An-Najah National University
Faculty of Graduate Studies

Use of Mammography Test Pattern and Percentage of Breast Cancer Detected in Nablus District

BY
Fatina Khaleel Abu Shmais

Supervised by
Dr. Samar Ghazal Musmar

Submitted in Partial Fulfillment of the requirements for the Masters Degree of Science in Public Health at An-Najah National University at Nablus, Palestine.

2010

Dedication

I would like to dedicate this thesis to every woman who suffered from this disease and may suffer from it, and hope that this research would give them an idea about the nature of the disease and its risks. I hope that all women would benefit from the content of this research and its results, as well as its recommendations.

Acknowledgement

I would like to thank very much my supervisor Dr. Samer Ghazal Musmar, for her effort and support that she offered to me during this thesis. Also For the science and knowledge that she directed me toward, and for her care to reach accurate results that suite a scientific research.

I would also like to offer all respects and thanks to my parents who supported me especially my father who pushed me always towards science that never ends as he said.

I would also like to thank my family; my husband who supported me always for more success, and my kids whom were very patient and understanding during this period.

I would like to thank also all the medical team of the PFFP who helped me so much in collecting the information, especially the medical secretary Madame Halah Jouhary who helped me to reach all useful documents for this research.

الإقرار

أنا الموقعة أدناه، مقدمة الرسالة التي تحمل عنوان:

Use of Mammography Test Pattern and Percentage of Breast Cancer Detected in Nablus District

أنماط استخدام فحص الماموغرافي ونسبة سرطان الثدي المكتشف في محافظة نابلس

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص، باستثناء مـــا تمـــت الإشارة إليه حيثما ورد، وأن هذه الرسالة ككل، أو أي جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student's name: **اسم الطالبة:**

Signature: **التوقيع:**

Date: **التاريخ:**

List of Acronyms

Abbreviation	Explanation
WHO	World Health Organization
BC	Breast Cancer
MT	Mammography Test
UK	United Kingdom.
BF	Breastfeeding
U.S.A	United states of America
DCIS	Ductal carcinoma in Situ
TNM	Tumor node metastasis
ACS	American Cancer Society
MRI	magnetic resonance imaging
CBE	Clinical Breast Exam
BSE	Breast self Exam
USPSTF	United States of Preventive Services Task Force
NHBCSP	National Health Breast Cancer Screening Programme
SEER	Surveillance, Epidemiology, and End Results
HRT	Hormone Replacement Therapy
ER	Estrogen Receptor
Gy	SI unit gray
FFTB	First Full-Term pregnancy/Birth
BRCA1 and BRCA2	Breast cancer type 1, 2 susceptibility protein
NCCN	National Comprehensive Cancer Network
HER2	Epidermal Growth factor Receptor 2
NHS	National Health System (NHS)
ASRs	Age standardized incidence rates
PFPPA	Palestinian Family Planning & Protection association
SPSS	Statistical Package for Social Sciences.
MOH	Ministry of Health
LCIS	Lobular carcinoma in Situ
OCS	Oral Contraceptives
PMOH	Palestinian Ministry of health.
UAE	United Arab Emirates
NHS	National Health System
NIH	National Institute of Health
PHIC	Palestinian Health Information Center
OD	Odd Ratio
CI	Confidence Interval
RR	Relative Risk

List of Contents

List of Tables

Use of Mammography Test Pattern and Percentage of Breast Cancer Detected in Nablus District

By
Fatina Khaleel AbuShmais
Supervised by
Dr. Samar Ghazal Musmar

Abstract

Background: Breast cancer is the most common cancer in women, affecting one in nine women at some point in their lives. About 1.3 million women will be diagnosed with breast cancer annually worldwide. A mammogram test is an x–ray of the breast. Early detection of small breast cancers by screening mammography greatly improves a woman's chances for successful treatment. It is one of the best techniques to detect breast cancer in its early stages. If breast cancer is caught and treated while it is still confined to the breast, the cure rate is close to 100%. . Clinical studies suggested that deaths from breast cancer could be cut by between 36% and 44% if screening mammography were performed annually on all women in their forties. Mammogaphy can find 85 – 90% of BC in women over 50.

Objective: The main objective of the study is to illustrate the different sociodemographic patterns of use of MT in Nablus district, and to find out the percentage of BC diagnosed through MT.

Methodology: This is a retrospective, descriptive, analytical study. Data collected in 2007-2008 were retrieved to select 556 files of women who underwent MT in the Palestinian Family Planning & Protection association center in Nablus district. Data then was analyzed by SPSS system version (10).

Results: The study results revealed a sociodemographic pattern of MT in Nablus district; nearly most of the selected women were of age interval (37-45) years old, married, breastfed, with parity interval 3-5, highly educated; inhabit the city, and are self referral. The data indicated also that there was a significant statistical association between age, parity and BC result $p<0.05$.

No statistically significant association was found between marital status, residence, breastfeeding, education, and self referral and BC result $p<0.05$. The data also indicated that there is a significant statistically association difference due to smoking narghil and breastfeeding, but did not reach the significance differences due to oral contraceptive use or due to the onset of menopause.

Conclusions: MT could be a useful tool not only to diagnose BC, but also as a precious tool of early screening of BC. There is a good number of utilization of MT in Nablus area which reflected a significant level of awareness and knowledge of the MT among Palestinian women. However an out reach to less privileged women to encourage using MT is called for. Age seems to be an important risk factor for developing BC in Palestine.

Key words: Breast cancer, Mammography test, pattern, Nablus district.

Chapter One

Introduction

Chapter One
Introduction

1.1 Background

1.1.1 Breast cancer

1.1.1.1 What is Breast Cancer?

Breast cancer is the most common cancer in women, affecting one in nine women at some point in their lives[1]. It is the second leading cause of cancer deaths in women today (after lung cancer) [2]. According to the American Cancer Society (ACS), about 1.3 million women will be diagnosed with breast cancer annually worldwide, about 465,000 will die from the disease, about 40,910 breast cancer deaths are expected in 2007.Also ACS reported that breast cancer death rates have been dropping steadily since 1990, because of earlier detection and better treatments[3].

Breast cancer begins in the lining layer (epithelial cells) of the breast. Nearly all breast cancers are carcinomas (either ductal carcinomas (DCI) or lobular carcinomas (LCI). An adenocarcinoma is a type of carcinoma that starts in glandular tissue. The ducts and lobules of the breast are glandular tissue, so cancers starting in these areas are often called adenocarcinomas.[4]. Metastasis happens if tumor cells as a result of local invasion enter the vascular or lymphatic channels [5].

1.1.1.2 Structure and function of the female breast

The breast is considered as a modified sweat gland. It is a tissue that consists of 15 to 20 glandular milk- producing units arranged radially around the nipple. The glandular units are surrounded with two layers of

fibrous tissue and fatty adipose tissue. Each gland consists of lobular units, the milk is produced by the epithelial cell lining of the lobular units, clusters of lobular units supply the small lactiferous ducts that unite with other ducts to form large excretory one, these ducts then enlarge to empty out at the nipple. Milk production is the main function of the breast [6].

1.1.1.3 Histopathological Classification

Based on cellular morphology, breast tumors are of ductal origin (ductal carcinomas) or of lobular origin (lobular carcinomas). Breast tumors are classified into invasive (infiltrating) carcinomas capable of metastasizing and noninvasive disease which can invade beyond the basement membrane (ductal carcinoma in situ) [DCIS] [7].

Ductal carcinoma comprises (70-80%) as showed by table (1), is considered to be the most common histological type with variable prognosis, ranging from indolent to rapidly progressive tumor. The continued growth in mammographic evaluation and technology has resulted in an increase in the diagnosis of ductal carcinoma in situ of the breast (DCIS) due to the presence of microcalcifications [7, 8].

Lobular Carcinoma forms (10-15%). Lobular carcinoma in situ (LCIS) is associated with an increased risk of developing invasive disease either ductal or lobular, they are more likely to be bilateral compared with ductal carcinoma (DC), and they are difficult to diagnose [7].

Special subtypes (<10%) include papillary, tubular, and medullary carcinomas and are usually with favorable prognosis[7].

A relatively rare subtype (1%) is inflammatory BC. It is an aggressive subtype. Clinically it is associated with cutaneous erythema of the breast and the cutaneous edema "peau d'orange" It can occur in women of any age [9].

Paget's disease of the breast consists of the infiltration of the nipple–areolar complex epidermis by adenocarcinoma cells and accounts for approximately 2-3% of breast carcinomas. Clinically, this is seen as an eczematous eruption of the nipple that may be associated with erosion or ulceration. It is often associated with underlying ductal carcinoma in situ (DCIS) [10].

Cystosarcoma phylloides are typically large, fast growing masses that form the periductal stroma of the breast. They account for less than 1% of all breast neoplasms, 90% are benign[11].

Table (1): Percentage of malignant breast tumors (1996)

Breast malignant tumors	
In situ carcinoma	15%-30
Ductal carcinoma in situ	80%
Lobular carcinoma in situ	20%
Invasive carcinoma	70%–85%
Ductal carcinoma (no special type)	79%
Lobular carcinoma	10%
Tubular/cribiform carcinoma	6%
Mucinous carcinoma	2%
Medullary carcinoma	2%
Papillary carcinoma	1%

Sources: Tabar L et al. Tumour development, histology and grade of breast cancers: prognosis and progression. *International Journal of Cancer*, 1996, 66(4):413–419; Sobin LH, Wittekind CH. *TNM classification of malignant tumours*, 4th ed. Paris, Springer Verlag, 1988:100.

1.1.1.4 Sign and Symptoms of BC

Signs and symptoms of breast cancer include a palpable breast lump, nipple discharge or retraction, and breast dimpling or other skin changes. Diagnostic mammography is commonly used to investigate signs or symptoms of the disease[12].

1.1.1.5 Staging of BC

When breast cancer diagnosis is established, the staging of the disease provides the basis of best choice of treatment .The TNM (tumor node metastasis) staging system, as outlined by the International Union against Cancer is widely-used to classify breast cancer. The classification depends on tumor size, the presence or absence of axillary node metastasis, and the confirmation of distant metastases.

Combination of the TNM classification is used to define clinical staging of the tumor [4, 6].

1.2 Early detection of Breast cancer

Each year, the American cancer Society (ACS) publishes a report that summarizes its recommendations for early cancer detection. ACS guidelines for Breast cancer screening in average risk were updated in 2003, and screening guidelines for women at very high risk were updated in 2007. Several risk assessment tools, such as the Gail model, the Claus model, help health professionals estimate a woman's breast cancer risk. These tools give approximate, rather than precise, estimates of breast cancer risk based on different combinations of risk factors and different data sets[13].

1.2.1 American Cancer Society guidelines for Breast Cancer screening with average risk

The ACS (after updating guidelines in 2003) , recommends that average-risk women should begin annual mammography at age 40 years for women in their 20s and 30s, it is recommended that clinical breast examination be part of a periodic health examination, preferably at least every three years. Asymptomatic women aged 40 and over should continue to receive a clinical breast examination as part of a periodic health examination, preferably annually.

Beginning in their 20s, women should be told about the benefits and limitations of breast self-examination (BSE). The importance of prompt reporting of any new breast symptoms to a health professional should be emphasized. Women who choose to do BSE should receive instructions and have their technique reviewed on the occasion of a periodic health examination. It is acceptable for women to choose not to do BSE or to do BSE irregularly. Screening decisions in older women should be individualized by considering the potential benefits and risks of mammography in the context of current health status and estimated life expectancy. As long as a woman is in reasonably good health and would be a candidate for treatment, she should continue to be screened with mammography[14].

1.2.2 American Cancer Society guidelines for breast screening with MRI for women with increased risk, (2007-2009).

Women at increased risk of breast cancer might benefit from additional screening strategies beyond those offered to women of average

risk, such as earlier initiation of screening, shorter screening intervals, or the addition of screening modalities other than mammography and physical examination, such as ultrasound or magnetic resonance imaging (MRI). Annual MRI screening is recommended for BRCA carrier, like those with BRCA mutation; first degree relative with life time risk ~ 20- 25% or greater, also patients who are exposed to radiation of the chest between age 10 and 30 years, and those with Li-Fraumeni syndrome (a familial cancer syndrome in which affected relatives develop a diverse set of early-onset malignancies including breast carcinoma, sarcomas, and brain tumors) [15].

1.2.3 USPSTF Guidelines

Preventive Services Task Force (USPSTF) in the US updated recommendation statement on screening for breast cancer in the general population. 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. Women aged 50 to 74 years should undergo biennial screening mammography (grade B recommendation) [16].

Daniel B. Kopans, an expert in mammography screening said that the USPSTF ignored that screening only women at high risk will miss the 75-90% of breast cancers that occur in women who are not at high risk .The USPSTF also recognizes a 30 % decrease in breast cancer deaths in the U.S. since 1990, but ignores it, and ignores the 40% decrease in breast cancer deaths reported in Swedish. trial[17].

1.2.4 Early Detection of Breast Cancer with Mammography Test (MT).

Figure (1)

Figure (1) shows example of machine for mammography. Mammography is a special type of x-ray imaging used to create detailed images of the breast. Low x-ray; high contrast, high-resolution film; and an x-ray system designed specifically for imaging the breasts[18].

Mammography is an x- ray which detects 85% of BC. A distinction should be made between diagnostic mammography and screening mammography.

Screening mammography is an x-ray study of the breast to detect breast changes in women who have no signs or symptoms of BC.

Diagnostic Mammography is an x-ray study of the Breast that is used to detect breast cancer after a lump or other signs or symptoms of BC has been found; 45% of BC can be seen by mammography before they are palpable.

Digital mammography takes an electron image of the breast and uses less radiation than film mammography; it allows image storage and

transmission in addition software may be used to interpret digital mammograms. It gradually replaces film mammography and it is more expensive than film system[7].

1.2.5. How is Mammography done?

Mammography is done by compressing the breast between two plates. Single view mammography involves taking a mediolateral view of the breast or craniocaudal view. Both views are used in screening. For many women, mammography is found to be uncomfortable, so it is wise to explain, discuses, and warn every woman before the exam is done. After the films are completed, the woman is told that she will be informed of the results within a specified period. Results are interpreted by a radiologist who should have high skills for identifying malignant and benign abnormalities.

If there is any abnormality, further investigations will take place including ultrasound, fine needle aspiration, and trucut needle biobsy[6].

1.2.6. Evidence Based Benefits of MT.

Benefits of mammography were studied over the twenty past years. The largest study was the health insurance plan of New York, in which a group of women aged between 40 and 60 was offered a mammographic screening and physical examination annually for four years. Mortality rate was reduced by 30% for up to ten years in women invited for breast cancer screening[19, 20]. A Swedish trial studied single view mammography every two years for women aged 40 years, and every three years for older women. At seven years follow up there was a reduction of mortality rate of 40% for women aged over 50 years old[21].

The UK government established a working group to examine the benefits of breast screening. Professor Sir Patrick Forrest chaired with establishing the National Health Breast Cancer Screening Programme (NHBCSP). The committee published its findings in 1986 which showed that screening with mammography can lead to prolongation of life for women aged 50 years or over with breast cancer[22].

In 1991 the NHBCSP, Forrest et al published the latest research findings which concluded that if 70 % of the population accepts the invitation to screening with mammography, the reduction in mortality will be 25%[23].

Taken together, all the results confirm the conclusion from the Swedish randomized trials, that mammographic screening is an effective means of reducing breast cancer mortality[24].

Another benefit of mammography screening was studied by the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER); it showed that since the use of screening mammography has become widespread, the proportion of patients who have locally advanced disease at diagnosis has decreased. Data which encompasses approximately 14% of the U.S. population indicate that 7% of patients have stage III disease at diagnosis. In populations that receive regular screening mammography, the percentage of patients with locally advanced disease is less than 5%. However, since only 50%–60% of women of the study data have had a recent mammogram, the national rates are higher. According to the SEER data, the 3- and 5-year relative survival rates for women with stage III breast cancer are 70% and 55%, respectively[25].

1.3 Risk Factors of Breast Cancer

All the following are identified risk factors of BC

i. **Age:** One of the best-documented risk factors for breast cancer (and for many other cancers) is age. The incidence of breast cancer is extremely low before age 30 (incidence <25 cases per 100,000), after which it increases linearly until the age of 80, reaching a plateau of slightly less than 500 cases per 100, 000[26].

ii. **Reproductive Factors** Brinton et al study in 1988 examined the relationship between reproductive factors and the risk of breast cancer in a series of studies. The results indicated that women who began menstruating before the age of 12 had a relative risk for invasive breast cancer of 1.3 compared to those who began after the age of 15. At the other end of the reproductive period, those who did not reach menopause until age 55 or after (late menopause) showed a relative risk of 1.22 compared with those who experienced menopause before the age of 45 (early menopause) [27]. This is somewhat lower than the relative risk of 1.5 reported in an earlier study by Trichopoulos et al [28].

iii. Brinton et al epidemiological study in 1983 demonstrated that the risk of breast cancer increased if a woman was nulliparous or experienced her first live birth at or after the age of 30. Compared to a woman with a first live birth at an age less than 20, the relative risk for the nulliparous woman was 1.67, and the risk for the woman giving birth at or after the age of 30 was 2.2 [29]. This is consistent with the later work of White, who estimated a relative risk of 1.9 for both nulliparous women and for those giving birth at or after age 30[30].

iv. **Family History:** Many studies have attempted to define levels of risk associated with varying degrees of positive family history. The degree of risk was a function of the type of relative affected (first or second degree), the age at which the relative developed cancer, and the number of relatives affected. Compared to individuals with no family history of breast cancer, they estimated a relative risk of 1.8 associated with a first-degree relative who developed breast cancer at 50 years of age or older compared with a relative risk of 3.3 for a first-degree relative who developed breast cancer at an age less than 50 years[31].

v. The BRCA1 and BRCA2 genes are associated with an inherited susceptibility to breast and ovarian cancers[32]. Initial studies indicated that the increased risk for carriers of BRCA mutations was very high, with an expected lifetime incidence of cancer approaching 90% by the age of 70[33].

vi. **Hormone Replacement Therapy:** In the United States in 1995, nearly 40% of postmenopausal women used hormone replacement therapy (HRT) for the control of menopausal symptoms and the prevention of osteoporosis[34].

vii. Ross K. et al found that for every five years a woman uses estrogen, the risk of breast cancer increases six percent. But for every five years a woman takes both estrogen and progestin, called combined therapy-today's standard hormone replacement therapy to ease the symptoms of menopause, the risk of breast cancer rises 24 percent. The average breast cancer risk with estrogen–progestin use was 1.24 (95% CI = 1.03–1.50) in four randomized trial. Estrogen–progestin users are significantly more likely to be estrogen receptor (ER) positive[35].

viii. Shelley R. et al concluded that hormone therapy in younger postmenopausal women increases the risk of breast cancer and pulmonary embolism and reduces the risk of cardiovascular events, colon cancer and hip fracture .The probability of a mortality benefit in this population was 1.0 which outweighed the increase in deaths from breast cancer[36].

ix. **Oral contraceptives and Breast Cancer. (OCS)**: It is uncertain whether the use of an oral contraceptive increases the risk of breast cancer later in life, when the incidence of breast cancer is increased. A population-based, case–control study found that the risk of breast cancer among former and current users of oral contraceptives of 35 to 64 years of age was not associated with a significantly increased risk of breast cancer RR= 1.0 (95 percent confidence interval, 0.8 to 1.3)[37].

x. **Pregnancy and Breast Cancer:** The only factor known to consistently decrease lifetime breast cancer risk regardless of ethnicity is early childbirth. Women who have undergone a first full-term pregnancy/birth (FFTB) before 20 years of age have a 50% reduced lifetime risk of developing breast cancer when compared with nulliparous women [38].

xi. These parity-specific effects on breast cancer risk are limited to hormone-responsive breast cancer as highlighted in a recent meta-analysis study which investigated parity and age at first full-term pregnancy/birth (FFTB) among Positive Estrogen-Progesterone Receptor, and among Negative Estrogen-Progesterone Receptor, respectively (ER+/PR+ and ER–/PR–)breast cancers factors . Each birth reduced the risk of breast cancer by 11%. The protective effect was maintained within the ER+/PR+ group[39].

xii. **Breastfeeding and Breast cancer:**Collaborative Group on Hormonal Factors in Breast Cancer and breastfeeding reanalyzed data from 47 epidemiological studies in 30 countries. They found that 16% and 14% of women in the breast cancer and control groups were nulliparous, 71% and 79% of parous women in the breast cancer and control groups, respectively, had never breastfed .The average lifetime duration of breastfeeding was 9.8 and 15.6 months for parous women with breast cancer and parous women in the control group, respectively. In all parous women, the Relative Risk (RR) of breast cancer decreased with increasing duration of breastfeeding respectively [40].

xiii. **Smoking cigarettes and tobacco smoke**: Tobacco smoking has been suggested as a cause of breast cancer. In the evaluation of IARC [41], smoking and tobacco smoke are judged to be carcinogenic to humans. Chemical carcinogens in tobacco smoke can cause mammary tumors in animals[42]. However, epidemiological studies of smoking and breast cancer have produced inconsistent results [43]. A recent pooled analysis of 53 epidemiological studies showed no increased risk of breast cancer associated with smoking [44.] However; passive smoking has been suggested to be associated breast cancer risk rather consistently [45.] Thus, the risk of active smoking may be canceled out by the passive smoking risk in the control group. Some studies suggested that longer duration or high intensity of smoking may be associated with an increased risk of breast cancer [46.]

xiv. **Radiation Exposure** Therapeutic radiation exposure to monitor or treat disease is now the most significant cause of radiation-induced carcinogenesis. Studies by Boice et al. involving tuberculosis patients

have documented that multiple fluoroscopies are a significant risk factor for breast cancer the relative risk for 1 Gy (SI unit gray) of radiation exposure at a latency period of 10 years was estimated to be 1.61[47].

xv. **Physical activity and Obesity** The International Agency for Research on Cancer estimates that 25% of breast cancer cases worldwide are due to overweight/obesity and a sedentary lifestyle. The preponderance of epidemiologic studies indicates that women who engage in 3–4 hours per week of moderate to vigorous levels of exercise have a 30%-40% lower risk for breast cancer than sedentary women. Women who are overweight or obese have a 50%-250% greater risk for postmenopausal breast cancer [48].

1.4 Breast Cancer Treatment

The updated version of the National Comprehensive Cancer Network (NCCN) treatment guidelines now place a greater emphasis on adjuvant, or additional, therapies, such as chemotherapy or radiation, in conjunction with surgery, for patients with early-stage breast cancer. In particular, the NCCN recommends that clinicians consider factors such as whether breast cancer has spread to the nearby lymph nodes or whether it is "estrogen-receptor positive" or "estrogen-receptor negative." Estrogen-receptor positive cancers are treated with tamoxifen. Another factor the NCCN guidelines recommend that clinicians consider when weighing treatment options is Human Epidermal Growth factor Receptor 2 (HER2) status. Women with HER2 over-expression may not be as responsive to standard breast cancer treatments, including certain regimens of chemotherapy. Hercipten is a Promising treatmen for HER2 gene 7over expression. Taxol is a recent drug that is one of NCCN's recommendations [49].

1.5 Breast Cancer Prevention

Cummings S. et al reviewed prospective studies of the effects of exercise, weight management, healthy diet, moderate alcohol consumption, and fruit and vegetable intake on breast cancer risk, and used random effects models for a meta-analysis of tamoxifen and raloxifene for primary prevention of breast cancer. All studies reviewed were published before June 2008, and most studies found that exercise, weight reduction, low-fat diet, and reduced alcohol intake were associated with a decreased risk of breast cancer. Tamoxifen and raloxifene reduced the risk of estrogen receptor-positive invasive breast cancer and invasive breast cancer overall The American Society of Clinical Oncology Breast Cancer Technology Assessment Working Group concluded that tamoxifen could be offered to women with a 5-year breast cancer risk of 1.66% or more in the absence of contraindications .Thus, very few high-risk women (fewer than 1 in 10) have discussed their breast cancer risk with a physician[50].

1.6 Objectives

1.6.1 Main Objective

This study will focus on different patterns of use of mammography test for women in Nablus district; it will focus mainly on factors affecting these patterns like; age, marital status, occupation, contraceptive use, education, smoking, breastfeeding, menopause, Parity, and residence.

1.6.2 Secondary objective

To calculate the percentage of Breast Cancer detected through MT for all patients undergone this test for the year 2007-2008, in Nablus district.

i- To find the profile of the possible results found through MT, like normal result and malignant result.

ii- To find out the relationship between all the variables of the study with the different results of MT; like these variables are age, marital status, residence, education, parity,ect.

iii- To further investigate undocumented variables for all patterns who had positive mammography test results.

1.7 Significance of the study

All previous studies mentioned in this chapter showed the importance of early detection of Breast cancer via MT. All the studies agreed that MT is a precious tool for the decrease of mortality rate of breast cancer among women. To increase access to MT; obstacles like cost, health believes, health educations, socioulture norms should be all appreciated. No such study has been done for Arab Palestinian women .This study aims to estimate BC detected through MT in Nablus area; also it reflects different patterns of use of MT among Palestinian community women, and consequently recommendations to improve the access to MT in Nablus District.

Chapter Two

Literature Review

Chapter Two
Literature Review

2.1 International Studies and Statistics

In this chapter a literature review of previous studies about pattern of views in terms of international studies and statistics will be covered. World wide from east to west are reviewed. Regional (Arab countries studies) and finally National Palestinian studies are reviewed**.**

2.1.1. Worldwide statistics of BC

According to the American Cancer Society, about 1.3 million women will be diagnosed with breast cancer annually worldwide about 465,000 will die from the disease. , in general, breast cancer rates have risen about 30% in the past 25 years in western countries, due in part to increased screening which detects the cancer in earlier stages[51].

The incidence of breast cancer increased by approximately 4% during the 1980s but leveled off to 100.6 cases per 100,000 women in the 1990s. BC Accounts for a tenth of all new cancers and 23% of all female cancer cases. Breast cancer incidence rates vary considerably, with the highest rates in the developed world and the lowest rates in Africa and Asia[52] as showed in table (2) below. Although breast cancer rates are rising in many western countries, deaths from the disease have decreased in some countries as a result of improved screening and treatment. Mortality rates from breast cancer have declined specifically, between 1990 and 2002[53].

Table (2): Cancer Incidence, Mortality and Prevalence Worldwide (2004).

Breast Cancer Worldwide		
Breast (All ages)	**Incidence**	**Deaths**
China	18.7	5.5
Zimbabwe	19	14.1
India	19.1	10.4
Japan	32.7	8.3
Brazil	46	14.1
Singapore	48.7	15.8
Italy	74.4	18.9
Switzerland	81.7	19.8
Australia	83.2	18.4
Canada	84.3	21.1
Netherlands	86.7	27.5
UK	87.2	24.3
Sweden	87.8	17.3
Denmark	88.7	27.8
France	91.9	21.5
United States	101.1	19

Note: *numbers are per 100,000.Source: J. Ferlay, F. Bray, P. Pisani and D.M. Parkin. GLOBOCAN 2002. Cancer Incidence, Mortality and Prevalence Worldwide. IARC CancerBase No. 5, version 2.0. IARCPress, Lyon, 2004.*

2.1. 2 Statistics in the United States of America (U.S.A)

Approximately three million women in the U.S. are living with breast cancer and about 2.3 million have been diagnosed with the disease. In 2009, it is estimated that 254,650 new cases of breast cancer will be diagnosed among women in the U.S.A, 92,370 invasive breast cancers and 62,280 cases of in situ breast cancer (of which 85% will be ductal carcinoma in situ (DCIS)[54].\

2.1.2.1 Incidence of breast cancer in the U.S.A

Female breast cancer accounts for almost one-third of new cancer cases in the U.S. annually. The age-adjusted incidence rate of breast cancer

in the U.S. from 1996-2000 was 131.7 per 100,000 female population. The age-adjusted incidence rate was 123.8 per 100,000 women per year. These rates are based on cases diagnosed in 2002-2006 from 17 Surveillance, Epidemiology, and End Results (SEER) geographic areas per 100.000 women per year[55] as showed in table (3).

Table (3): Age-adjusted incidence rate per 100,000 women per year. These rates are based on cases diagnosed in 2003-2007 from 17 SEER geographic areas.

Incidence Rates by Race	
Race/Ethnicity	**Female**
All Races	122.9 per 100,000 women
White	126.5 per 100,000 women
Black	118.3 per 100,000 women
Asian/Pacific Islander	90.0 per 100,000 women
American Indian/Alaska Native [a]	76.4 per 100,000 women
Hispanic [b]	86.0 per 100,000 women

American Cancer Society estimates there will be 217,440 new cases of breast cancer in the U.S. in 2004, with over 99% of these cases affecting females[51].

2.1.2.2 Prevalence of BC in the U.S.A.

On January 1, 2006, in the United States there were approximately 2,533,193 women alive who had a history of cancer of the breast. This includes any person alive on January 1, 2006 who had been diagnosed with cancer of the breast at any point prior to January 1, 2006 and includes persons with active disease and those who are cured of their disease[51].

2.1.2.3 Mortality Rates of BC in the U.S.A

Female breast cancer accounts for over 14 percent of cancer-related deaths in the U.S. annually. In 2002 age-adjusted mortality rate for breast cancer in the U.S. was 25.6 per 100,000 populations among females[52].

The age-adjusted death rate was 24.5 per 100,000 women per year, as appeared in table (4). These rates are based on patients who died in 2002-2006 in the US. Although breast cancer rates are raising in many western countries; deaths from the disease have decreased in some countries as a result of improved screening and treatment. Mortality rates from breast cancer have declined specifically, between 1990 and 2002[51]

Table (4): Death Rates by Race (2004)

Death Rates by Race	
Race/Ethnicity	**Female**
All Races	25.5 per 100,000 women
White	25.0 per 100,000 women
Black	33.8 per 100,000 women
Asian/Pacific Islander	12.6 per 100,000 women
American Indian/Alaska Native	16.1 per 100,000 women
Hispanic	16.1 per 100,000 women

Source: National Cancer Institute, SEER Cancer Statistics Review, 2007. Statistics based on data, 2000-2004. See www.cancer.gov for more information

2.1.3 BC Statistics in Europe:

Around 430,000 new cases of breast cancer occur each year in Europe. The lowest European rates are in Romania and Latvia and the highest are in northern and western Europe[56]**.**

In 2004 there were an estimated 2,886,800 incident cases of cancer diagnosed and 1, 711, 000 cancer deaths[57]**.**

2.1.3.1 Incidence Rate and Mortality Rate of BC in England

In England the National Health System (NHS) breast screening programme diagnoses around 10,000 cases of breast cancer each year. In 2005 more than 45,500 women were diagnosed with breast cancer, In Britain the age-standardized incidence of breast cancer per 100,000 women increased from 74 in 1975 to 120 in 2004. Over the twenty five year period of 1980-2004, the incidence rate increased by 53%. In 2005, there were 123 cases per 100,000 women, similar to the rate in 2004. The age-standardized death rate was 28 deaths per 100,000 women in 2005[58.]

2.1.3.2 Incidence of BC in other European Countries

In other European countries the Age- standardized cancer incidence and mortality rates per 100.000 in year 2000 estimates are: UK 99.1, Finland 103.2, Sweden 108, France 108.3, Denmark 114.4, Netherland121.2, Spain 62.7, and Latvia 54.9 etc[56].

2.1.3.3 Mortality Rate of BC in Europe

According to European Journal of Cancer Prevention, many European countries, including the Scandinavian countries, Germany, Poland, the Czech Republic, Austria, Switzerland, Italy and Spain have shown an appreciable reduction in mortality rates (between 8% and 19% in the last 5 years), which has been attributed to earlier detection and improved treatment . Reductions in mortality rates have been lower in Greece[59].Moe details are in Figure (2) show age standardized (European)

Incidence and mortality rates, female breast cancer in EU-27 countries in the year 2008.

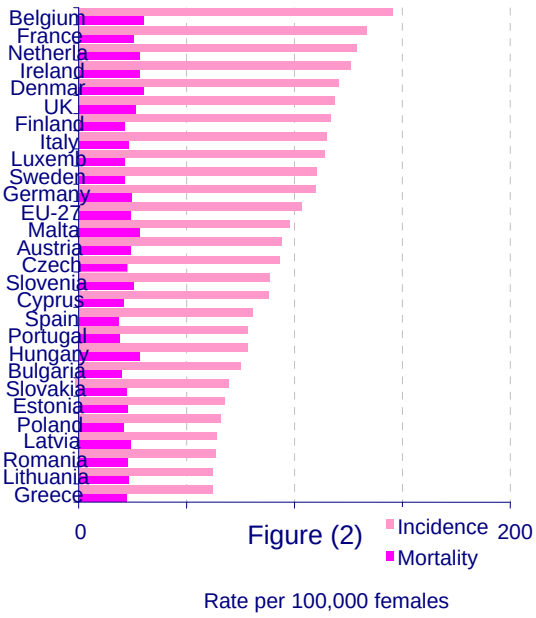

Figure (2)

2.1.3.4 Pattern of MT use in Western Countries.

In a study to ascertain whether recent use of mammography has dropped nationally in the U.S.A, Breen N et al used the 2000 and 2005 National Health Interview Survey (NHIS) to characterize trends and current patterns in mammography use. They found that the use of mammography may be falling and the difference was significant. Changes in screening rates have an immediate impact on the reported incidence of breast cancer and, ultimately, mortality[60].

Another survey was done in 1997 aiming to determine mammography rate and screening practice patterns throughout the state of Arkansas in the USA .The study revealed that a small fraction of women ages 40 years and older obtained annual mammograms in 1997, thus highlighting the need for intensifying efforts to increase the utilization of this lifesaving test[61].

In Spain a cross sectional study revealed the dissemination of periodic mammography and repeat mammography behavior in Catalonia (Spain), from 1975 to 2006. A higher proportion of women of all age groups have annual mammograms rather than biennial or irregular ones. The Montserrat et al limited their analysis to a description of mammography usage patterns (non-user, annual, biennial, irregular) based on health surveys from 1994, 2002, and 2006 concluded that in Catalonia, periodic screening is associated with higher socioeconomic status and non-participation in the screening program were in higher level of education, higher occupational skills or working at home, self- or gynecological examination of breasts, and having received hormone replacement therapy[62].

In Sweden, Lagerlund M et al examined attitudes, beliefs, and knowledge in relation to nonattendance in a population-based mammography screening program, in order to find out if the effectiveness of mammography screening could be improved by understanding better factors that influence nonattendance. Their findings suggest that nonattendance was most common among women within the highest quartile of perceived emotional barriers; other factors associated with nonattendance were less knowledge about mammography and breast cancer, lack of advice from a health professional to participate, and very poor trust in health care[63]

2.2 Regional Studies and Statistics.

2.2.1 Incidence of Breast cancer in the Middle East

According to the Middle East Cancer Consortium (MECC), Breast cancer was the leading tumor in females in all cancer registries, accounting

for as high as 37.6% of all reported tumors in Egyptian females to as low as 27.7% of all reported tumors in Israeli Arab females. Age standardized incidence rates (ASRs) per 100,000 females were highest among Israeli Jews (93.1), similar to the rates reported in US SEER females (97.2). These rates were significantly higher than those reported in Cypriot (57.7), Egyptian (49.6), Jordanian (38.0), and Israeli Arab (36.7) females. The high incidence rates described in Israeli Jews were similar to those described in North American and West European countries, while the lower rates is among the neighboring Arab[64].

2.2.2 Pattern of MT use studies in the Region

A study of Muslim Arab women in Israel was performed in Hadassah Medical Center in 2001 by female Arab interviewers aimed to study factors related to screening mammography behavior among Arab women by employing components from the Health Belief Model.

Mammography screening rates by Muslim Arab women in Israel are lower compared with the general population. The women had limited knowledge about breast cancer and mammography, the rate was alarming (only 20%) ,since access to screening services is universal and free for this age group also the findings indicated that professional recommendation and beliefs sets are essential factors for developing effective mammography screening interventions in this unique population [65].

2.2.3 Studies from the Middle East

More women are becoming aware of the dangers of breast cancer in the UAE, according to figures released by a specialist cancer detection and treatment centre. Over 1,100 women have been screened for breast cancer

in mobile units so far in AL AIN this year (2009). In 2008, the nine month figure was less than 2000. Dr Ghowaya Mohammed Al Neyadi, Family and Community Medicine Specialist and Coordinator for the mobile unit at Taw'am Hospital said statistics indicated a momentous step forward on the road to breast cancer education and awareness[66].

2.3 National studies and Statistics

2.3.1 Incidence of Breast cancer in Palestine

According to reports in 2005, the number of new cancer cases in the occupied Palestinian territory was 1623 and the crude incidence was 49·9 per 100 000 population in 2003 (figure 3). In 2005, combined cancer mortality rate was 27·8 per 100 000, which is not much different from that in 2000[67]. Palestinian National Authority-MOH-Gaza cancer registry center-reported cases "2003

Age adjusted incidence rate in Female cancers

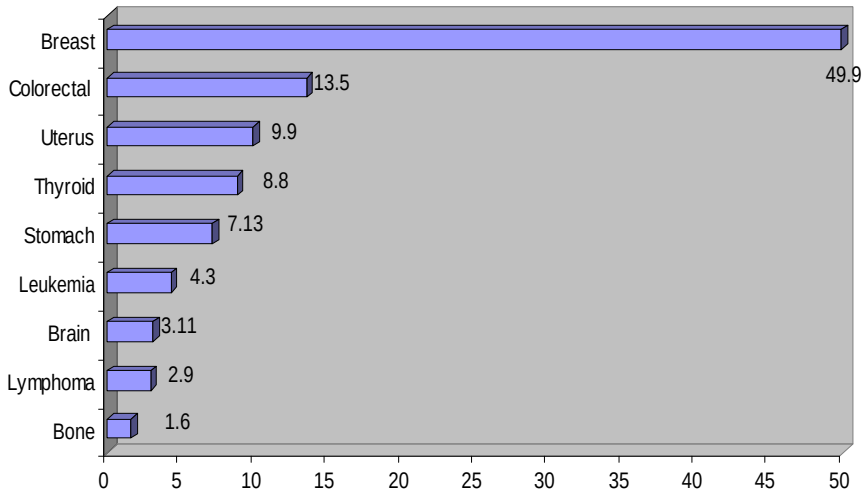

Figure (3)

Breast cancer is the most common type of cancer in Palestinian women. The proportion is similar to that in neighboring countries except Lebanon, where breast cancer accounts for nearly half of all cancers in women[68]. This disease causes the highest cancer-related mortality in Palestinian women, 21·1% of all deaths from cancer, and 5·2 deaths per 100 000 women. In theory some features of Palestinian society, including a high total fertility rate (4·6), high rate of breast feeding (95·6%) with a mean duration of 10·9 months, young mean age at first birth (20 years), and low alcohol consumption, should be protective against breast cancer[69].

Data from the Palestinian Cancer Registry (PCR) in Gaza suggest that BC is diagnosed at an advanced stage of the disease.42.2% of reported cases had regional lymph- node involvement (stage III and 17.8% had distant metastases (stage IV) [70].

Chapter Three

Methodology

Chapter Three
Methodology

In this Chapter I will discus the type of this study and a detailed description of study sample, tools, variables and hypothesis, ethical issue and data analysis**.**

3.1 Type of study

This is a retrospective, descriptive, analytical study. All files of all female patients (from Nablus district) presented to the Palestinian Family Planning& Protection association (PFPPA),Pathology & Mammography Center , were retrieved between the first of January 2007 to the end of December 2007 .

3.2 Location

Palestine; Nablus district: Nablus city, urban areas of the city, and the three camps of City (Balata, Asker and Al-Ain refugee camps) and all surrounding villages.

3.3 Setting

Palestinian Family Planning& Protection association (PFPPA), Nablus: Pathology & Mammography Center. This charity association was established at Nablus in 1965 for raising and promoting the health and social status of women health in Nablus and its urban areas. It offers services for the northern part of the West Bank .It is considered to be the first place in Palestine to provide all the diagnostic means necessary for early detection of breast cancer using a mammography test, fine needle aspiration, and histopathological test for a suspicious MT result. One of the most important tasks of this society is to offer other services through

mobile clinic that reaches women in the surrounding villages. This clinic helped greatly in promoting health education, and was a pioneer in providing early detection of both cervical cancer and BC [71].

3.4 Study design and population

3.4.1 Data collection

3.4.2 Source of the study

This research took place in only one setting (PFPPA). It is the main center in Nablus district with only few other private clinics providing mammography with low patient flow.

An Official permission from the society administration to have an access to the patient's medical files was obtained. It is found that each year nearly 800 women undergo mammography test.

For the year 2007; 810 women attended this center for a mammography test, 556 were from Nablus district. A clinical file is created for each patient who attends to the center for the first time; the medical secretary registers all the needed information before and after the test.

Files contain important variables to be analyzed; like age, social situation, parity, lactation, demography, and education. Some other factors were not documented, like contraceptives use, menopause, smoking and occupation.

3.4.3 Study Sample

1- All women attended PFPPA in the year 2007 for MT were included in the study provided that they met the inclusion criteria (age 15 years and

above, from Nablus district only). The total number of files that met the criteria was 556 files.

Information from these files were used to study pattern and factors affecting MT use.

2- All women who had cancer after doing MT in years 2007 and 2008 and agreed to be interviewed were included for the study of risk factors for BC (37 cases of BC).

3.4.4 Sampling method

1- Information about all 556 women from Nablus district attended the PFPPA during 2007 and had a MT for any reason were available in their clinical files. A total 556 files were selected and seemed to be suitable to achieve the purpose of the study (this sample number couldn't be obtained elsewhere as the PFPPA is the largest center in the region). All 556 files were included in the study to give a sufficient sample number.

2- Sample for BC risk factors.

In order to complete information about the profile of BC risk factors, 37 women agreed to be interviewed, as only 37 women out of 50 cases with BC had left their telephone number in their files. The main questionnaire was used to complete the missed information.

3.5 Study Tools

A questionnaire as one component of the study was developed by the researcher and it is composed of three parts:

* The first part contains the different patterns of use of mammography test in this center and the percentage of Breast Cancer detected through this test for the year 2007 in Nablus district.

* The second part describes the results of all the patients who undergo the MT, whether normal or malignant.

The third part contains information about all positive MT for BC who agreed to be interviewed by telephone. The researcher used the main questionnaire to complete all the other missing information not noted before by the center, like the use of contraceptives, smoking, the duration of lactation, menopause and age at menopause.

37 out of nearly 50 positive breast cancer patients for both 2007-2008 combined were included in this part to increase the statistical significance.

3.6 Validation of the questionnaire

The questionnaire developed by the researcher, was analyzed by a statistician. Since it is a survey for secondary data (from files) it is valid without doing pilot test because all questions are not ***open*** ones.

3.7 Variables of the tool

For the first part of the study ten variables were defined by the researcher to identify the different patterns of use of mammography test , Since our study depends on secondary data (obtained from files) only seven of these variables were included; age, social status, residence, parity, breast feeding., education and self referral. Other factors like contraceptive use,

smoking, the duration of breastfeeding, and menopause were not available in the center's files.

In the second part of the study, mammography test results were included whether normal, benign or malignant. Results were categorized into two main categories:

1- Malignant: Which included all cases who had +ve MT and proved to be malignant by pathology sample.

2- Non malignant: Which included all cases that had normal or benign MT results.

The third part of the study correlated the positive results of breast cancer (malignant result) with all sociodemographic factors including those not documented in the records which were obtained by telephone interview (contraceptives, smoking, breastfeeding, menopause and occupation).

To determine the different patterns of self referral all patients with self referral were correlated with the main six variables of the first part of the study.

3.8 Study Hypotheses: The study question was built on the following hypotheses

1- There is no significant relationship at the significant level p= 0.05 between the sociodemographic variables (age, marital status, residence, breastfeeding, parity, education,) and malignant results of MT.

2- There is no significant relationship at the significant level p= 0.05 between type of referal and sociodemographic variables (age, marital

status, residence, breastfeeding, parity, education,) and malignant result of MT.

3- There is no significant differences due to OCP use at $\alpha = 0.05$ and BC risk.

4- There is no significant differences due to smoking at $\alpha = 0.05$ and BC risk.

5- There is no significant differences due to breastfeeding at $\alpha = 0.05$ and BC risk.

6- There is no significant differences due to menopause at $\alpha = 0.05$ and BC risk.

3.9 Inclusion criteria: The following files for women were included in the study

All women who attended the center for MT and

1- Were > 15 years of age.

2- Women who came for a MT for any reason; like presence of any suspected mass, breast inflammation, clinically diagnosed by a physician with breast cancer, or self referred for check up

3- Women who came from Nablus district only.

3.10 Exclusion Criteria

The following files were excluded

1- All records for women living outside study area (Nablus district) were excluded.

2- All incomplete records were excluded.

3.11 Study limitations:

1- Small number of positive sample.

2- Incomplete information regarding all risk factors in the center records

3.12 Outcomes of the study

1- To measure the percentage of Breast cancer detected through MT in Nablus district.

2- Understand the different patterns of use of MT in Nablus District.

3- Understand factors affecting pattern of use of MT

4- Find the relationship between the results of BC detected through MT (normal, malignant) and the sociodemographic variables defined by the researcher.

5- Correlate all positive results with BC of the year 2007 and 2008 with all the variables obtained by a telephone interview.

6- Find if there is a statistical significant difference due to breastfeeding, smoking, OCPs use, menopause and BC

3.13 Time frame

The time for collecting and analyzing data from the files was around 8 months, (1-1-2008) to (01-08-2008).

Time needed to write the thesis took around 12 months (01- 2009) to (12-2009)

3.14 Ethical Issue

A signed consent from the PFPPA administration to access data from files was obtained.

For the telephone interview of patients who had positive results, both permission from the medical director of PFPPA and a patient interviewed was obtained.

PFPPA has the right to be aware of the procedure of the study and all the results and recommendations given at the end of the study.

3.15 Data Analysis

The collected data were analyzed using Science version 10), by applying the following Statistical tests.

- Frequencies and percentages
- Pearson chi square to examine significant relationship between the different variables of the study and the result of the mammography test ; the significance of the relationship is determined by P value when it is less than 0.05
- Proportion Z test due to differences for example in users and non users of OCPs determined by p value when it is less than 0.05 and at $\alpha = 0.05$.

Chapter Four

Results

Chapter Four

Results

4.1. Profile of MT in the PFPPA from 2007-2009

Table (5): Profile of MT results in the PFPPA from 2007-2009

Year	Total No. of MT	Total no. of MT in Nablus district	No. of Malignant BC diagnosed	No of Malignant BC in Nablus district	No of non malignant in Nablus district
2007	610	556	50	37	519
2008	687	592	28	24	568

Table 6 shows that total number of women undergone MT in years 2007 and 2008 were 610 and 687 respectively. Majority of women undergoing MT in PFPPA were from Nablus (556 in year 2007 and 592 in year 2008). Of those who had MT in Nablus 37 women in 2007 and 24 in 2008 had malignant BC.

4.2 Demographic Profile of study sample (n=556)

Table (6): Demographic Profile of study sample (n=556)

Variables	No. of subjects	%
Age		
(15-25)	46	8.30
(26-36)	146	26.3
(37-47)	219	39.4
48 and above	145	26.0
Marital Status		
Single	65	11.7
Widow	9	1.60
Married	481	86.5
Divorced	1	0.20
Residence		
Village	233	41.9
City	287	51.6
Camp	36	6.50
Parity		
(0-2)	164	29.5
(3-5)	243	43.7
more 5	149	26.8
Education		
Illiterate	45	8.0
Basic	171	30.8
Secondary	176	31.7
Higher education	164	29.5
Source of referral		
Self referral	184	28.6
Hospital / GO'S	348	67.1
Others	24	4.30
Breast Feeding		
Yes	411	73.9
No	145	26.1

Table 7 shows the demographic profile of study sample. Age interval (37-47) with a mean of 42 years showed the highest frequency of all (40%) age groups, followed by age interval (26-36) with a mean of 31 years and a

frequency of 26.3 %. Figure (4) shows percentage of age of women who underwent a MT (2007).

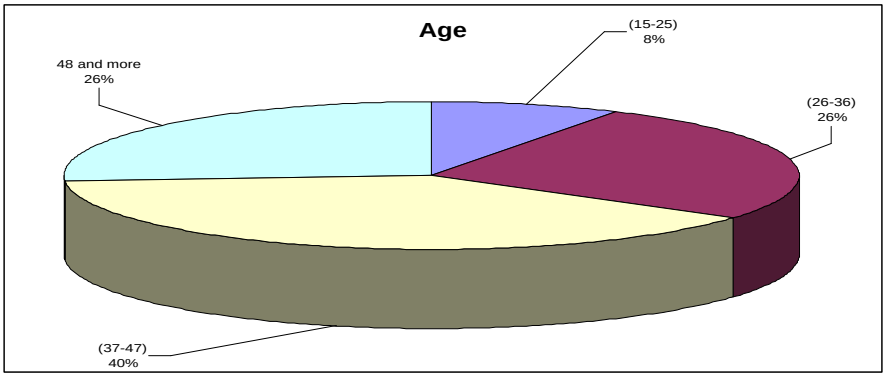

Figure (4)

Marital Status: Married women were with the highest frequency 86.5 %. Figure (5) shows percentage of social status of women who underwent MT (2007)

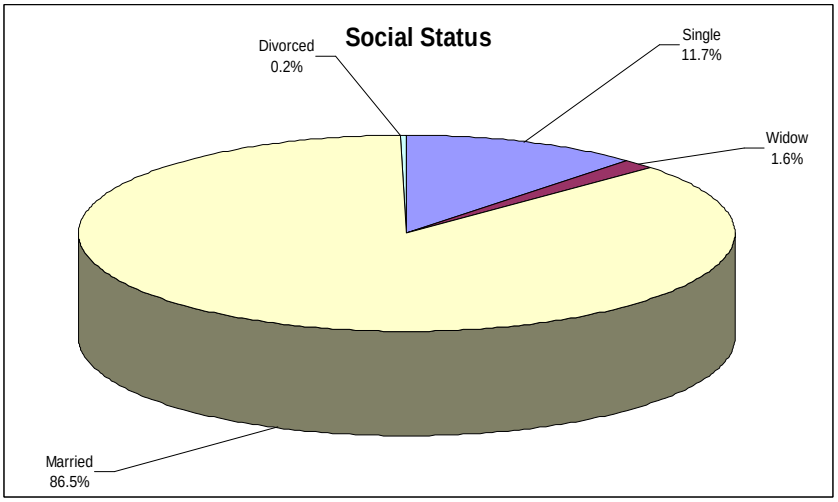

Figure (5)

Residence: City was the most common residence with a frequency of 51.6% followed by the village 41.9%. Figure (5) shows percentage of residence of women who underwent MT (2007)

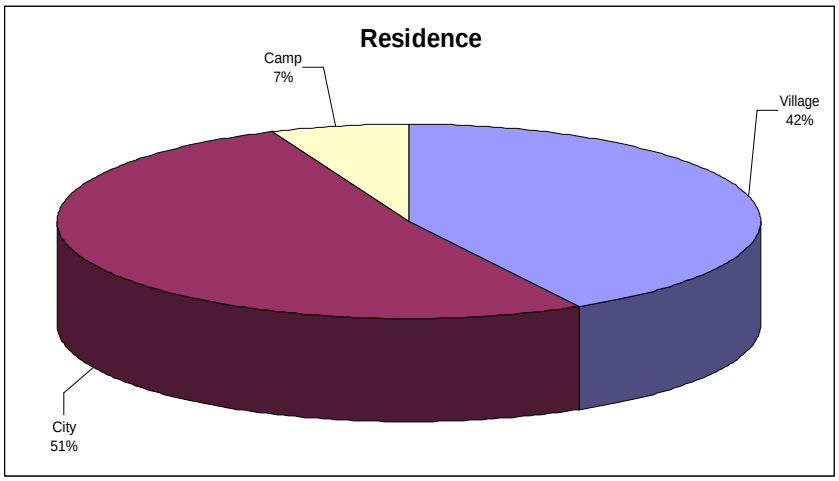

Figure (6)

Parity: Interval group of (3-5) with a mean of 4 children was with the highest frequency 43.7%.Figure (7) shows percentage of parity of women who underwent MT (2007).

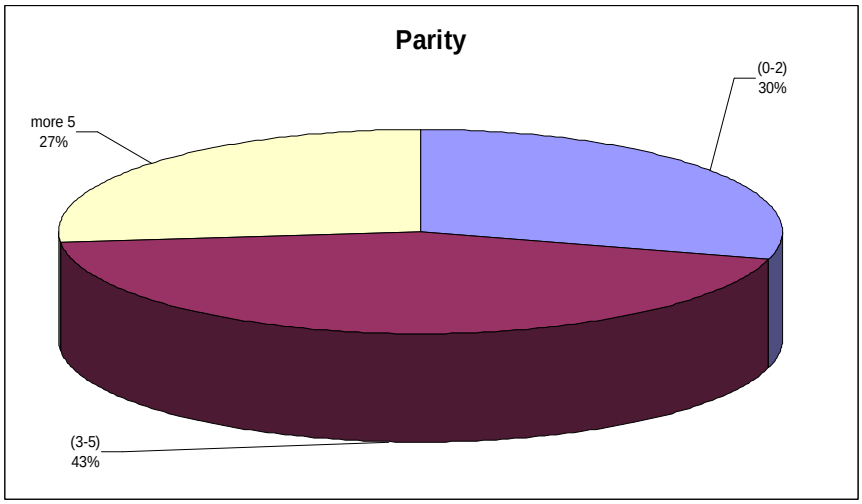

Figure (7)

Education: Most of women had high education. (61.2%) Figure (8) shows percentage of educated women who underwent MT (2007).

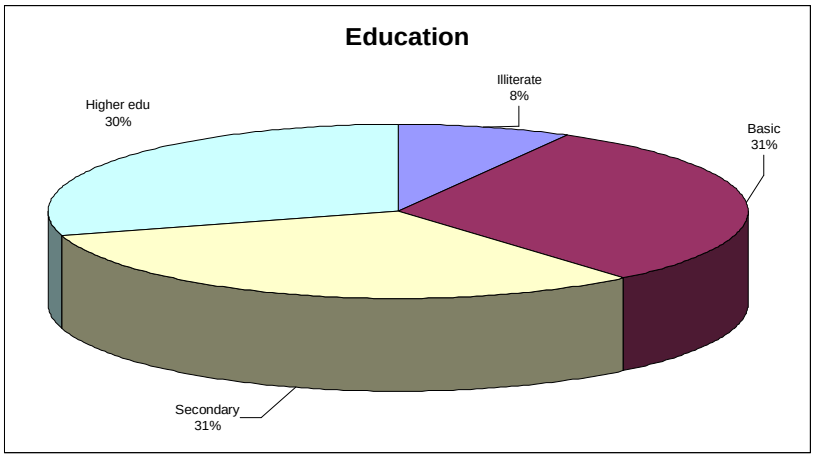

Figure (8)

Self Referral: Most of the patients were referred from private hospitals 29.5%28.6% of women were self referral.

Breastfeeding: Most women breastfeed 73.9%,

4.3 Relationship between mammography test and different demographic variables.

Table (7): Relationship between mammography test and different demographic variables n= (556)

Variables	Mammography Result				Correlation	
	Non-Malignant (-)		Malignant (+)		Chi-Square Value	P-Value
	No.	%	No.	%		
Age					15.949	0.0001*
15-25	46	100	0	0		
26-36	144	98.6	2	1.40		
(37-47)	211	96.3	8	3.70		
48 and more	131	90.3	14	90.7		
Marital Status					2.511	0.473
Single	60	92.3	5	7.70		
Widow	9	100	0	0		
Married	462	96.0	19	4.00		
Divorced	1	100	0	0		
Residence					1.720	0.423
Village	222	95.3	11	4.70		
City	277	96.5	10	4.50		
Camp	33	91.7	3	8.30		
Parity					7.751	0.021*
(0-2)	157	95.7	7	4.30		
(3-5)	238	97.9	5	2.10		
more 5	137	91.9	12	8.10		
Breast Feeding					0.015	0.902
Yes	393	95.6	18	4.40		
No	139	95.8	6	4.20		
Education					7.072	0.070
Illiterate	40	88.9	5	11.1		
Basic	162	94.7	9	5.30		
Secondary	169	96.0	7	4.00		
Higher education	161	98.2	3	1.80		
Source of referral					5.002	0.082
Self referral	184	93.1	11	6.70		
Hospital / Ngo’s	348	96.5	13	3.50		
Others	24	100	0	0		

* Statically significant p <0.05

Note: Mammography test results were included in two categories:

1- Malignant :(all positive results confirmed by pathology test)

2- All other non malignant tests (Normal and Benign results)

Chi-square test was used to study the relationship between all variables and MT results whether malignant or non malignant.

A significant statistical relationship was found for age and parity, however there was no significante statistical relationship between the other variables (marital status, residence, education, breastfeeding and source of referral) and MT results

4.4. Demographic profile of Self-Referral variables (n=184)

Table (8): Demographic profile of Self-Referral variables (n=184)

Variables	No. of subjects	%
Age		
(15-25)	13	7.10
(26-36)	44	23.9
(37-47)	79	42.9
48 and more	48	26.1
Social Status		
Single	21	11.4
Widow	6	3.30
Married	156	84.8
Divorced	1	0.5
Place		
Village	64	34.8
City	111	60.3
Camp	9	4.90
Number of children		
(0-2)	50	27.2
(3-5)	83	45.1
more 5	51	27.7
Education		
Illiterate	12	6.50
Basic	51	27.7
Secondary	59	32.1
education	62	33.7
Breast Feeding		
Yes	135	73.4
No	49	26.6

Table 4 shows the sociodemographic profile of those who underwent a MT without medical request i.e. (self referral). n= 184. In comparison to the study sample n= 556, there was no big difference. Age of 42 years was most frequent 42.9%, most were married, reside in the city, breastfed, highly educated and each with parity of 3-5 children.

4.5. Relationship between Mammography test and different demographic variables for Self referral group.

Table (9): Relationship between Mammography test and different demographic variables for Self referral group

Variables	Mammography Result				Correlation	
	Non-Malignant (-)		Malignant (+)		Chi-Square Value	P-Value
	No.	%	No.	%		
Age					4.744	0.190
15-25	13	100.0	0	0.00		
26-36	44	100.0	0	0.00		
(37-47)	76	97.4	2	2.60		
48 and more	46	93.9	3	6.10		
Marital Status					3.060	0.382
Single	19	90.5	2	9.50		
Widow	6	100.0	0	0.00		
Married	153	98.1	3	1.90		
Divorced	1	100.0	0	0.00		
Residence					0.544	0.762
Village	61	96.8	2	3.20		
City	109	97.3	3	2.70		
Camp	9	100.0	0	0.00		
parity					1.423	0.491
(0-2)	49	96.1	2	3.90		
(3-5)	82	98.8	1	1.20		
more 5	48	96.0	2	4.00		
Breast Feeding					0.041	0.840
Yes	133	97.8	3	2.20		
No	46	95.8	2	4.20		
Education					6.269	0.099
Illiterate	11	91.7	1	8.30		
Basic	47	94.0	3	6.00		
Secondary	56	98.2	1	1.80		
Higher education	65	100.0	0	0.00		

* Statically significant at ($\alpha = 0.05$)

Note: Mammography test results were included in two categories:

1- Malignant :(all positive results confirmed by pathology test)

2- All other non malignant tests (Normal and Benign results)

There was no statistically significant association between all sociodemographic variables of the self referral group and malignant BC result at $\alpha = 0.05$.

4.6. Demographic Profile of all malignant BC for the years 2007-2008

All histopathologically proven malignant BC cases (n=37) for 2007 and 2008 from Nablus district were pooled and statistically analyzed with the following tables describing these results.

Table (10): Demographic profile of all diagnosed malignant BC for 2007 -2008 (n=37)

Variables	No. of subjects	%
Age		
(26-36)	4	10.8
(37-47)	10	27.0
48 and above	23	62.2
Social Status		
Single	5	13.5
Widow	4	10.8
Married	26	70.3
Divorced	2	5.40
Residence		
Village	19	51.4
City	14	37.8
Camp	4	10.8
Parity		
(0-2)	10	27.0
(3-5)	16	43.2
More 5	11	29.7
Education		
Illiterate and basic	11	29.7
Secondary and above	26	70.3
Occupation		
House wife	34	91.9
employed	3	8.10

Among the 37 malignant cases, 62.2% were at the age of 48 and above, 70.3% were married, and 51.4% were from the village, 37. 8% from the city and 10.8% were from the camps. Surprising is that women with good parity (3-5) interval had the highest percentage 43.2%. Majority of all women were educated but were housewives 91.9%.

4.7 Breast Cancer Risk factor Profile

4.7.1 Birth Control use, methods and duration

Table (11): Birth Control use, methods and duration among BC patterns

Variables	No. of subjects	%
Birth control use		
Yes	20	54.1
No	17	45.9
Methods of birth control		
OCP	15	40.5
IUD	5	13.5
No	17	45.9
Duration(years)		
< 2	7	18.9
2-5	10	27.0
≥ 5	3	8.10
No	17	45.9

Table 7 shows that birth control users and non users is (20 vs. 17) and the percentage of OCP users are 40.5% with ten who used OCP for 2-5 years old and 7 used OCP for less than two years old . While 13.5% of them used intra uterus devise (IUD).

4.7.2 Second Factor: Smoking; cigarettes smoking and narghile

Table (12): Smoking; cigarettes smoking and narghile

Variables	No. of subjects	%
Cigarettes smoking		
Yes	0	0.00
No	100	100
Narghile smoking		
Yes	6	16.2
No	31	83.8
Narghile smoking frequency		
Daily	1	2.70
Twice a week	4	10.8
More than twice a week	1	2.70
No	31	83.8

Table 8 shows that none of sample study who had BC smoked cigarettes, however six of all cases smoke narghil 16.2%, but the duration of smoking was infrequent; one smokes daily and one smokes more than two times a week.

4.7.3. Third Factor: Breast feeding.

Table (13): Breast feeding risk factor

Variables	No. of subjects	%
Breast feeding		
Yes	28	75.7
No	9	24.3
Duration in months		
< 6	2	5.40
6-12	14	37.8
≥ 12	12	32.4
No	9	24.3

Table 9 shows that majority of sample study breastfed 75% and those who breastfed did so for a good period of time 38% for 6-12 months, and 32% for> 12 months

4.7.4. Menopause and its age of onset.

Table (14): Menopause: Menopause and its age of onset.

Variables	No. of subjects	%
Menopause		
Yes	18	48.6
no	19	51.4
Duration age of onset		
≤ 45	9	24.3
> 45	9	24.3
No	19	51.4

Table 10 shows that nearly half of the women had their menopause 48.6%. Half of the menopause women were less than 45 years old and the other half were more than 45 years old.

4.8. Relationship of possible risk factors with BC patients

Table (15): Relationship of possible risk factors with BC patients

Variables	Result (n=37)				Z- Value	P-Value
	Yes		No			
	Freq.	%	Freq.	%		
Birth control use	20	0.54	17	0.46	0.70	0.485
Narghile smoking	6	0.16	31	0.84	5.81	0.0001*
Breast feeding	28	0.76	9	0.24	4.42	0.0001*
Menopause	18	0.49	19	0.51	0.23	0.816

- Statically significant at ($\alpha = 0.05$)

Table 11 shows the relationship of possible risk factors with BC. Proportion (z) test was applied and found statistically significant differences due to narghile smokers and non narghile smokers, and between those who breastfed and those who didn't. On the other hand no statistically significant relationship was found due to OCP use nor for having menopause.

Chapter Five

Discussion

Chapter Five
Discussion

5.1 Demographic Profile of study sample (n=556)

The analysis of study sample showed that the mean of age was 42 which could be attributed to the knowledge and awareness of BC risk factors (age) and risk of BC itself, is elevated in younger women rather than those with advanced age, although the risky age of BC is in the 50 years of old[72].

Most of women who underwent a MT were married 86.5 %, this could be attributed to the fact that married woman due to multiple childbirth and other reproductive problems become much aware of breast changes, or they utilized specialized gynecologic service more than other groups, and hence any breast abnormalities could be diagnosed if seen by their doctors.

City was with the highest percentage 51.6 % followed by the village 41.9 %, this could be interpreted with the fact that the in FPFPA center is found in the city center and hence the access to the center is easier for those who reside in Nablus.

Most of the women had an average of 4 children. According to Palestinian Central Bureau of Statistics for the year 2007, statistical results showed that the Palestinian family size has dropped from 6.1 individual to 5.5 individual per family in 2007 which means that there is a drop in reproduction rate as our sample reflected this drop[69].

The percentage of Palestinian women with higher education (Bachelor degree) is increased from 3.3% in 1997 to 6.6% in 2007, and

those who completed the secondary education were with 61.9% in 1997 to reach up to 69.1% in 2007[70] and the study sample showed that 61.2% of women who went through a MT were with higher education. This could be also interpreted positively as educated women are more aware of MT than those who are less educated.

73.4% woman breastfeed this is consistent with high rate of breast feeding in Palestinian women (95·6%) with a mean duration of 10·9 months for (2007)[69.]

Source of patient reference: Private hospitals and non governmental organizations found to be with the highest percentage 67.1%, however self referral was also high indicating the good level of awareness of Palestinian women about BC and Mammography test.

5.2 Relationship between mammography test and different demographic variables.

Data analysis revealed a statistically significant association between age and MT results (p 0.0001) at $\alpha = 0.05$

These results are compatible with other studies that looked at the relationship of BC and age. McPherson et al reported that, of every 1000 women aged 50; two will recently have had breast cancer diagnosed[72]. The incidence of BC continues to increase after the age of 50.According to Vogel et al, the risk of breast cancer increases among women older than 50 years of age especially who have benign breast disease, especially those with atypical ductal or lobular hyperplasia[73].

Our study revealed no statistically significant association between married women and MT results (p= 0.473) at α = 0.05. However a case control study among Iranian women which compared married women with never married women showed that never married women were at higher risk for breast cancer (OR 4.25, 95% confidence interval [CI] 1.71-10.5. P= 0.002

The Iranian results may be due to exposure of married women to many hormonal changes like parity, breastfeeding, and these two factors showed to be protective factors against BC[74].However our results might be explained by the fact that it is pooled from a bigger sample that was mostly comprised of married women (table 2).

Our data analysis revealed no statistical significant association between residence and malignant BC result at α = 0.05.

The CRD (Cancer Registry Data) in Aotearoa New Zealand (2007) published the result of a four-year period research, involving 11340 women. The study revealed similar result; that urban/rural residence did not have any statistically significant effect on breast cancer stage at diagnosis or survival. Consequently there is no disparity in breast cancer outcomes, suggesting that geographic location does not affect access to diagnosis, or the effectiveness of breast cancer treatment. In the same research paper Campbell et al investigated over 60,000 patients in Scotland diagnosed with one of six common cancers, and increasing distance from cancer centre was found to be associated with poorer survival[75].

Data analysis revealed also statistically significant association between parity and MT results (p 0.021) at α = 0.05. The parity group (+5)

and above showed the highest percentage 12 (8.10%). Our results were constant with almost all literatureview which showed that when the number of children increases, there is a decrease in the risk of BC.

One of the studies revealed that parity was associated with a decreased risk of breast cancer in women both with an odd ratio of (OR = 0.71) and without (OR = 0.79) fertility problems[76].

Nulliparity is related to an increased risk for breast cancer diagnosed after 40 years old. Multiple full-term pregnancies decrease the risk of breast cancers diagnosed after 40 years regardless of the age at first birth[77].

Nulliparous women were compared to parous women, the risk of BC decreased with number of live births, with the estimated risk reduction in the highest parity group (5+) [78].

Our study results (table2) revealed also that there is no statistically significante association between breastfeeding and MT result (p 0.902) at $\alpha = 0.05$. Although many studies showed a relationship between BC risk and breastfeeding, the study of the collaborative group leaded by Beral V et al in 2002 showed that relative risk of breast cancer is decreased by (RR=4.3, 95% Cl: 2.9-5.8); p<0.0001) for every 12 months of breastfeeding in addition to a decrease of (RR= 7.0, 95% CI: 5.0-9.0); p<0.0001) for each birth[79].

The same study showed that the size of the decline in the relative risk of breast cancer associated with breastfeeding did not differ significantly for women in developed and developing countries, and did not vary significantly by age, menopausal status, ethnic origin, the number of births a woman had, her age when her first child was born

Finding no relationship between breastfeeding and BC in our study could be attributed to the size sample of our study sample.

Our results (table 2) revealed that there is no statistically significante association between education and MT result (p 0.070) at $\alpha = 0.05$.

In the literature review some of the studies suggest that the educational level is associated with increased risk of breast cancer Women with more than 16 years of education had a 36% increased risk compared to the lowest educated (7-9 years) (Age adjusted RR=1.36, 95% CI: 1.10-1.68)[80] This increased risk in these women may be due to the western life style in these women associated with HRT use or dietary changes or decreased exercise, or obesity or late age at first birth or decreased breastfeeding[36] Contrary to these findings, a study in Turkish women found that decreased breast cancer risk was associated with the duration of education (> or = 13 years) (95% CI 0.62-0.81. These results may be due to some cultural differences based on the fact that educated Turkish women may be less affected by western life style compared to other women in the world or due the increased awareness for cancer screening [81].

5.3 Demographic profile of Self-Referral variables (n=184)

It is noticed that the majority of self referral women in our study were married; this is not surprising since married women usually go through hormonal changes in pregnancy and lactation that requires more attention to their body and more visits to clinical facilities with exposure to information about important tests like MT.

Relationship between Mammography test and different demographic variables for Self referral group: The explanation why no

detected relationship was found between self referral variables and MT results is that sample size is a small one.

5.4 Demographic Profile of all malignant BC for the year 2007-2008

Although the number of those who had positive MT and proved to have BC was small n (= 37), we looked at demographic profile of this small sample. Most of patients were over age 48, residing in village, parity of 3-5 children and housewives.

Because sample size is too small it cannot represent the profile of women who have breast cancer in Palestine.

5.5. Differences among users and non users of breast cancer risk factors (n=37)

Oral contraceptives

Proportion test (z test) at ($\alpha = 0.05$) revealed no differences due to users and non users of OCP (p0.485) at $\alpha = 0.05$

The relationship between OCPs and breast cancer is difficult to define reliably on the basis of studies published in the medical literature. Some studies have found an association, others have seen no link. To elucidate any increased risk of breast cancer resulting from oral contraceptive use, researchers pooled and analyzed the published results from 27 separate studies. The results of the meta-analysis indicated that, overall, there was no increased risk of breast cancer resulting from oral contraceptive use[82].other larger 52 pooled studies, summarized that there is a small increase in the risk of having breast cancer diagnosed in current users of combined OCPs [RR 1.24, (95% CI: 1.15, 1.33)], and in women

who had stopped use in the past 10 year; 5-9 years after stopping[RR 1.07, (95% CI: 1.02-1.13]. But that there is no evidence of an increase in the risk more than 10 years after stopping use[83]

This is consistent with our finding that there is no difference in users and non users of OCP. Again the small size of our sample makes a conclusive relationship difficult.

Smoking

Cigarettes smoking

All women in our sample who had BC had never smoked cigarettes; however few of them smoked nargihle. Applying a proportion test (z test) at (α = 0.05) showed significant differences due to nargihle smoking (p0.0001) at α = 0.05

The majority of studies on cigarette smoking and breast cancer risk published to date were pooled and analyzes to express both the risk of smoking and the quantity of smoking per day on breast cancer.

Most of the studies revealed that smoking has little or no independent effect on the risk of developing breast cancer. In screened populations, in which cases (and usually controls) are identified through breast cancer screening initiatives or referrals, the risk of smoking in relation to both age and the quantity per day found no statistically significant decrease risks with smoking of 26 years' duration and, separately with smoking 25 cigarettes/day[84].In contrast, a study of comparable size found a statistically significant 190% increased risk in association with smoking >_15 cigarettes/day but did not examine other

quantitative measures of smoking[85]. The last of the three studies found a statistically significant 60% increased risk with smoking 31 years or more[86].

No sufficient researches were made on the relationship between water pipe (narghile) smoking and BC; on the other hand, many researches showed that concentration of carcinoembryonic antigen (CEA) in the narghile smokers is elevated more than in non smokers. This is true for (hookah) another name for narghile smoking. One of the studies shows that, as far as CEA levels are concerned, heavy smokers (spending up to 6 hours per day in 3 to 8 smoking sessions of a tobacco weight equivalent to about 60 cigarettes) are very much at risk than the medium smokers (up to 2 hrs per day in 1 to 3 smoking sessions) or the light ones (up to 20 min per day in 1 smoking session). (CEA) known as a marker of malignant transformation and chronic inflammation, is increased in a variety of cancers: e.g. carcinoma of pancreas; uterine; cancers of the lung, and breast. The results of these studies suggest that smoking probably does not decrease the risk and indeed suggest that there may be an increased breast cancer risk with smoking of long duration, smoking before a first full-term pregnancy, and passive smoking. These findings require confirmation in future studies[87].

Breastfeeding

Proportion test (z test) at ($\alpha = 0.05$) revealed significant differences due to those who breastfed and those who didn't (p0.0001) at $\alpha = 0.05$

Our result confirms other results which showed a relationship between BC risk and breastfeeding, the study of the collaborative group

leaded by Beral V et al in 2002 showed that relative risk of breast cancer is decreased by RR= 4.3% (95% Cl 2.9-5.8; p<0.0001) for every 12 months of breastfeeding in addition to a decrease of 7.0% (5.0-9.0; p<0.0001) for each birth[79.]

Menopause

Proportion test (z test) at (α = 0.05) revealed no significant differences due to those who undergone menopause and those who didn't (p0.816) at α = 0.05

This is contrary to data from (87) that showed breast cancer risk increased with increasing age by 5% per year for breast cancer diagnosed early or before the menopause and by 3% for cancers diagnosed late or after the menopause[88].

Late menopause increases the risk of breast cancer. Women who have undergone the menopause have a lower risk of breast cancer than pre-menopausal women of the same age and childbearing pattern. Risk increases by almost 3% for each year older at menopause (natural or induced by surgery), so that a woman who has the menopause at 55 rather than 45, has approximately 30% higher risk [89].

5.6 Conclusions

1- It is concluded that MT utilization is increasing every year, and consequently percentage of BC diagnosis in Nablus district.

2- MT utilization gives an idea about the different patterns of sociodemographic variables associated with MT and consequently with BC.

3- Age seems to be an important risk factor for developing BC in Palestine.

4- MT is an important tool not only for BC diagnosis, but also for BC screening.

5- There is a good level of awareness that motivates patients to go and do MT (nearly 50 % of study sample were self referrals).

6- Residence, level of education, being a housewife, were not important factors in developing BC.

5.7 Recommendations

The Palestinian Ministry of Health (MOH) could take into consideration the importance of MT as a precious tool for BC screening through:

1- It could think about the presence of medical centers qualified and expertise in doing Mammography test in the Palestinian territories, as these centers are considered to be few and don't satisfy the Palestinian demand, taking in to consideration providing these centers with experts with MT and new machines.

2- It could raise the consciousness about MT among health care providers as well as Palestinian women through mass media, brochures, and posters.

3- It could facilitate the out reach to less privilege areas like the villages through their health clinics or may be through mobile clinics.

4- Camps presented 30% of all women under went MT, the MOH should think about this minority, and try to promote women's participation in MT through thinking about the obstacles like health education, cost, and socioculture norms.

5- Considering the above recommendations, the MOH could think of the importance of a national MT screening Programme that covers all the Palestinian territories in order to be able to have a comprehensive idea about the situation of BC among Palestinian women and consequently be able to determine our own therapeutic policies that suit our community and to generalize these results at national level. We can obtain from such programme complete information about risk factor profile associated with BC related to our community, as some risk factors proved to be related to certain populations such as education, occupation, location, and others do not. MT as a screening test should be according to the international guidelines of early detection of BC.

6- To increase access to MT; obstacles like cost, health believes, health educations, socioulture norms should be all appreciated.

5.8. Limitations of the Study

1- Small sample size

2- Some missed risk factors information

References

1) World Health Organization (February 2006). "Fact sheet No. 297: Cancer. http://www.who.int/mediacentre/factsheets/fs297/en/index.html. Retrieved 2009-03-26.

2) World Health Organization International Agency for Research on Cancer (June 2003)."World Cancer Report". http://www.iarc.fr/en/Publications/PDFs-online/World-Cancer-Report/World-Cancer-Report. Retrieved 2009-03-26.

3) American Cancer Society. **Global Cancer Facts and Figures** 2007. Atlanta, GA: American Cancer Society, 2007.

4) Souhami R, Tobias J. **Cancer and its management**. 4th ed. UK: Blackwell science Ltd; 2003.31-199-200 p.

5) Folkman J. **Clinical application of research on angiogenesis**. New Engl J Med 1995; 333:1757-62.

6) Denton S, editor. **Breast Cancer Nursing**. 2nd ed. UK: Nelson Thorns Ltd; 2002. 7-9-58 p.

7) Dennis A, Casciato and Barry, lowitz B, editors. **Manual of Clinical Oncology.** 4th ed. Philadelphia. Lippincott Williams & Wilkins; 2000 237-239- 250 p.

8) Morrow M, et al. **Standard for the Management of Ductal Carcinoma In Situ of the Breast (DCIS**). CA Cancer J Clin 2002; 52:256.

9) Anderson W, Schairer C et al. **Epidemiology of Inflammatory Breast Cancer (IBC).** Breast Cancer J. 2006; 22: 9-23.

10) Echevarria J, Lopez-Ruiz, Martin I, et al. **Usefulness of MRI in detecting occult breast cancer associated with Paget's disease of the nipple–areolar complex**. British Journal of Radiology. 2004; 77: 1036-1039.

11) Belkacémi Y, Bousquet G, Marsiglia H, et al.

12) William E, Barlow, et al. **Performance of Diagnostic Mammography for Women With Signs or Symptoms of Breast Cancer**. Journal of the National Cancer Institute. 2002; 94 (15):1151-1159.

13) Smith RA, Cokkinides V, Brawley W. **Cancer screening in the United Statess**, 2009: a review of current American Cancer Society guidelines and issues in cancer screening .CA Cancer J Cli . 2009; 59:27-41.

14) Smith RA, Saslow D, Sawyer KA, et al. **American Cancer Society guidelines for breast cancer screening: Update 2003**. CA Cancer J Clin. 2003; 53:141-169.

15) Saslow D, Boetes C, Burke W, **et al for the American Cancer Society Breast Cancer Advisory Group**. American Cancer Society guidelines for breast screening with MRI as an adjunct to mammography. CA Cancer J Clin .2007; 57:75–89.

16) Nelson D, Tyne K, Naik A, Bougatsos C, Chan B, Humphrey L. **Clinical Guidelines: Screening for Breast Cancer**: An Update for

the U.S. Preventive Services Task Force Ann Intern Med. 2009; 151:727-737.

17) Kopans DB .**Screening mammography for women age 40 to 49 years**. Ann Intern Med. 2007; 147: 740-1.

18) http://www.imaginis.Com/ breast. Health/ general information

19) Shapiro S. Ev**idence on screening for breast cancer fromarandomized trai**l.Cancer.1977; 39: 2772-82.

20) Shapiro S, Venet W, Strax P, Venet L. **Periodic Screening for Breast Cancer: the Health Insurance Plan Project and its sequelae**. John Hopkins University Press .1988; 1963-86.

21) Taber L, Yen F, Vitak B, Chen H, Smith RA, Duffy W. **Mammography service screening and mortality in breast cancer patients: 20-year follow-up before and after introduction of screening**. lancet. 2003; 316: 1405-1410.

22) Forrest M. **Breast Cancer Screening**, Report to the Health Ministers of England, Scotland and Northen Irland, London. 1986.

23) Vessey M .**Breast cancer screening: Evidence and experience since the Forrest Report**, NHS Breast Cancer Programme Publication .1991.

24) World health organization International Agency for Research on cancer IARC. 2002.

25) Sharon H. Giordano. **Update on Locally Advanced Breast Cancer**. The Oncologist. 2003; 8: (6) 521–530.

26) Ries L, Eisner MP, Kosary CL, et al. (eds). **SEER Cancer Statistics Review**, 1973–1997. National Cancer Institute. NIH Pub. 2000; No. 00–2789.

27) Brinton L, Schaiere C, Hoover R, et al. **Menstrual factors and risk of breast cancer**. Cancer Invest. 1988; 6: 145–154.

28) Trichopoulos D, MacMahon B, Cole P. **Menopause and breast cancer risk**. J Natl Cancer Inst. 1972; 48: 605–613.

29) Brinton LA, Hoover R, Fraumeni J. **Epidemiology of minimal breast cancer**. JAMA. 1983; 249: 483–487.

30) White E. **Projected changes in breast cancer incidence due to the trend toward delayed childbearing**. Am J Public Health. 1987; 77: 495–497.

31) Pharoah P, Day N, Duffy S, et al. **Family history and the risk of breast cancer: a systematic review and meta-analysis**. Int J Cancer. 1997; 71:800-809

32) Brody L, Biesecker BB. **Breast cancer susceptibility genes: BRCA1 and BRCA2.** Medicine. 1998; 77: 208–226.

33) Ford D, Easton DF, Peto J. **Estimates of the gene frequency of BRCA1 and its contribution to breast and ovarian cancer incidence**. Am J Hum Genet. 1995; 57: 1457–1462.

34) Keating N, Cleary P, Rossi A, et al. **Use of hormone replacement therapy by postmenopausal women in the United States**. Ann Intern Med. 1999; 130: 545–55321.

35) Collins J, Blake J, Giorgio P, Crosignani .**Breast cancer risk with postmenopausal hormonal treatment Human Reproduction**, 2005; 11(6):545-560 .

36) Shelley R, Salpeter, Edwin E, S. Buckley S, et al. **Bayesian Meta-analysis of Hormone Therapy and Mortality in Younger Postmenopausal Women**" American Journal of Medicine.2009; 122: (11).

37) Marchbank P, McDonald A,Wilson G , Folge S , Mandel M, et al. **Oral Contraceptives and the Risk of Breast Cancer** . N Engl J Med 2002; 346 (26): 2025-2032.

38) MacMahon B, Cole P, Lin TM, Lowe CR, Mirra AP, Ravnihar B, Salber EJ, Valaoras VG & Yuasa S. **Age at first birth and breast cancer risk**. Bulletin of theWorld Health Organization. 1970; 43: 209–22.

39) Rusiecki JA, Holford TR, Zahm SH , Zheng T. **Breast cancer risk factors according to joint estrogen receptor and progesterone receptor status.** Cancer Detection and Prevention.2005; 29: 419–426.

40) Collaborative Group on Hormonal Factors in Breast Cancer. .Lancet 2002; 20:187–95.

41) International Agency for Research on Cancer. **IARC Monographs on the Evaluation of Carcinogenic Risks to Humans**, Volume 83. Tobacco Smoke and Involuntary Smoking. Lyon, France: IARC 2004.

42) Cavalieri N, Rogan E, Sinha D. **Carcinogenicity of aromatic hydrocarbons directly applied to rat mammary gland**. J Cancer Res Clin Oncol 1988; 114:3–9.

43) Palmer JR, Rosenberg L. **Cigarette smoking and the risk of breast cancer**. Epidemiol Rev 1993; 15:145–56.

44) Collaborative group on Hormonal Factors in Breast cancer. Alcohol, tobacco and breast cancer. Br J Cancer 2002; 87:1234–45.

45) Johnson K. Accumulating evidence on passive and active smoking and breast cancer risk. Int J Cancer 2005; 117:61928.

46) Terry P, Miller AB, Rohan TE. **Cigarette smoking and breast Cancer risk: a long latency period**. Int J Cancer 2002; 100:723–8.

47) Boice J, Preston D, Davis F, et al. **Frequent chest X-ray fluoroscopy and breast cancer incidence among tuberculosis patients in Massachusetts**. Radiat Res. 1991; 125: 214–222.

48) McTiernan A. **Behavioral Risk Factors in Breast Cancer: Can Risk Be Modified?** The Oncologist. 2003; 8 (4): 26–334.

49) [NCCN] National Comprehensive Cancer Network. **Treatment Guidelines for Breast Cancer Patients**; 2006, Version viii. [Internet] available from: htpp:// Screening.iarc. fr/ doc/ Breast-viii pdf. Accessed at 2009 Nov 27.

50) Cummings S, Tice J, Bauer S, Browner W, Cuzick J, Ziv E, and Vogel V, et al .**Prevention of Breast Cancer in Postmenopausal Women:**

Approaches to Estimating and Reducing Risk. J Nat Cancer Inst 2009; 101 (6): 384-98.

51) [ACS] American Cancer Society. What Are the Key Statistics for Breast Cancer? [Internet] (2005Sep). Retrieved 2006 Aug.17, Available http://www.cancer.org/docroot/CRI/content

52) [NCI] National Cancer Institute SEER [Internet]. Cancer Statistics Review. 2007. Available from: http:// www. Cancer gov

53) Barlow WE, White E, et al. **Prospective Breast Cancer Risk Prediction Model for Women Undergoing Screening Mammography**. J.Natl Cancer Inst. 2006; 98:1204-1214.

54) Ferlay J, Bray F, Pisani P, et al. **Worldwide**, Version 2.0. 2002: IARC Cancer Base no.5, Lyon, IARC Press, 2004.

55) Horner MJ, Ries LAG, et al. SEER Cancer Statistics Review, 1975-2006, National Cancer Institute. Bethesda, MD, Available from: http://seer.cancer.gov/csr/1975_2006/, based on November 2008 SEER data submission, posted to the SEER web site, 2009.

56) Boyle P, Ferlay J, **Cancer incidence and mortality in Europe**, 2004, Annals of Oncology. 2005; 16: 481–488.

57) Ferlary J, Autier et al Es**timate of the cancer incidence and mortality in Europe in 2006**. Annals of oncology. 2007; 18:581-592.

58) [ONS] Office for National Statistics. [CSR] Cancer Statistics registrations: Registrations of cancer diagnosed in 2004, England. Series MB1 no.35. 2007, National Statistics: London.

59) European Journal of Cancer Prevention. 2006; 15 (3): 219-224.

60) Nancy Breen, Kathleen A. et al. **Recent use of mammography has dropped nationally in U.S. American Cancer Society** . 2007 14 May; 109 (12): 2405-2409.

61) Jazieh A; Soora I. **Mammography utilization Pattern of Arkansas a challenge for the future**. Journal of communal health. 2006; 26 (4).

62) Rue M, Carles M, **Vilaprinyo E et al. Dissemination of periodic mammography and patterns of use**, by birth cohort, in Catalonia (Spain). BMC Cancer. 2008; 8: 336.

63) Lagerlund M, Hedin A. et al. **The effectiveness of mammography could be improved Journal of Public Health**. 2006; 28(3):197-202.

64) Freedman LS, et al Cancer Incidence in Four Member Countries (Cyprus, gypt, Israel, and Jordan) of the Middle East Cancer Consortium (MECC) compared with US SEER. Bethesda: National cancer institute. http://seer.cancer.gov/publications/mecc/ (accessed May 1, 2008).

65) Soskolne V, Marie S, Manor. Beliefs, Recommendations and intentions are important explanatory factors of mammography screening behavior among Muslim Arab women in Israel. Health Education Research. 2007; 22(5):665-676; doi:10.1093/her/cyl132.

66) Khaleej Times Online . More Women Aware of Breast Cancer Dangers[Internet]Available: from:http://www.khaleejtimes.com/displayarticle.asp?Accessed 22 October 2009.

67) Ministry of Health. **Health status in Palestine**, 2005. Gaza: Ministry of Health, 2006.

68) Shamseddine A, Sibai AM, Gehchan N, et al. **Cancer incidence in postwar Lebanon: findings from the first national population-based registry**, 1998. Ann Epidemiol 2004; 14: 663–68.

69) Palestinian Central Bureau of Statistics. **Palestinian family health survey,** 2006: final report. Ramallah: Palestinian Central Bureau of Statistics, 2007. 64 Ministry of Health. Health status in Palestine, 2005. Gaza: Ministry of Health, 2006.

70) Salhab A. **Palestinian National Cancer Registry**. Cancer incidences and number in the West Bank. Institute of Community and Public Health–Birzeit University public lectures. Ramallah: Institute of Community and Public Health–Birzeit University, 2005.

71) Palestinian Family Protection and Prevention [PFPPA]. Available from: http:// www.pfppa.org.

72) MCpherson K, **Steel CM, Dixon JM: Breast cancer epidemiology**, risk factors, and genetics.BMJ 2000, 321:624-626.

73) Vogel VG: Epidemiology, genetics, and risk evaluation of postmenopausal women at risk of breast cancer. Menopause 2008, 15:782-789

74) Ebrahimi M, Vahdaninia M, and Montazeri A. **Risk factors for breast cancer in Iran: a case-control study**. Breast Cancer Res 2002; 4:R10

75) Bennett H, Marshall R, Campbell I, Lawrenson R. **Women with breast cancer in Aotearoa New Zealand: the effect of urban versus rural residence on stage at diagnosis and survival.** N Z Med J. Nov 30 2007; 120(1266):U2831

76) Eiss HA, Troisi R, Rossing MA, Brogan D, Coates RJ, Gammon MD, Potischman N, Swanson CA, Brinton LA. **Fertility problems and breast cancer risk in young women.** Cancer Epidemiol Biomarkers Prev 2008; 17 (7).

77) Kelsey JL, Gammon MD, John EM. **Reproductive factors and breast cancer**. Epidemiol Rev. 1993; 15(1):36-47.

78) Abe M, Hsieh CC, Tsaih SW, Ekbom A, Trichopoulos D,Adami HO. Parity, age at first birth and the risk of carcinoma in situ of the breast. Int J Cancer Jul 29 1998; 77(3):330-2.

79) Beral V, Bull D, Doll R, Peto R, Reeves G, La Vecchia C, Magnusson C, Miller T, Peterson B, Pike M, Thomas D, van Leeuwen F: **Breast cancer and breastfeeding**. Lancet 2002; 360 (9328): 187-195.

80) Braaten T, Weiderpass E, Kumle M, Adami HO, Lund E. **Education and risk of breast cancer in the Norwegian-Swedish women's lifestyle and health cohort study**. Int J Cancer. 2004; 110: 579–583.

81) Ozmen V, Ozcinar B , Karanlik H , Cabioglu N. **Breast cancer risk factors in Turkish women – a University Hospital based nested case control study.** World Journal of Surgical Oncology 2009; 7:37.

82) Colditz, Graham, Berlin, Jesse A, Romieu, Isabelle. Oral-contraceptives-and-breast-cancer-review-and-meta-analysis. Cancer Health; 1990. 81.

83) Collaborative Group on Hormonal Factors in Breast Cancer, ICRF Cancer Epidemiology Unit, Radcliffe Infirmary, Oxford, UK. Breast cancer and hormonal contraceptives: collaborative reanalysis. Lancet. Jun 22 1996; 347(9017):1713-27.82.

84) Delfino R, Smith C, West J, Lin H, White E, Liao S, Gim J, Butler J, and Culver H. Breast cancer, passive and active Cigarette smoking and N-acetyltransferase 2 genotype Pharmacogenetics.2000; 10: 461–469.

85) Meara J, McPherson K, Roberts M, Jones , and Vessey M. Alcohol, cigarette smoking and breast cancer. Br. J. Cancer.1989; 60: 70–73.

86) Bennicke K, Conrad C, Sabroe S, and Sorensen H Cigarette smoking and breast. smoking and breast. Cigarette smoking and breast cancer. Br. Med. J.1995; 310: 1431–1433.

87) Akash Chand. Ec. Pahari, Guler, ca. 1775. Source: Pouvoir et désir: miniatures indiennes. Dir. Amina Okada. Paris Musees. Ed. Findakly, 2002.

88) Clavel F, Chapelon and. Gerber M. Reproductive Factors and Breast ancer Risk. Do They Differ According to Age at Diagnosis? J. Breast Cancer Research and Treatment 2002; 72(2): 107-115.

89) Collaborative Group on Hormonal Factors in Breast Cancer. Lancet 1997; 350 (9084): 1047-59.

Appendixes

بسم الله الرحمن الرحيم

هذه الاستبانة خاصة بالطالبة فاتنة خليل أبو شميس، طالبة ماجستير صحة عامة في جامعة النجاح الوطنية والتي تقوم بعمل دراسة عنوانها أنماط استخدام (Mammography test) (الأشعة السينية) لفحص الثدي من أجل الكشف عن سرطان الثدي المبكر وتشمل الدراسة أيضاً دراسة نسبة سرطان الثدي المشخص من خلال هذا الفحص في محافظة نابلس.

Patterns of Mammography use and percentage of Breast cancer diagnosed through Mammography test in Nablus district.

ستتم تعبئة الاستمارات من خلال الملفات الطبية لكل مريضة قامت بعمل هذا الفحص.

وأتعهد أن جميع المعلومات سرّية ولغاية البحث العلمي فقط ولن يطلع عليها أحد وسيتم التعامل بها بطريقة إدخال المعلومات دون اللجوء إلى أسماء ولأي مريضة لفحص الثدي الحق في رفض الاشتراك في البحث أو الانسحاب وقتما تشاء وبكل حرية.

الجزء الأول:

أنماط استخدام فحص (المامو غرافي) لإكتشاف سرطان الثدي في منطقة نابلس:

رقم الملف:

1) العمر:

( ) (15- 25)

( ) (26- 36)

( ) (37- 47)

( ) 48 فما فوق

2) الحالة الاجتماعية:

( ) عزباء

( ) أرملة

( ) مطلقة

3) مكان الإقامة:

( ) قرية

( ) مدينة

( ) مخيم

4) عدد الأطفال:

( ) (0- 2)

( ) (3- 5)

( ) 5 فما فوق

5) هل استعملت وسائل منع الحمل:

( ) نعم

( ) لا

6) إذا كان الجواب نعم ماذا استعملت:

( ) حبوب

( ) لولب

( ) ابر

( ) عازل ذكري

( ) تحاميل

( ) غير ذلك

7) التدخين (سجائر):

( ) نعم

( ) لا

8) إذا كان الجواب نعم فما هي كمية التدخين:

( ) أقل من 10 سجائر يومياً

( ) (10 -20) يومياً

( ) أكثر من 10 سنوات

9) مدة التدخين:

( ) أقل من 2 سنة

( ) (2 -10) سنوات

( ) أكثر من 10 سنوات

10) التدخين (أرجيلة):

( ) نعم

( ) لا

11) إذا كان الجواب نعم

( ) ما هي الكمية المستهلكة:

( ) يومياً

( ) (مرة - مرتين) أسبوعياً

( ) أكثر من ذلك

12) الرضاعة:

( ) نعم

( ) لا

13) إذا كان الجواب نعم

( ) مدة الرضاعة:

( ) أقل من 6 أشهر

( ) (6 -12) شهر

( ) أكثر من 12 شهر

14) هل انقطعت الدورة الشهرية (سن اليأس):

( ) نعم

( ) لا

15) إذا كان الجواب نعم ما هو السن الذي انقطعت عندها الدورة الشهرية:

( ) أقل من 30 سنة

( ) (30 -40) سنة

( ) (40 -45) سنة

( ) (45 -50) سنة

( ) 50 فما فوق

16) مستوى التعليم:

( ) أمي

( ) أساسي

( ) ثانوي

( ) تعليم عالي

17) المهنة:

( ) ربة منزل فقط

( ) موظفة

( ) عاملة

( ) غير ذلك

18) تحويل المريضة كان عن طريق:

( ) طبيب خاص

( ) عيادات NGOS

( ) طبيب نسائي

( ) مستشفيات حكومي

الجزء الثاني:

نتيجة فحص الماموغرافي

( ) طبيعي ( ) حميد

( ) خبيث ( ) غير واضح (يحتاج إلى إعادة)

جامعة النجاح الوطنية
كلية الدارسات العليا

أنماط استخدام فحص الماموغرافي ونسبة سرطان الثدي المكتشف في محافظة نابلس

إعداد
فاتنة خليل عبد الكريم أبو شميس

إشراف
د. سمر غزال مسمار

قدمت هذه الأطروحة استكمالا لمتطلبات درجة الماجستير في الصحة العامة بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2010

أنماط استخدام فحص الماموغرافي ونسبة سرطان الثدي المكتشف في محافظة نابلس

إعداد

فاتنة خليل عبد الكريم أبو شميس

إشراف

د. سمر غزال مسمار

الملخص

تعريف: يعتبر سرطان الثدي السرطان الأكثر شيوعا عند النساء إذ يصيب 1 -8 من نساء العالم في مرحلة ما من عمرهن.

فحص ألماموغرفي هو عبارة عن فحص بالأشعة السينية و يستخدم لفحص الثدي.

أن الفحص المبكر لسرطانات الثدي و التي يتم تشخيصها عن طريق فحص الماموغرافي يحسن بكثرة من فرصة المرأة لحصولها على علاج ناجح حيث أن مئة في المئة من سرطانات الثدي تشفى إذا ما شخصت وعولجت مبكرا شرط أن تبقى في داخل الثدي . وأشارت الدراسات الطبية انه باستخدام التشخيص بالماموغرافي سوف تنخفض نسبة الموت من المرض بنسبة ستة و ثلاثون بالمئة إلى أربع وأربعون بالمئة إذا ما استخدم هذا الفحص سنويا وللنساء اللواتي في الأربعينات من أعمارهن. وسوف يقلل من نسبة المرض بنسبة خمس وثمانين بالمئة إلى تسعين بالمئة إذا ما استخدم في الخمسينات من العمر.

المنهج: هذه الدراسة استرجاعية وصفية وتحليلية حيث تم استرجاع كل بيانات عام 2007 واختير 556 ملف للنساء اللواتي خضعن لفحص الماموغرافي في مركز مكافحة السرطان وتصوير الماموغرافي في محافظة نابلس. حللت البيانات بواسطة البرنامج الإحصائي (SPSS 10)

الهدف: الهدف الرئيسي للدراسة هو توضيح الأنماط المختلفة للعوامل الديموغرافية المختلفة والمتعلقة باستخدام فحص الماموغرافي في محافظة نابلس وأيضا اكتشاف نسبة سرطان الثدي المشخص من خلال فحص الماموغرافي.

النتائج: كشفت نتائج هذا البحث عن نمط اجتماعي ديموغرافي لاستخدام فحص المـــاموغرافي في محافظة نابلس فلقد كان تقريبا متوسط أعمار اللـــواتي خضـــعن لهـــذا الفحـــص أربعـــين عاما معظمهن متزوجات ومرضعات، وقد أنجبن 4 -5 أولاد ومن دوات التعليم العـــالي. كمـــا وأظهرت النتائج أن هناك علاقة هامة ما بين العمر و سرطان الثدي، وأيضا مابين عدد الأطفال سرطان الثدي.بينما لم يكن هناك علاقة واضحة بين الحالة الاجتماعية مكان الإقامـــة، التعلـــيم الرضاعة ومصدر تحويل المريض. كما أن الدراسة أوضحت انه يوجد فروقـــات هامـــة بـــين المدخنين و غير المدخنين وبين الذين ارضعوا و الذين لم يرضعوا.بينمـــا لـــم تصـــل النتـــائج لفروقات هامة بين اللذين استخدموا حبوب لمنع الحمل والذين لم يستخدموا الحبوب وأيضـــا لـــم يكن هناك فروق نتيجة لبدء سن اليأس.

ألخلاصة: ان فحص الماموغرافي قد يكون أداة مهمة ليس فقط للتشخيص ولكن قد يكون أيضـــا أداة ثمينة للكشف المبكر عن سرطان الثدي . كما انه يوجد عدد لا بأس به من الذين اجروا هذا الفحص وهو في تزايد سنوي وتبعا لذلك سوف تزداد نسبة سرطان الثدي المشخصة.و يعكـــس هذا الأزدياد مستوى لا بأس به من الوعي و المعرفة بين النساء في فلسطين.يجـــب ان يكـــون هناك امتياز للمناطق التي لا يسهل الوصول لها مـــن اجـــل تشـــجيع النســـاء لعمـــل فحـــص الماموغرافي.

الكلمة المفتاح: سرطان الثدي فحص الماموغرافي، أنماط، محافظة نابلس.