كم من الوقت تحتاجين للوصول الى المركز ؟	.....دقيقة
٨-	في المتوسط، كم دقيقة تنتظرين للقيام بعملية تصوير الثدي بالأشعة (الماموجرام)؟	.....دقيقة
٩-	هل كان هناك قائمة انتظار طويلة لكي تقومي بتصوير الثدي بالاشعة (الماموجرام)؟	( ) نعم ( ) لا
١٠-	من وجهة نظرك، هل كانت عملية تصوير الثدي بالأشعة (الماموجرام) مستهلكة للوقت ؟	( ) نعم ( ) لا اذا كانت الاجابة نعم ، فكم دقيقة استغرقت عملية التصوير.....

١١-	هل تم اعطاؤك معلومات صحية(تثقيف صحي) خلال زيارتك؟	( ) نعم ( ) لا
١٢-	هل تم اعطاؤك أي مواد توعية عن اهمية تصوير الثدي بالأشعة (الماموجرام) والكشف المبكر عن سرطان الثدي؟	( ) نعم ( ) لا

الجزء الرابع: الرضا

هذا الجزء خاص بك وبرأيك لمساعدتنا في تقييم وتحسين خدمة تصوير الثدي بالأشعة (الماموجرام) المقدمة في المركز(مستشفى او عيادة) لذا نرجو وضع علامة (X) في المربع تحت الرقم الانسب لكل عبارة تمثل موافقتك او عدم موافقتك للعبارات التالية حيث ان:

١=غير موافق بشدة ٢=غير موافق ٣= مقبول ٤= موافق ٥= موافق وبشدة

الرقم	العبارة	١	٢	٣	٤	٥
	أ) القدرة على الوصول والحصول على الخدمة					
١-	كان من السهل الوصول الى المرفق الصحي (المركز)					
٢-	موقع هذا المرفق الصحي(المركز) ليس بعيدا عن مكان سكنك					
٣-	تكلفة تصوير الثدي بالأشعة (الماموجرام) كانت معقولة					
٤-	وقت الانتظار في المرفق الصحي(المركز) لم يكن طويلا					
٥-	الوقت للقيام بعملية تصوير الثدي بالأشعة (الماموجرام) لم يكن طويلا					
٦-	ساعات العمل في هذا المركز مناسبة					
٧-	بشكل عام، كان اداء مقدمي الخدمة جيدا					
	ب) الاستجابة (الاحتياجات غير الصحية)					
٨-	غرفة الانتظار نظيفة ومريحة					
٩-	الاستقبال والترحيب من قبل مقدمي الخدمة كان جيدا					
١٠-	غرفة تصوير الثدي بالأشعة (الماموجرام) مجهزة بالستائر اللازمة لذلك					
١١-	تتوفر وسائل ترفيهية وتعليمية في صالة الانتظار (تليفزيون، نشرات صحية، مجلات علمية،.....الخ)					
١٢-	تتوفر بيئة مناسبة في المركز(تدفئة مناسبة وتهوية جيدة)					
١٣-	يتوفر ماء نقي للشرب في المركز					
١٤-	تكون الكهرباء دائما متوفرة اثناء زيارتك للمركز					
١٥-	وقت الانتظار في مرحلة التسجيل لم يكن طويلا					
	ج) الاتصال والتواصل وحقوق المرضى					
١٦-	عند وصولك للمركز (مستشفى او عيادة) كانت عملية التسجيل والتعامل معها سهلا					

١٧-	قام مقدمي الخدمة بالشرح الكافي للإجراءات قبل عملية التصوير					
١٨-	احترم مقدمي الخدمة خصوصيتي بالكامل خلال عملية تصوير الثدي بالأشعة (الماموجرام)					
١٩-	أجاب مقدمي الخدمة على كل اسئلتك بطريقة مهنية					
٢٠-	اهتم مقدمي الخدمة بالأسئلة التي تطرحينها فيما يخص حالتك					
٢١-	مقدمي خدمة التصوير مؤهلين وكفاءة في عملية التصوير					
٢٢-	انت راضية عن الخدمات المقدمة من المركز					
٢٣-	قام مقدم الخدمة بالتعريف بنفسه قبل تقديم الخدمة المطلوبة					
٢٤-	يقوم مقدم الخدمة باستقبالك بطريقة جيدة ومهنية					
٢٥-	اعطيت لكي الفرصة المناسبة من قبل مقدمي الخدمة للاستفسار عن حالتك					
٢٦-	اعطيت الوقت الكافي للاستفسار عن حالتك					
٢٧-	استخدم مقدمي الخدمة لغة واضحة لمخاطبتك (مفردات وكلمات واضحة، سهلة ومفهومة لك)					

٢٨-	هل ستوصين بهذه الخدمة لمن تعنيك (قريباتك، صديقاتك،.....)	( ) نعم ( ) لا
٢٩-	الخدمة التي تلقيتها فعلا تمثل توقعاتك	( ) اوافق بدرجة كبيرة ( ) اوافق بدرجة متوسطة ( ) لا اوافق
٣٠-	ترغبين للحضور الى المركز للمتابعة	( ) بشكل منتظم ( ) عند الضرورة ( ) لا اشعر بضرورة المتابعة

ما الذي يمكن عمله لتحسين خدمة تصوير الثدي بالأشعة (الماموجرام) في هذا المركز؟ (من وجهة نظرك)

.....

ما هي اكثر الاشياء التي لم تعجبك في هذا المركز؟ (من وجهة نظرك)

.....

ما هي اقتراحاتك لتحسين جودة خدمة تصوير الثدي بالأشعة (الماموجرام) المقدمة في هذا المركز؟

.....

شكرا لتعاونك معنا

This questionnaire is for Evaluation of Mammogram Services in the Gaza Strip Governorates

Part One: Socio-demographic Data		
1-	Governorate	( ) North Gaza ( ) Gaza ( ) Middle area ( ) Khan-Younis ( ) Rafah
2-	Center (clinic or hospital)	( ) El-Awdah hospital ( ) El-Quds hospital ( ) The Red Crescent ( ) El-Shifa hospital ( ) European hospital ( ) Naser hospital ( ) Al-Rimal PHC center ( ) El-Ahli hospital
3-	Age	……Years
4-	Marital Status	( ) Single ( ) Married ( ) Divorced ( ) Widow
5-	Number of children (married women only)	…… Children
6-	Years of schooling	……Years
7-	Do you currently, work? **(Unprompted)**	( ) Yes ( ) No If yes, what is your job…… ( ) Teacher ( ) Doctor ( ) Nurse ( ) Administrative worker ( ) Other, specify,……..
8-	What is approximately the monthly family average income? (From all sources)	…….. NIS
9-	Do you have health insurance?	( ) Yes ( ) No If the answer is yes , it is ( ) Governmental ( ) Private
10-	The clinic or center that you usually visit for healthcare services is (more than one option)?	( ) Governmental ( ) UNARWA clinic ( ) Private clinic ( ) NGOs clinic
11-	What is the main reason for your visit today?	() To receive treatment for myself ( ) To receive family planning services ( ) Accompanying my child, husband, etc ( ) Visiting someone at the health facility ( ) To conduct mammogram ( ) To do investigations other than mammogram ( ) Others, specify,…….

Part Two: A) knowledge about mammography		
1-	Have any of your family members diagnosed with breast cancer?	( ) Yes ( ) No If yes, How are they related to you? ( ) Mother ( ) Sister ( ) Aunt ( ) Grandmother ( ) Grandfather ( ) Others, specify……
2-	Have you heard before about early detection of breast cancer? **(Unprompted)**	( ) Yes ( ) No If the answer is yes, what was the source? ( ) Health education at primary health care center ( ) TV/Radio advertisement ( ) A friend/Relatives/People ( ) Health providers: nurse or doctor ( ) Others, specify,…….
3-	Do you know methods that used for early detection of breast cancer? **(Unprompted)**	( ) Yes ( ) No If the answer is yes, what are these methods……. ( ) Monthly self-breast examination ( ) Clinical breast examination ( ) Mammogram
4-	Have you previously heard about mammography? **(Unprompted)**	( ) Yes ( ) No If the answer is yes, what was the source?..... ( ) Health Education at primary health care center ( ) TV/Radio advertisement ( ) A friend / Relatives ( ) Health care providers: nurse or doctor ( ) Others, specify,……..
5-	Have you ever had any previous health problems in the breast/s? **(Unprompted)**	( ) Yes ( ) No If the answer is yes, what are these problems?..... ( ) Inflammation ( ) Benign tumor ( ) Fibrosis ( ) Abscess ( ) Others, specify……
6-	Do you think that early detection of breast cancer is important?	( ) Yes ( ) No
7-	Is there anyone recommended to you to do mammography?	( ) Yes ( ) No If the answer is yes, who is that person? ( ) Doctor ( ) Nurse ( ) Husband ( ) Relative ( ) Friend ( ) Other, specify……..

8-	Do you know if this center offers Mammogram services?	( ) Yes ( ) No
9-	Do you know other centers that offer mammography services?	( ) Yes ( ) No If the answer is yes, specify,…….
10-	From your point of view a woman is more likely to develop breast cancer if she is: **(Unprompted)**	( ) Single ( ) After forty ( ) Married with children ( ) Married without children ( ) Had hysterectomy because of malignancy causes ( ) At menopausal stage ( ) On oral contraceptive pill ( ) Previously had any problem in the breast/s ( ) Had a family history of breast cancer ( ) I don't know
11-	From your point of view, the chance of developing breast cancer will be higher in which age? **(Unprompted)**	( ) The twenties ( ) The thirties ( ) The forties ( ) The fifties ( ) The sixties ( ) At any age ( ) I don't know
12-	Do you practice regular self-breast examination ?	( ) Yes ( ) No ( ) Not always
13-	Most breast lumps that are detected may be cancerous lumps	( ) Yes ( ) No ( ) Not always ( ) I don't know
14-	The appropriate age to do mammogram is **(Unprompted)**	( ) Before the age of forty ( ) After the age of forty ( ) Before the age of fifty ( ) When a problem occurs in the breast ( ) Others, specify,……. ( ) I don't know
15-	The appropriate time to do the mammogram during the month is **(Unprompted)**	( ) At premenstrual time ( ) After the menstrual cycle ( ) In the middle of the menstrual cycle ( ) I don't know
16-	In general, how often a woman should do mammogram? **(Unprompted)**	( ) Once every 6 months ( ) Once a year ( ) Biennial ( ) Once in the life ( ) I don't know
17-	Have you previously performed mammogram?	( ) Yes ( ) No If the answer is yes, how many times?.....

B) Conceptions

Below there are some statements about your conceptions and beliefs toward mammography. Please tick under the number for each statement, which best represents how strongly you agree or disagree with each of the statements:
1= Strongly disagree 2= Disagree 3= Uncertain 4= Agree 5= Strongly agree

No.	Statement	1	2	3	4	5
1-	A mammogram may diagnose non-cancerous breast problems which cannot be detected in any other ways					
2-	If mammogram does not detect anything morbid in the first time, a woman doesn't need to do a mammogram again					
3-	A mammogram can detect breast masses before being discovered by women					
4-	Mammogram itself could lead to breast cancer					
5-	A mammogram should be conducted only once in the life					
6-	Women should do mammogram only if there are abnormalities in the breast/s					
7-	Women should do mammogram every one year or two years after the age of 40 or 50					
8-	Breast cancer has strong link with family history					
9-	Culturally, it is not acceptable to do mammogram					
10-	Religion prohibits conducting mammogram					
11-	Mammography could cause pain and discomfort					
12-	Mammogram is embarrassing					
13-	Mammogram costs a reasonable amount of money, out of my pocket					
14-	Mammogram causing a lot of fear and anxiety (to be diagnosed with breast cancer)					
15-	If mammogram did not show any abnormalities, I would not be afraid of having breast cancer in the future					
16-	Mammography helps in early detection of breast lumps					
17-	If the lumps detected early by mammography, the treatment of these lumps will be more successful					
18-	Early diagnosis of breast cancer by mammogram increases the chance of survival from breast cancer					
19-	Mammogram often gives wrong results					
20-	I am scared of doing the mammogram because I don't know exactly how they perform mammograms					
21-	Mammography procedures take a lot of time					

Note: ***End of questions directed to women who come to the center to get on services other than mammography and continue questioning for women who come to the center to get on mammogram services.***

What is the reason that made you to have mammography today?		( ) General checkup / I don't have any problem in the breast ( ) Follow-up where I have had this test previously ( ) Because of the appearance of new problem in the breast ( ) I was referred by my employer (MoE) ( ) A condition to complete my recruitment process
Part Three: Accessibility and Affordability This section measures the ability to get on the service **This part of the questionnaire should be filled only by women who are coming to the center to do mammogram**		
1-	Is this the first visit for you to carry out mammography at this center?	( ) Yes ( ) No If the answer is no, how many times you did a mammogram before?.....
2-	Was it easy to reach to the center?	( ) Yes ( ) No
3-	How you reach to the center(clinic or hospital)	( ) On foot ( ) Public transport ( ) Private car ( ) Others, specify……
4-	How much does it cost to arrive to this center?	**…….**NIS
5-	What is your opinion on the distance between the place of residence and the place of the center (clinic or hospital)	( ) The Center close to where I live ( ) The distance is suitable between my residential place and the center ( ) The center is far from my residential place
6-	Was the service (mammogram) free?	( ) Yes ( ) No If the answer is No, go to question(6.1)
6.1	How much was the cost to carry out this mammogram?	……NIS
7-	For access to the center to do mammography, haw much time (per minute) you need to get to the center?	**……..** Minutes
8-	On average, how any minutes did you wait to do the mammography?	**……..** Minutes
9-	Was there a long waiting list to do mammogram ?	( ) Yes ( ) No
10-	From your point of view, was the mammography time-consuming?	( ) Yes ( ) No If the answer is Yes, how many minutes did the imaging process take?.....minutes
11-	Have you received health education during your visit?	( ) Yes ( ) No

12-	Have you received any awareness materials on the importance of mammogram and early detection of breast cancer?	( )Yes ( ) No

Part Four: Satisfaction

This section obtains your opinion, which helps us in the evaluation and improvement of mammogram services provided at the center, so please tick under the number for each statement, which best represents how strongly you agree or disagree with each of the statements:

1= Strongly disagree 2=Disagree 3=Natural 4= Agree 5= Strongly agree

No.	Statement	1	2	3	4	5
A) Accessibility and affordability						
1-	It was easy to reach to this health facility					
2-	The location of this health facility is not far from your place of residence					
3-	The cost of the mammogram was reasonable					
4-	The waiting time in health facility was not long					
5-	The time of conducting the mammogram was not long					
6-	The working hours of this center are appropriate					
7-	In general, the performance of the service providers was good					
B) Responsiveness (non-health needs)						
8-	The waiting room was clean and comfortable					
9-	The welcome from service providers was good					
10-	The mammography room is equipped with curtains					
11-	Means of entertainment and health education material are available in the waiting room (TV, Health bulletins, Medical journals,…… etc)					
12-	The physical environment in the health facility was suitable (Good ventilation and suitable heating)					
13-	Clean water was available in the health facility					
14-	Electricity has been always available during your visit to the center					
15-	Waiting time at the stage of registration was not long					
C) Communication and Patient rights						
16-	When you arrived at the center, the registration was easy					
17-	The service provider introduces the enough explanation about the procedures before the imaging process					
18-	The service providers respected my privacy through the whole process of mammogram					
19-	The service providers answer all your questions in a professional way					

20-	The provider showed an interest with regard to your questions					
21-	In general, the performance of the service providers was good					
22-	You are satisfied about the service that has been provided from the center					
23-	The service provider introduces her/ himself before introducing the requesting service					
24-	The service providers welcomed you in a good way					
25-	You were given the opportunity by the service providers to inquire about your case					
26-	You were given enough time to explain your condition/concern					
27-	Service providers used clear language to talk with you (clear, easy and understandable vocabularies for you)					
28-	Will you recommend this service to any of your relatives and friends?	( ) Yes ( ) No				
29-	The service that you received actually represent your expectations	( ) Strongly agree ( ) Weakly agree ( ) I don't agree				
30-	You would like to come to the center for follow-up	( ) Regularly ( ) When necessary ( ) I don't feel the need to follow-up				

What could be done to improve the mammography services (to make the services more better)?

……
……
…….

What are the most things that you dislike at the center? (From your point of view)

……
……

What are your suggestions for improving the quality of service (mammogram) provided by this center?

……
……

Thank you for co-operation

Annex (6): In-depth interviews questions

اسئلة المقابلات المعمقة مع مدراء وحدات تصوير الثدي بالأشعة (الماموجرام) في المراكز

(المستشفيات والعيادات)

السؤال الاول : هل تعتقد ان سرطان الثدي يشكل مشكلة حقيقية للسيدات في قطاع غزة؟

اذا كانت الاجابة نعم، فلماذا؟

- هل بسبب التشخيص المتأخر لسرطان الثدي؟
- هل بسبب الاصابة في سن مبكرة؟
- هل بسبب احتمالية البقاء على قيد الحياة منخفضة؟
- هل بسبب انخفاض استخدام تصوير الثدي بالأشعة (فحص الماموجرام) ؟
- هل بسبب محدودية توافر تصوير الثدي بالأشعة (فحص الماموجرام)؟

السؤال الثاني: ما هي الوسائل التي يمكن استخدامها للتقليل من هذا المرض؟

السؤال الثالث: بشكل عام، ما هي وجهة نظرك في خدمة تصوير الثدي بالأشعة (الماموجرام)؟

- لماذا تعتبر خدمة تصوير الثدي بالأشعة (الماموجرام) من الخدمات الهامة؟

السؤال الرابع: ما هو رأيك في جودة خدمة تصوير الثدي بالأشعة (الماموجرام) في هذا المركز؟

السؤال الخامس: من فضلك، اخبرنا عن الفئات المستهدفة والمستفيدة من خدمة تصوير الثدي بالأشعة (الماموجرام)؟

- ما هي الفئات العمرية المستفيدة؟
- كم عدد المستفيدين سنويا؟
- اهم الاسباب التي جعلت السيدات يأتين للحصول على خدمة التصوير (تشخيص ام فحص)

السؤال السادس: ما هي الاسس العلمية التي تعتمدون عليها للقيام بعملية تصوير الثدي بالأشعة (الماموجرام)؟

- هل بناء على برتوكولات مكتوبة؟
- هل هناك سياسات معتمدة؟
- هل هناك كتيبات متوفرة؟

السؤال السابع: من فضلك من الممكن ان توضح لنا الاجراءات التي يتم اتباعها مع الحالات القادمة للحصول على خدمة تصوير الثدي بالأشعة (الماموجرام)؟

السؤال الثامن: من وجهة نظرك، ما هي اهم المعيقات التي يمكن ان تحول من قدوم السيدات للحصول على خدمة تصوير الثدي بالأشعة (الماموجرام)؟

- امكانية الوصول لوحدات التصوير محدود/ عدد وحدات التصوير محدودة
- نقص في المعرفة حول اهمية تصوير الثدي بالأشعة (الماموجرام)
- عدم معرفة السيدات بأهمية الماموجرام
- تكلفة التصوير تحول دون قدومهن الى المركز
- سهولة الوصول الى المركز
- المفاهيم الخاطئة عن تصوير الثدي بالأشعة تحول من قدوم بعض السيدات للحصول على الخدمة

السؤال التاسع: بالنسبة للفريق العامل في وحدة الماموجرام ، هل لديه خبرات سابقة وهل هناك متخصصين؟

- ما هي خبرة هذا الفريق؟
- هل هناك دورات تدريبية بشكل مستمر؟
- ما هي مؤهلات اعضاء هذا الفريق؟

السـؤال العاشـر من وجهة نظرك، هل من المهم توسـيع نطاق خدمات تصـوير الثدي بالاشـعة (الماموجرام)؟ اذا كانت الاجابة نعم، فما الذي يمكن عمله؟

- o زيادة عدد وحدات تصوير الثدي بالأشعة (الماموجرام) في مراكز الرعاية الاولية؟
- o زيادة عدد وحدات تصوير الثدي بالاشعة (الماموجؤام) في المستشفيات؟
- o زيادة عدد وحدات تصوير الثدي بالاشعة (الماموجرام) في العيادات والمراكز الخاصة؟
- o غير ذلك، حدد.....

السـؤال الحادي عشـر: من وجهة نظرك، ما هي الاشـياء التي يمكن القيام بها لزيادة اسـتخدام الماموجرام كأداة فحص(Screening) وليس تشخيص(Diagnostic)؟

- o هل هو وجود عدد اكبر من وحدات تصوير الثدي بالأشعة (الماموجرام) في مراكز الرعاية الاولية؟
- o هل تقديم خدمات تصوير الثدي بالأشعة (الماموجرام) مجانا؟
- o هل هو وجود سياسات وبرتوكولات وطنية تنص على فحص تصوير الثدي بالأشعة (الماموجرام)؟
- o هل هو اجراء حملات توعية تستهدف السيدات ومقدمي الخدمات الطبية؟

السؤال الثاني عشر: هل تحب ان تضيف أي شيء بخصوص هذا الموضوع؟

نشكر لكم تعاونكم

Annex (7): List of experts

No.	Name	Position
1.	Dr. Yehia Abed	Al-Quds university
2.	Dr. Bassam Abu Hamad	Al-Quds university
3.	Dr. Sana Abu Dagah	Islamic university
4.	Dr. Nehaiah Eltelbani	El Azhar university
5.	Dr. Mazen Abu Qamar	Al-Quds university
6.	Dr. Akmed Elshurafa	Eurpean hospital
7.	Dr. Mohammed Hamad	European hospital
8.	Dr. Sadi Jaber	European hospital
9.	Dr. Sawsan Hammad	MoH- Al-Rimal PHC
10.	Dr. Yousif Awad	MoH
11.	Gehad Okasha	MoH
12.	Sadi Abu Awaad	Al-Quds university
13.	Hassan Joudah	MoH

Annex (8): Helsinki approval

المجلس الفلسطيني للبحث الصحي

Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 28\10\2013 **Number:** PHRC/HC/56 /13

Name: Anwar Mousa Jadallah الاسم: أنور موسى جاد الله

We would like to inform you that the committee had discussed the proposal of your study about: نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:-

"Evaluation in Partial Fulfillment of the requirements for the Master Degree of Public Health".

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/56/13 in its meeting on 28/10/2013 و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Member**

Chairman

28 10 2013

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

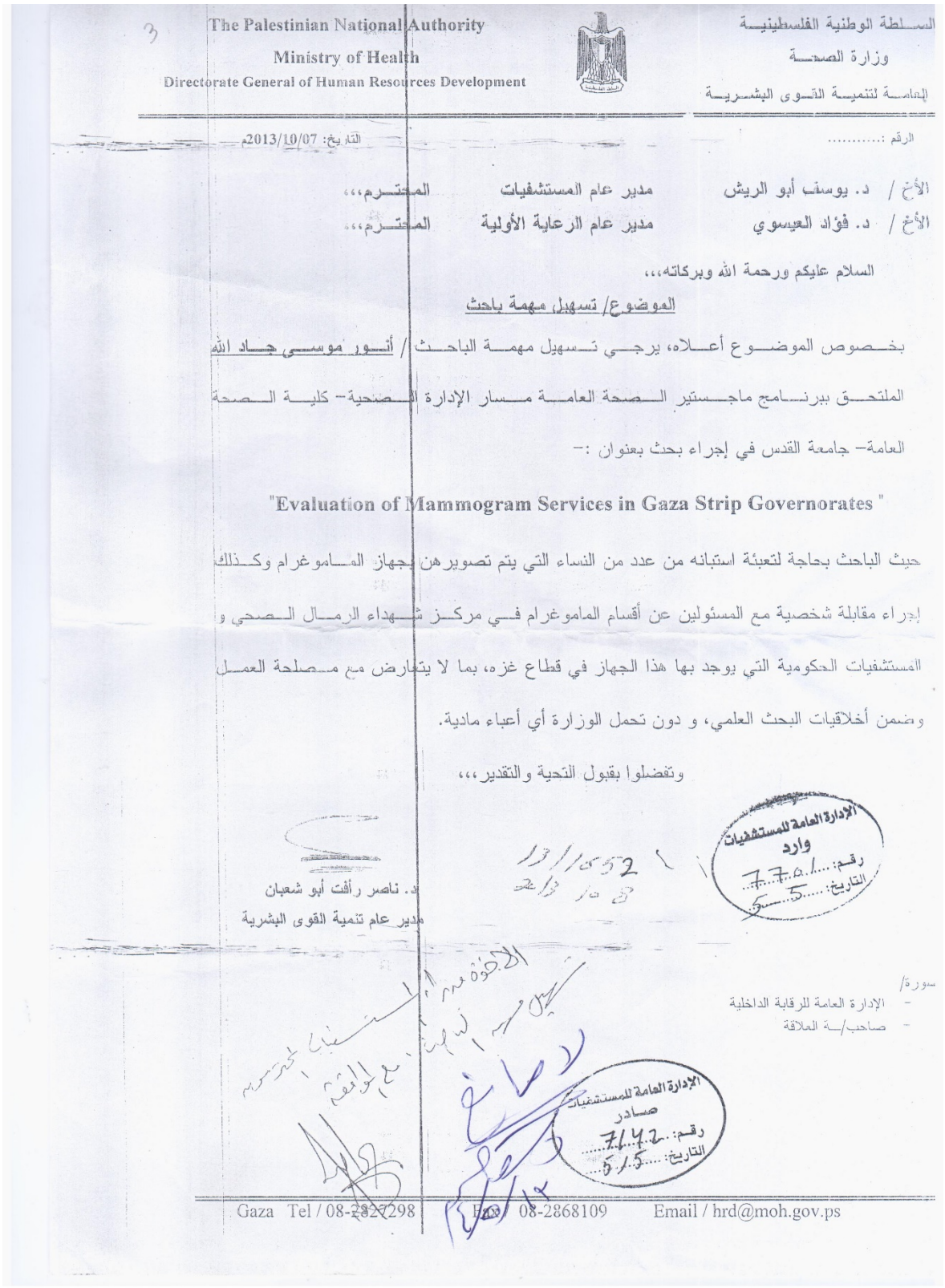
Specific Conditions:-

The subject was approved following the World Medical Association Declaration of Helsinki-Ethical principles for medical research involving human subjects, adopted by the 18th World Medical Association General Assembly, Helsinki, Finland, June 1964 and amended by the 59th WMA General Assembly, Seoul, Korea, October 2008.

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين
شارع النصر - مفترق العيون

Annex (9): MoH approval



السلطة الوطنية الفلسطينية
وزارة الصحة
الإدارة العامة لتنمية القوى البشرية

The Palestinian National Authority
Ministry of Health
Directorate General of Human Resources Development

الرقم :.....
التاريخ: 2013/10/07م

الأخ / د. يوسف أبو الريش — مدير عام المستشفيات — المحترم،،،
الأخ / د. فؤاد العيسوي — مدير عام الرعاية الأولية — المحترم،،،

السلام عليكم ورحمة الله وبركاته،،،

الموضوع/ تسهيل مهمة باحث

بخصوص الموضوع أعلاه، يرجى تسهيل مهمة الباحث / أنور موسى حماد الله الملتحق ببرنامج ماجستير الصحة العامة مسار الإدارة الصحية- كلية الصحة العامة- جامعة القدس في إجراء بحث بعنوان :-

"Evaluation of Mammogram Services in Gaza Strip Governorates"

حيث الباحث بحاجة لتعبئة استبانه من عدد من النساء التي يتم تصويرهن بجهاز الماموغرام وكذلك إجراء مقابلة شخصية مع المسئولين عن أقسام الماموغرام في مركز شهداء الرمال الصحي و المستشفيات الحكومية التي يوجد بها هذا الجهاز في قطاع غزه، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، و دون تحمل الوزارة أي أعباء مادية.

وتفضلوا بقبول التحية والتقدير،،،

الإدارة العامة للمستشفيات
وارد
رقم: 7.7.0.1
التاريخ: 5.5

د. ناصر رأفت أبو شعبان
مدير عام تنمية القوى البشرية

سورة/
- الإدارة العامة للرقابة الداخلية
- صاحب/ـة العلاقة

الإدارة العامة للمستشفيات
صادر
رقم: 7.1.4.2
التاريخ: 5.1.5

Gaza Tel / 08-2827298 Fax / 08-2868109 Email / hrd@moh.gov.ps

Annex (10): NGOS approval

P.O. BOX 72
PALESTINE -GAZA
TEL NO. 08-2818400

المستشفى الأهلي العربي
غـزة - Gaza
Ahli Arab Hospital

ص . ب ٧٢
فلسطين – غـزة
ت ٠٨-٢٨١٨٤٠٠

١٠ مايـو ٢٠١٤

حضرة الدكتور / بسـام حمـد المحترم
منسق عام برامج الصحة العامة – فرع غزة
كليـة الصحـة العامـة
جامعـة القـدس

تحيـة طيبـة وبعـد ،

الموضوع : مساعـدة الطالـب / أنـور جـاد اللـه

نشكركم على كتابكم المؤرخ بتاريخ ٢٠١٤/٤/٢٩ بخصوص الطالب / أنور جاد اللـه لإتمام البحث الخاص بدراسته بعنـوان:

"Evaluation of Mammogram Services in the Gaza Strip Governorates"

كمتطلب لحصوله درجة الماجستير في الصحـة العامـة.

إنـه لمن دواعي سروري الترحيب بالسيد/ جاد اللـه في المستشفى لما لهذه الدراسـة من أهمية لخدمـة أمراض سرطان الثدي بشرط مراعاة السريـة الطبية بخصوص مرضانـا .

مع خالـص تقديرنـا.

سهيلة ترزي
مدير عـام
المستشفى الاهلي العربي

Fax No. 972-8-2818406
فاكس رقم ٩٧٢ -٨- ٢٨١٨٤٠٦
Email: suhaila@palnet.com

Red Crescent Society
FOR Gaza STRIP
Gaza El-Remal Near Al Azhar.University
☎ 009708 - 2864750 - 2824439
Fax : 009708 - 2860019 P.O. Box : 32
Email : hilal@p-i-s.com

www.hilal.ps

جمعية الهلال الأحمر لقطاع غزة
غـزة - الـرمال - مقابـل جامـعة الأزهـر
☎ ٠٩٧٠٨ - ٢٨٦٤٧٥٠ - ٢٨٢٤٤٣٩
فاكس : ٠٩٧٠٨-٢٨٦٠٠١٩ ص.ب : ٣٢
بـريد إلكتروني : hilal@p-i-s.com

Gaza : .....

غزة في : ٢٠١٤/٥/٥

السيد / الدكتور بسام أبو حمد المحترم
منسق عام برامج الصحه العامه
جامعة القدس – غزة

تحيه طيبة وبعد ،،،

الموضوع : مساعدة الطالب أنور جاد الله

بالاشارة إلى كتابكم المؤرخ في ٢٠١٤/٤/٢٩ الرقم / ك ص ع –غ/٢٠١٤/٣٧ بشأن الموضوع أعلاه الذي وصلنا في ٢٠١٤/٥/٥ ، يسرنا في جمعية الهلال الأحمر لقطاع غزة مساعدة الطالب المذكور وتقديم ما يلزم له من معلومات بشأن اجراء بحثه بعنوان :

Evaluation of Mammorgam Services in the Gaza Strip Governorates

لمتطلب الحصول على درجة الماجستير في الصحه العامه – مسار الإدارة الصحيه .

تمنياتنا له بالتوفيق والنجاح ولجامعتكم الموقره في رفع شأن العلم والكفاءات اللازمة لتطوير الإدارة الصحيه في قطاع غزة .

وتفضلوا بقبول فائق الاحترام والتقدير .

المدير العام
عبد العزيز أبو القرايا

صورة إلى :
السيد / مساعد المدير العام للشئون الطبيه
السيد / الدكتور رئيس قسم الأشعه
السيدات / مركز صحة المرأة – غزة
الملف

جمعية الهلال الاحمر
لقطاع غزة
مسار
التاريخ
الرقم

Annex (11): Participation approval letter

نموذج موافقة

عزيزتي المشاركة

انا الطالب/ انور موسى جادالله ملتحق ببرنامج الصحة العامة-تخصص ادارة صحية بجامعة القدس- ابو ديس.

لقد تم اختيارك بشكل عشوائي للمشاركة في هذه الدراسة التي تهدف الى تقييم خدمات تصوير الثدي بالأشعة (الماموجرام) المقدمة عدة مراكز في محافظات قطاع غزة مما سيساهم في تحسين الخدمة المقدمة.

ستجري هذه الدراسة كجزء من متطلبات برنامج الماجستير- كلية الصحة العامة.

اذا ابديت الموافقة على المشاركة في هذه الدراسة، عليك الاجابة على اسئلة الاستبانة مع العلم بما يلي:

- مشاركتك في هذه الدراسة طوعية، يحق لك القبول او الرفض او حتى الانسحاب في أي وقت تشعرين بعدم رغبتك في اكمال تعبئة الاستبيان.
- سيحتاج هذا الاستبيان لتعبئته من ١٥-٢٠ دقيقة على الاقل.
- لا يوجد اجابات صحيحة واخرى خاطئة، عبري بصراحة عن وجهة نظرك وقناعاتك.
- آراؤك واجاباتك لن تؤثر على الخدمة الصحية التي تتلقيها من المركز.
- السرية مكفولة ولن نسألك عن اسمك.

شكرا لتعاونك

مع فائق الاحترام والتقدير

الباحث

انور موسى جادالله

Abstract in Arabic

تقييم خدمات تصوير الثدي بالأشعة السينية (الماموجرام) في محافظات قطاع غزة

اعداد: أنور موسى جادالله

اشراف: د. ختام أبو حمد

ملخص الدراسة:

الى حد بعيد، سرطان الثدي من أكثر أنواع السرطان المشخصة والمسببة للموت بين النساء في جميع انحاء العالم، وفلسطين ليست استثناء، ففي عام ٢٠١٢ تم تشخيص حوالي ١,٧ مليون سيدة مصابة بسرطان الثدي على مستوى العالم. حيث ان هناك تفاوت في معدلات البقاء على قيد الحياة تصل الى ٨٠% في أمريكا الشمالية والى ٦٠% في السويد واليابان و ٤٠% في البدان المتوسطة والمنخفضة الدخل، فمعدل البقاء على قيد الحياة خمسة سنوات بين السيدات في فلسطين يتراوح ما بين ٣٠% الى ٤٠% مما يعكس تفاقم الحالات وتقدمها نتيجة التشخيص المتأخر لها. لذا هناك حاجة ماسة لتطبيق استراتيجيات للكشف المبكر عن سرطان الثدي بما في ذلك برامج فحص الثدي بالأشعة السينية (الماموجرام) من اجل الكشف عن حالات سرطان الثدي في مراحل مبكرة.

الهدف من الدراسة:

هدفت هذه الدراسة الى تقييم خدمات الماموجرام الحالية في قطاع غزة من اجل اقتراح توصيات لزيادة معدل الاستفادة والاقبال على خدمات الماموجرام.

منهجية الدراسة:

الدراسة عبارة عن دراسة وصفية تحليلية شملت كل من البيانات الكمية والنوعية، تم جمع البيانات الكمية من السيدات الذين أتوا للاستفادة من الخدمات الصحية في المراكز الصحية التي شملها مجتمع الدراسة حيث كان مجموع السيدات ٤٠٠ سيدة (١٦٠ سيدة أتت الى المراكز الصحية للاستفادة من خدمة الماموجرام و ٢٤٠ سيدة أتت للاستفادة من الخدمات الصحية الأخرى). وقد تم جمع البيانات النوعية من خلال اجراء مقابلات معمقة مع مديري وحات تصوير الماموجرام في الوحدات الصحية التي شملتها الدراسة.

تم تحليل البيانات باستخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS) حيث أجريت التوزيعات، الترددات والنسب المئوية، جداول، كما حسبت النسب المئوية المتوسطة والعامة وجداول المتقاطعة واستخدام Chi-Square لإيجاد العلاقات بين المتغيرات. في حين تم استخدام طريقة الترميز المفتوح والتحميل المرتبط بأفكار رئيسة، لتحميل البيانات النوعية

اهم النتائج:

أظهرت الدراسة ان أكثر من ثلثي السيدات المشاركات في الدراسة لديهن معرفة جيدة عن الكشف المبكر عن سرطان الثدي والطرق المستخدمة عن الكشف المبكر عن سرطان الثدي (٧٨,٧%، ٧٠,٢%) بالتتابع. الا ان نتائج الدراسة لا تظهر علاقات ليس ذات دلالات إحصائية بين الفئات العمرية للسيدات، المستوى التعليمي للسيدات، حالة الدخل والحالة الاجتماعية واستخدام الماموجرام، ولكنها أظهرت علاقة ذات دلالة إحصائية بين استخدام الماموجرام والحالة الوظيفية للسيدات وكانت (P=0.023).

بالإضافة الد ذلك، فقد اظهرت الدراسة علاقات ذات دلالات إحصائية بين اجراء تصوير الثدي بالماموجرام وعدة عوامل منها: التاريخ العائلي السابق بالإصابة بمرض سرطان الثدي، المشاكل السابقة في الثدي، المعرفة بالكشف المبكر عن سرطان الثدي، أهمية الكشف المبكر والطرق المستخدمة في الكشف المبكر عن سرطان الثدي وكانت (P=0.000).

ومن النتائج التي اظهرتها الدراسة هي المعتقدات والتصورات الإيجابية لدى السيدات عن الماموجرام وكانت النتائج (٦٨,٢٤%،٦٣%) بالتتابع، وقد حدد نتائج الدراسة بعض العوائق التي تحول دون استخدام الماموجرام منها: الألم، الانزعاج من الإجراءات، الوقت المتنفذ في الإجراءات والتصوير وبالتالي لم تكن هناك مشاكل للحصول على الخدمة وقد اظهرت نتائج الدراسة ان خدمة الماموجرام كانت بأسعار معقولة، الثقافة والدين لم تكن من المعوقات التي تمنع استخدام الماموجرام.

أظهرت الدراسة ان خدمة الماموجرام كانت بأسعار معقولة ويمكن الوصول اليها في الوقت المناسب لأكثر من ثلثي المشاركين في الدراسة (٧٣,٧%) الا ان نتائج الدراسة أظهرت نقص في الوصول الى المعلومات، بالإضافة إلى ذلك، فقد حازت الخدمة على رضا أكثر من ثلثي الحالات (٧٦,٠٥%) من ناحية إمكانية الوصول والقدرة على تحمل تكاليف خدمات الماموجرام.

الخلاصة:

هناك حاجة إلى وضع سياسة وطنية للكشف المبكر عن سرطان الثدي بما في ذلك وضع مبادئ توجيهية واضحة لتصوير الثدي، وبرامج التثقيف الصحي المنظمة لزيادة الوعي وزيادة الإقبال على خدمات فحص الماموجرام. وهناك أيضا حاجة لزيادة عدد وحدات الماموجرام التي يمكن أن تستخدم في المقام الأول لأغراض الفحص، وحدة واحدة على الأقل في كل محافظة مع العمل على توفير الأجهزة الحديثة لذلك وما تحتاجه من أفلام وقطع غيار لصيانة تلك الأجهزة.