

**Deanship of Graduate Studies**

**Al-Quds University**



**Evaluation of Breast Cancer Management  
in the Gaza Strip**

**Mo'min Khalil Eid**

**MPH Thesis**

**Jerusalem-Palestine**

**1440 - 2019**

# **Evaluation of Breast Cancer Management in the Gaza Strip**

Prepared by  
**Mo'min Khalil Eid**

BSc. of Nursing - Islamic University of Gaza-Palestine

Supervisor: Prof. Dr. Yehia Abed  
School of Public Health

Co-Supervisor: Dr. Khaled Thabet  
Head of Oncology department at Shifa hospital

A Thesis Submitted in Partial Fulfillment of Requirements  
for the Degree of Master of Public Health/Epidemiology  
School of Public Health- Al- Quds University

**1440- 2019**



## **Thesis Approval**

### **Evaluation of Breast Cancer Management in the Gaza Strip**

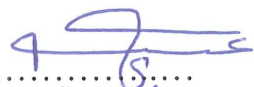
Prepared By: Mo'min Khalil Eid  
Registration No.: 21612194

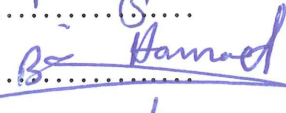
Supervisor: Prof. Dr. Yehia Abed  
Co-Supervisor: Dr. Khaled Thabet

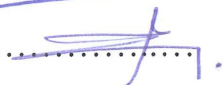
Master thesis submitted and accepted. Date:    /    /

The names of signatures of the examining committee members are as follows:

1. Head of committee: Prof. Dr. Yehia Abed
2. Internal examiner: Dr. Bassam Abu Hamad
3. External examiner: Dr. Sobhi Skaik

Signature..........

Signature........

Signature..........

**Jerusalem – Palestine**

**1440 / 2019**

## **Dedication**

I would like to give praise and endless thanks to Almighty Allah for guiding me and giving me the strength, knowledge, ability and opportunity always thought my life.

I would like to dedicate this master dissertation to my family, especially to My father and mother, who have been totally devoted their lives for us and for their endless love, support and encouragement; the secret of my success is their du'aa.

To my brothers, sisters and my friends who gave me support and strength to continue my journey to the end.

To the health staff who spend their times in serving patients and alleviation of their suffering.

Special appreciation to patients for their cooperation and participation in this study the essence and spirit of which is derived and motivated by them and for them.

To all people in my life who touch my heart.

Thank you and may Allah bless all of you

**Mo'min Khalil Eid**

## **Declaration**

I certify that this entire thesis is submitted in partial fulfilment of the requirements for Master Degree is the result of my own research, except where otherwise acknowledged, and that this thesis (or any of its parts) has not been submitted for higher degree to any other university or institution.

Signature: .....

Mo'min Khalil Hussein Eid

Date:

## **Acknowledgement**

Firstly, I would like to express my sincere gratitude to my advisor Prof. Dr. Yehia Abed for the continuous support of my master study and related research, for his patience, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis.

I would like to express my deep appreciation to Dr. Khaled Thabet for his helpful discussions, valuable suggestions, and support during my research preparation.

Special thank and respect to the academic and administrative staff in the School of Public Health at Al Quds University for their collaborations, supports and assistance.

My sincere thanks to my classmates, friends and all who have in some way or the other contributed to the successful completion of this study.

I express my sincere and whole hearted thanks to my special friends: Mohammed EL Baz, Mohammed Shuaib, Mustafa Dada, Dalia Wahidi, for their inspiration, help, support and encouragement during my studying and preparation of master dissertation.

I am also deeply thankful to my informants and patients. Their names cannot be disclosed, but I want to acknowledge and appreciate their help and transparency during my research. Their information have helped me complete this thesis.

Last but not the least, I would like to thank each and every individual who have been a source of support and encouragement and helped me to achieve my goal and complete my dissertation work successfully.

May the Almighty Allah richly bless all of you

**Mo'min Kahlil Eid**

## Abstract

**Background:** Breast cancer is considered the most widely spread cancer in Palestine and worldwide, it is being claiming the lives of hundreds of thousands of women each year and affecting countries at all levels of modernization.

**Objectives:** This study aims to evaluate the management process of breast cancer in the Gaza Strip that affect in diagnosis and treatment processes serving breast cancer patients in the Gaza strip, to decrease the gaps in breast cancer management in order to decrease morbidities and mortalities that happened in addition to help health care providers and policy makers to formulate strategies for effective breast cancer management.

**Methodology:** The study is triangulated, descriptive and cross sectional one that was conducted in order to evaluate the breast cancer management in the Gaza strip. The qualitative data included interviews with key informants as well as focus groups and life histories with breast cancer patients. The quantitative data was represented by four checklists that identified the number of the available health workforce, available beds and rooms for patients, diagnostic equipment and facilities and checking the completeness of breast cancer patients files.

**Results:** The results of the study revealed that there are gaps and barriers facing breast cancer management in the Gaza Strip starting from patient chief complain, diagnosis process, and available treatment. Most of gaps and barriers are represented in inadequate health care human resources specially (oncologists in Gaza it equals (7) which represent about 0.4 per 100,000, pathologists (5) which represent about 0.3 per100,000, psychologists (1) which represents 0.05 per 100,000 and there is no any nutritionists), inappropriate infrastructure of oncology buildings with poor privacy, comfort and ventilation and deficiencies in necessary diagnostic equipment and supplies. Moreover, prolonged waiting times for patients. In addition, the results showed that there are gaps in referral systems between health facilities and health services abroad. Regarding the prevention and screening services for breast cancer, there is no any regular sustainable prevention programs for breast cancer except activities for screening. Breast cancer diagnostic services are facing many barriers and challenges that impede the early diagnosis of breast cancer. Some of crucial diagnostic facilities are very limited or unavailable in which are necessary for diagnosis as MRI, CT, PET scan, Gamma Camera, Linear accelerator, mammograms, tumor marker test, and other factors related to poor awareness of patients, cultural factors, physician and health system role. Regarding treatment options for breast cancer, there are several obstacles and barriers that affect negatively on the quality and completeness of care such as frequent shortages and interruptions in essential chemotherapy medications, and radiotherapy treatment is not available which consider one of the main treatment option for breast cancer patients, moreover there is no specific center for palliative care in Gaza. The information system, patients medical records and cancer registry are also facing many gaps. All of the previous factors affect negatively on the overall management process and quality of the health services provided to breast cancer patients.

**Recommendations:** The study recommended enhancing policies for breast cancer prevention, screening and management. In addition, to improve the infrastructure of both facilities and human resources for breast cancer management. The study also recommended the importance of improving the communication and coordination between health facilities. Improving and enhancing palliative care for breast cancer patients. In addition to improve the available information system, cancer registry and using ICD-O3 and for further research studies related to breast cancer management and control.

## Tables of Contents

|   |          |
|---|----------|
| Dedication.....                                   |          |
| Declaration.....                                  | i        |
| Acknowledgement.....                              | ii       |
| Abstract.....                                     | iii      |
| Tables of Contents.....                           | iv       |
| List of Tables.....                               | ix       |
| List of Figures.....                              | x        |
| List of Annexes.....                              | xi       |
| List of Abbreviations.....                        | xii      |
| <b>Chapter One.....</b>                           | <b>1</b> |
| 1.1 Introduction.....                             | 1        |
| 1.2 Problem statement.....                        | 2        |
| 1.3 Justification.....                            | 3        |
| 1.4 Aim of the study.....                         | 4        |
| 1.5 General objective.....                        | 4        |
| 1.6 Specific objectives.....                      | 4        |
| 1.7 Research Questions.....                       | 4        |
| 1.8 Background.....                               | 5        |
| 1.8.1 Geography.....                              | 5        |
| 1.8.2 Demography.....                             | 5        |
| 1.8.3 Life expectancy and mortality.....          | 6        |
| 1.8.4 Health and Health Care System.....          | 6        |
| 1.8.5 Health services.....                        | 6        |
| 1.8.6 Shifa Hospital.....                         | 7        |
| 1.8.7 European Gaza Hospital.....                 | 7        |
| 1.8.8 Rantisi specialized pediatric hospital..... | 8        |
| 1.8.9 Cancer Registry Center.....                 | 8        |
| 1.9 Operational Definitions.....                  | 9        |
| 1.9.1 Cancer.....                                 | 9        |
| 1.9.2 Breast Cancer.....                          | 9        |
| 1.9.3 Evaluation.....                             | 9        |



|                                  |   |           |
|----------------------------------|---|-----------|
| 1.9.4                            | Cancer treatment.....                       | 9         |
| 1.9.5                            | Screening .....                             | 10        |
| 1.9.6                            | Management .....                            | 10        |
| 1.9.7                            | Health services .....                       | 10        |
| <b>Chapter Two</b>               | .....                                       | <b>11</b> |
| 2.1                              | Conceptual Framework (self-developed) ..... | 11        |
| 2.1.1                            | Health services delivery .....              | 11        |
| 2.1.2                            | Health workforce .....                      | 12        |
| 2.1.3                            | Health information system .....             | 12        |
| 2.1.4                            | Leadership and governance .....             | 13        |
| 2.1.5                            | Health financing system .....               | 13        |
| 2.1.6                            | Essential medications .....                 | 14        |
| 2.2                              | Literature Review .....                     | 14        |
| 2.2.1                            | Overview of cancer .....                    | 14        |
| 2.2.2                            | Breast cancer .....                         | 15        |
| 2.2.3                            | Epidemiology of Breast Cancer .....         | 16        |
| 2.2.4                            | Risk Factors of Breast Cancer .....         | 18        |
| 2.2.5                            | Management of breast cancer.....            | 22        |
| 2.2.6                            | Staging of breast cancer .....              | 25        |
| 2.2.7                            | Treatment of breast cancer .....            | 26        |
| 2.2.8                            | Breast Cancer Treatment by Stage .....      | 29        |
| 2.2.9                            | Quality of care .....                       | 30        |
| 2.2.10                           | Breast cancer survival .....                | 31        |
| 2.2.11                           | Evaluation.....                             | 32        |
| <b>Chapter Three Methodology</b> | .....                                       | <b>34</b> |
| 3.1                              | Introduction .....                          | 34        |
| 3.2                              | Study Design .....                          | 34        |
| 3.3                              | Study Settings.....                         | 34        |
| 3.4                              | Study Period .....                          | 35        |
| 3.5                              | Study population.....                       | 35        |
| 3.5.1                            | Quantitative study population .....         | 35        |
| 3.5.2                            | Qualitative study population .....          | 35        |
| 3.6                              | Sampling process.....                       | 36        |

|                     |  |           |
|---------------------|--|-----------|
| 3.6.1               | Sampling of quantitative data.....                 | 36        |
| 3.6.2               | Sampling of qualitative data.....                  | 36        |
| 3.7                 | Eligibility criteria .....                         | 39        |
| 3.7.1               | Inclusion criteria.....                            | 39        |
| 3.7.2               | Exclusion criteria.....                            | 39        |
| 3.8                 | Development of tools .....                         | 40        |
| 3.8.1               | Quantitative study.....                            | 40        |
| 3.8.2               | Qualitative study.....                             | 40        |
| 3.8.3               | Development of checklist:.....                     | 40        |
| 3.9                 | Data collection.....                               | 41        |
| 3.9.1               | Quantitative data: .....                           | 41        |
| 3.9.2               | Qualitative data: .....                            | 41        |
| 3.10                | Data analysis: .....                               | 42        |
| 3.10.1              | Quantitative Data:.....                            | 42        |
| 3.10.2              | Qualitative data: .....                            | 43        |
| 3.11                | Scientific rigor.....                              | 43        |
| 3.11.1              | Quantitative data: .....                           | 43        |
| 3.11.2              | Qualitative data: .....                            | 44        |
| 3.12                | Pilot Study .....                                  | 45        |
| 3.13                | Ethical and administrative considerations:.....    | 46        |
| 3.14                | Limitations of the study.....                      | 46        |
| <b>Chapter Four</b> | <b>Results .....</b>                               | <b>48</b> |
| 4.1                 | Human workforce.....                               | 48        |
| 4.2                 | Services delivery for breast cancer patients ..... | 54        |
| 4.3                 | Diagnostic facilities.....                         | 56        |
| 4.4                 | Infrastructure .....                               | 60        |
| 4.4.1               | Building Capacity and Quality .....                | 60        |
| 4.5                 | Information system and research.....               | 64        |
| 4.6                 | Breast cancer medical records .....                | 66        |
| 4.6.1               | Demographic domain: .....                          | 67        |
| 4.6.2               | Medical record domain.....                         | 68        |
| 4.6.3               | Medications record domain .....                    | 69        |
| 4.6.4               | Patient history and examination domain .....       | 69        |

|   |  |            |
|---|--|------------|
| 4.6.5   | Breast cancer characteristics domain .....                     | 70         |
| 4.6.6   | Chemotherapy record domain .....                               | 71         |
| 4.6.7   | Overall domains .....  | 72         |
| 4.6.8   | ICD-O3 .....   | 73         |
| 4.6.9   | Variations of completeness score between hospitals .....       | 74         |
| 4.7   | Cancer registry and research .....                             | 75         |
| 4.8   | Breast cancer financing .....                                  | 77         |
| 4.9   | Essential medications .....                                    | 79         |
| 4.10  | Leadership and governance .....                                | 83         |
| 4.11  | Management of breast cancer .....                              | 84         |
| 4.11.1  | Breast cancer Prevention .....                                 | 84         |
| 4.11.2  | Screening .....  | 86         |
| 4.11.3  | Diagnosis of breast cancer .....                               | 89         |
| 4.11.4  | Treatment of breast cancer .....                               | 92         |
| 4.11.5  | Palliative and Emotional care for breast cancer patients ..... | 95         |
| 4.11.6  | Quality of care and Follow up .....                            | 98         |
| 4.11.7  | Referral system between facilities and abroad .....            | 101        |
| 4.12  | Major obstacles facing breast cancer management .....          | 104        |
| <b>Chapter Five Conclusion and recommendations.....</b> |  | <b>107</b> |
| 5.1   | Conclusion.....  | 107        |
| 5.1.1   | Health Workforce .....   | 107        |
| 5.1.2   | Services delivery .....  | 108        |
| 5.1.3   | Health information system and research .....                   | 108        |
| 5.1.4   | Essential Medicines .....                                      | 109        |
| 5.1.5   | Health Financing .....   | 109        |
| 5.1.6   | Leadership and Governance .....                                | 109        |
| 5.1.7   | Breast cancer management .....                                 | 110        |
| 5.2   | Recommendations .....  | 112        |
| 5.2.1   | Health Workforce .....   | 112        |
| 5.2.2   | Services delivery .....  | 112        |
| 5.2.3   | Health information system and research .....                   | 112        |
| 5.2.4   | Leadership and Governance .....                                | 113        |
| 5.2.5   | Breast cancer management .....                                 | 113        |

|   |     |
|---|-----|
| 5.2.6 Recommendation for further research ..... | 114 |
| <b>References</b> .....                         | 115 |
| <b>Annexes</b> .....                            | 126 |
| Abstract in Arabic.....                         | 146 |

## List of Tables

|  |    |
|--|----|
| Table (3.1) Distribution of key informants who are involved in the interviews .....                                | 38 |
| Table (4.1) Distribution of mammogram and fluoroscopy .....  | 59 |
| Table (4.2) Completeness of demographic data domain in breast cancer medical records.                              | 67 |
| Table (4.3) Completeness of medical record domain in breast cancer medical records .....                           | 68 |
| Table (4.4) Completeness of medications record domain in breast cancer medical records<br>.....                    | 69 |
| Table (4.5) Completeness of patient history and examination domain in breast cancer<br>medical records .....       | 70 |
| Table (4.6) Completeness of breast cancer ch.ch domain in breast cancer medical records<br>.....                   | 71 |
| Table (4.7) Completeness of chemotherapy record domain in breast cancer medical record<br>.....                    | 72 |
| Table (4.8) Completeness of medical records for each domain .....  | 73 |
| Table (4.9) Variations of completeness score for breast cancer medical files by domains<br>between hospitals ..... | 75 |

## List of Figures

|   |    |
|---|----|
| Figure (2.1): Conceptual Framework (self-developed) ..... | 11 |
|---|----|

## List of Annexes

|  |     |
|--|-----|
| Annex (1): Palestine Map .....   | 126 |
| Annex (2): Distribution of Gaza Strip Governorates.....                                | 127 |
| Annex (3): Distribution of available rooms and beds.....                               | 128 |
| Annex (4): Distribution of human resources .....                                       | 129 |
| Annex (5): Distribution of diagnostic equipment and facilities .....                   | 130 |
| Annex (6): Completeness of breast cancer patients medical files .....                  | 131 |
| Annex (7): Focus group questions.....  | 136 |
| Annex (8): Key informants questions.....   | 137 |
| Annex (9): Helsinki committee approval .....   | 138 |
| Annex (10): An agreement letter from MOH hospital general administration .....         | 139 |
| Annex (11): Distribution of human resources .....                                      | 140 |
| Annex (12): Distribution of diagnostic facilities (Radiology techniques): .....        | 141 |
| Annex (13): Distribution of diagnostic facilities (laboratory techniques):.....        | 142 |
| Annex (14): Distribution of rooms and beds in oncology departments in Gaza Strip ..... | 143 |
| Annex (15): Variations of completeness ICD-O3 between hospitals: .....                 | 143 |

## List of Abbreviations

|               |  |
|---------------|--|
| <b>ACS</b>    | American Cancer Society  |
| <b>BC</b>     | Breast Cancer  |
| <b>BSE</b>    | Breast Self-Examination  |
| <b>BMI</b>    | Body Mass Index  |
| <b>CT</b>     | Computerized tomography  |
| <b>DCIS</b>   | Ductal Carcinoma In Situ   |
| <b>DNA</b>    | Deoxyribonucleic Acid  |
| <b>EGH</b>    | European Gaza Hospital   |
| <b>HWF</b>    | Health workforce   |
| <b>ICD-O3</b> | International Classification of Diseases for Oncology, 3 <sup>rd</sup> edition |
| <b>MECC</b>   | Middle East Cancer Consortium  |
| <b>MOH</b>    | Ministry of Health   |
| <b>MRI</b>    | Magnetic resonance image   |
| <b>NCD</b>    | Non Communicable diseases  |
| <b>NGO</b>    | Non-Governmental Organization  |
| <b>PHIC</b>   | Palestinian Health Information Center  |
| <b>RNA</b>    | Ribonucleic Acid   |
| <b>UNRWA</b>  | United Nations Relief and Works Agency   |
| <b>US</b>     | United States  |
| <b>WHO</b>    | World Health Organization  |



# Chapter One

## 1.1 Introduction

Breast Cancer (BC) is one of the most commonly occurring cancers in females not only in Palestine but also all over the world, according to the American Cancer Society (ACS). Breast cancer represent 25 percent of all new cancer diagnoses in women universally (ACS, 2016). In 2012, nearly 1.7 million new cases were diagnosed worldwide. It's one of the Non-Communicable Diseases (NCD) that form biggest challenges and major public health problem that most countries especially the developing countries face (Younes, 2015). Breast cancer cases have been an obvious increasing over the last decade, bringing with it significant burden on women and a severe impact on morbidity, mortality and the quality of life for women and their families (UNFPA, 2018).

In the other side, most of cases are diagnosed in late stages which increase the burden of the disease and the outcome of treatment given is therefore unsatisfactory. Since no effective primary prevention is presently possible, efforts should be made to detect the disease in its early stages to decrease morbidity and mortality. It is also the leading cause of cancer-related deaths in low-resourced countries. Causes of breast cancer are still unknown, but studying some of the risk factors continues to be significant in many epidemiological studies. The incidence of breast disease and mortality rates is increasing. Breast cancer could either occur by chance or by multiple factors including lifestyle, environmental and hormonal factors. Some of these factors are not modifiable such as gender and age. The reason that breast cancer is also rare in men suggests directly an influence of sex steroid hormones. According to the registry center in Gaza Strip, the incidence of breast cancer is 18 per 100,000 population making it the most prevalent type of cancer (20.5%). The Palestinian health ministry reports showed that 60% of women in Gaza Strip were diagnosed in late stages after the disease had already spread to other parts of the body. In particular, 42.2% of these cases the disease had spread to the lymph nodes at the time of diagnosis. Tumors in the Palestinian women tended to be large, as they are detected late by physical examination and not by screening mammography (Odeh, 2011).

Recently, medical treatment has developed significantly which helped in cancer treatment. After long years of struggling with various cancers, medical care providers are now becoming more aware and oriented of the causes of these diseases, how to be diagnosed, treatment options and what it can be prevented. Breast cancer, remains one of the major

priorities and concerns in the medical field, mainly because it has multiple, risk factors and affect a large number of women (Odeh, 2011).

In this study the researcher aims to evaluate the management process of breast cancer patients that help in diagnosis and treatment process in addition to services serving breast cancer patients in Gaza strip, to decrease the gap in breast cancer management in order to decrease morbidities and mortalities that happened from breast cancer and to help health care providers and policy makers to formulate strategies for effective breast cancer management.

## **1.2 Problem statement**

Breast cancer is considered the most common type of cancer among women both in the developed and developing countries. Globally, cancer diseases are considered as one of the most important health problems in all over the world for its high incidence, cost, and mortality. In Palestine, over the last decade, breast cancer has increasingly been a significant public health and policy concern, as large number of Palestinian women were diagnosed and died from breast cancer as consequence it causes the highest cancer-related mortality in Palestinian women, 23.2% of all female deaths from cancer. Breast cancer reached a rate of 11.2% of deaths caused by cancer in Palestine (MOH, 2016). In the Gaza Strip the number of breast cancer cases was 684 a rate of 20.5% of all cancers and 36.9% from female cancers and incidence rate 18/ 100,000 from all population, MOH health system is fragmented and facing many gaps and challenges that impeded its tasks in providing the appropriate services for cancer patients. Moreover health services that are used in breast cancer management are insufficient or not available like (radiotherapy, chemotherapy, Positron emission tomography (PET) scan, and plastic surgeries post mastectomy and palliative treatment).

This problem is triggered by the presence of economic crisis, and political instability in addition that there is no clear referral system is used for cancer patients. Moreover, protocols and management plans that are used in breast cancer management are fragmented and facing challenges and barriers that affect negatively in the management process, in addition to that there is no previous studies were done about the evaluation of breast cancer management services. Most of studies that done for studying risk factors and survival analysis for breast cancer. For that, this study will be the first study to evaluate the

available strategies and provided services for breast cancer management in order to provide baseline for future improvement to enhance the quality of life for breast cancer patients.

### **1.3 Justification**

Health care services that are provided for all patients should be sufficient with high quality especially for cancer patients, due to their complicated situations and long management journey. The last reports which studied the health status in the Palestinian Territories presented by National or international institutions showed that there is an obvious marked increase in the number of morbidities and mortalities related to breast cancer (MOH, 2016). In addition there is no accurate or reliable data that reflects the current quality of care provided for breast cancer patients in Gaza strip (Abed, 2007). This study is considered the first kind of studies that is conducted in Palestine regarding evaluation of breast cancer management for that, this research will add valuable information, knowledge, benefits to the researcher himself, health system, patients, government and the community. Breast cancer is very hard to be treated completely if patients are diagnosed in late stages in addition to the current political situation in the Gaza Strip which characterized by siege, shortage of a lot of essential drugs and limited resources and research all these factors slow the management process of breast cancer. A multidisciplinary evaluation should be applied to enhance patients quality of life and increasing survival rate. In addition, to have a good health we should have a strong breast cancer management program that will prevent, protect, detect early breast cancer cases in all population, moreover to manage and promote a holistic and high quality care for all breast cancer patients.

So this study is conducted to evaluate the available strategies and management services for breast cancer management in the Gaza strip to help health care providers and stakeholders to identify and treat gaps and weaknesses in the available management strategies in addition to promote a plan to improve and strengthen the quality of provided breast cancer services in the Gaza Strip. This enhance to decrease morbidities and mortalities rates in breast cancer patients, moreover enhancing the quality of life for breast cancer survivors. In addition, this study may provide guidelines for other researchers to conduct other studies in this field and give suggestions or highlights about improving the quality of breast cancer services.

#### **1.4 Aim of the study**

The aim of this study is to evaluate the current strategy for breast cancer management. This study may help us to identify the weaknesses and gaps in the management strategy that may enhance to decrease mortality and morbidity and improve health-related quality of life for patients, in addition to provide the policymakers with recent evidence based information that may be helpful to correct any under or mal-performance and rank their priorities.

#### **1.5 General objective**

To evaluate available strategies and health care facilities serving breast cancer patients and challenges- barriers for service provision in the Gaza Strip.

#### **1.6 Specific objectives**

- To identify management strategies for breast cancer patients in the Gaza strip
- To assess management protocols for breast cancer patients in the Gaza strip.
- To assess availability of management facilities for breast cancer patients in the Gaza Strip
- To develop recommendations that will help in developing management process of breast cancer patients.

#### **1.7 Research Questions**

1. Do we have a functional written strategy to control breast cancer?
2. Is the available action plan for prevention, early detection, diagnostic and treatment adequate and acceptable?
3. To which extent the managers involved in controlling the breast cancer are aware of the breast cancer control strategy in the Gaza Strip?
4. What are the actual implemented activities to control breast cancer disease in the Gaza strip?
5. Does the available oncology services buildings meet the expectations of medical staff and breast cancer patients?
6. Are there adequate supportive and palliative care services for breast cancer patients?
7. Do breast cancer patients have positive attitude and perspective about the provided health care services?

8. Is the internal reporting adequate and accurate in estimating the incidence of morbidity and mortality and if it is helpful tools in recourses distribution?
9. What are the appropriate, feasible, economic, suggestions for possible improvements in the provided health care services for breast cancer patients?
10. Are there any obstacles in the internal referral, and coordination between services serving breast cancer patients?

## **1.8 Background**

### **1.8.1 Geography**

Geographically, Occupied Palestinian territories is Palestine but due to the current political situation it includes two main separated areas which are: the West Bank and Gaza Strip. West Bank constitutes an area of 5,655 Km<sup>2</sup> west to the Jordanian river, Gaza Strip is one of the most densely populated area in the world with an area of 365 Km<sup>2</sup> with total area of 27,009 Km<sup>2</sup>(Annex No.1) (PCBS, 2017). Most Gaza Strip population are concentrated mainly in cities, small village and eight refugee camps distributed in different areas in the Gaza Strip which contain two third of the population, however in West Bank more than half of the population lives in approximately 400 villages and rural refugee camps. Gaza Strip is considered one of the weakest economic situation areas compared with the neighboring areas, which affect negatively in public health and all other aspects of life. Gaza Strip had two main ports for patients referral when the treatment options are not available in Gaza which are Rafah crossing port and Erez Crossing points.

### **1.8.2 Demography**

The last report of the Palestinian Central Bureau of Statistics (PCBS) mentioned that the estimated population of Palestine was 4.78 million by the end of the year 2017, which distributed as the following: 1.9 million in the Gaza Strip and 2.8 million in West Bank (PCBS, 2017). The population distribution shows that there are higher percentage of population which constitutes 58.6% live in the northern governorates (West Bank) and 39.7% in the southern governorates (Gaza Strip). Population distribution by sex shows that there are slight differences between males and females, 50.8% of the population is male and 49.2% is female (PCBS, 2017).

### **1.8.3 Life expectancy and mortality**

In the last year, the improvement in the health conditions was increasing in Palestine and the gradual decline in infant, child mortality rates and maternal mortality, life expectancy has increased. A report was published in 2016 shows that the life expectancy for Palestinian people is 73.7 years in general, but males had lower life expectancy rates than females which is 72.1 years for males and 75.2 years for females, with variations between West Bank and Gaza Strip. In West Bank is slightly higher than in the Gaza Strip, it was 74.0 years; 72.4 years for males and 75.5 years for females. In Gaza Strip, life expectancy was 73.1 years; 71.5 years for males and 74.6 years for females (PCBS, 2017).

### **1.8.4 Health and Health Care System**

MOH report (2016) reveals that cardiovascular disease is considered the main leading cause of deaths in Palestine, which constitutes 30.6% of total deaths in 2016, followed by cancer reported with percentage 14.0% from total deaths in Palestine (MOH, 2016). Health care system in Palestine is still fragmented and facing many gaps that impeding its functions, because of multiple health care providers it leads to numerous challenges in providing a well-organized services with high quality in all moments normal or emergencies times(Health & Assessment, 2014). In Palestine there are four major health care providers which include: the ministry of health (MOH) which consider the main health services provider in the Gaza Strip followed by United Nations Relief and Work Agency (UNRWA), non-governmental organizations (NGOs), and private for-profit providers. MOH provides holistic services for populations including primary, secondary and tertiary health services and purchase the unavailable tertiary health services for the needed patients from domestic and abroad health care providers. UNRWA which consider the second health care provider after MOH, it provides primary health care services, only for refugee patients and purchase secondary care services for the hardship cases from other providers like MOH and private hospitals. NGOs provide primary, secondary and some tertiary services depends on the projects and funds. Private sector provides services at the three level of care through a private specialized hospitals and centers for profit reasons.

### **1.8.5 Health services**

Public health sector should be regularly monitored for its functions and quality. Most of public health services are facing many challenges and gaps that impeding it to provide high quality and adequate services and it should be reviewed and upgraded. While Israeli

authorities permit the access of medical supplies into Gaza, there are frequent interruptions of medical equipment resulting from power interruptions and water impurities, in addition to other factors. For that and for other reasons, many patients are forced to travel abroad Gaza to seek treatment and for other challenges and gaps in health services in the Gaza Strip, which is difficult due to movement restrictions imposed by the blockade.

There are three oncology and hematology departments in the Gaza Strip distributed among three hospitals: Shifa Hospital, Gaza European Hospital in Khanyounis and Rantisi specialized pediatric Hospital, including many services for diagnosis and treatment of breast cancer, but other services are not found which constitute an obstacle for breast cancer management, for that many patients try to be referred abroad to have her treatment.

There is extreme deficiency in health services for breast cancer patients in the Gaza Strip, in addition to the shortage of most essential drugs and treatment facilitates, poor referral system, no training programs for staff. All that adversely affects the patients chances of survival, recovery and increase the burden of the disease.

#### **1.8.6 Shifa Hospital**

Shifa hospital is considered the largest medical complex and central major hospital in the Gaza Strip. Shifa hospital consists of three major departments: Medical department, Surgical department and Obstetrics and Gynecology department in addition there also another main building but still under construction. The onco-hematology department in Shifa hospital was established before twenty-five years as one room and over the last years, it provides holistic diagnostic services for patients; which includes clinical, histopathological and radiological diagnostic services, in addition to multidisciplinary medical services includes many departments, even oncology department. The total beds of Shifa hospital are 490 beds with 635 physicians and 362 nurses (MOH, 2012).

#### **1.8.7 European Gaza Hospital**

The European Gaza Hospital (EGH) is considered as one of the advanced medical centers in Palestine, it is located at the southern of the Gaza Strip in Khanyounis Governorate. The hospital provides facilities for a full range of primary, secondary and planned tertiary patient care services for both inpatients and outpatients. The services of the 204 beds center are at a high level of professional standards (MOH, 2012).

The oncology- hematology department was established in 2000 and it contained at that time 24 beds. In 2005 part of this service was transferred to in vitro Fertilization Center (IVF); this reduced the provided services to the half with a capacity of 12 beds. . Later on in 2008, the oncology service was transferred nearby the Neuro- surgery department in the same hospital. Nowadays, the oncology services were transferred to another building (European Gaza Hospital Records, 2010). This frequent movements negatively affected on the services especially for the cancer patients who usually need continuous health care services. Currently the European Gaza Hospital is considered the second main hospital for cancer services in the Gaza Strip after Shifa hospital, which provide holistic health care for patients which include: diagnostic, treatment and follow up services. The hospital has a department for the cancer and hematology services and has outpatient clinic with total number of 29 nurses and 6 physicians.

#### **1.8.8 Rantisi specialized pediatric hospital**

Rantisi hospital is specialized in Pediatrics and provides specialized medical services for children. It is located in Al-Nasr area. It started operation in 2008. It includes subspecialties in pediatrics, Pediatric diseases, neurological diseases, children, pediatric and gastrointestinal diseases, intensive care for children, outpatient clinics, laboratories, blood bank, radiology and pediatric physiotherapy, as well as brain and muscle imagining services. Oncology unit services extend from North Gaza to the South for different types of cancers (Pediatric specialist hospital records, 2012)

In 2015, Oncology adult department was transferred for temporal time from Shifa hospital to Rantisi specialized hospital until the oncology department at Shifa hospital be finished and ready for serving cancer patients. The oncology department in Rantisi specialized hospital consists of 30 inpatient beds, 15 beds for the males cancer cases and the other 15 beds for females cancer cases. The oncology department has oncology outpatient clinic from which work from Sunday to Thursday, with total of 30 registered and practical nurses and 6 physicians divided on the outpatient clinic and inpatient departments.

#### **1.8.9 Cancer Registry Center**

Cancer registry is defined as a well-organized system which include variety of functions which include: collection, storage, analysis, and interpretation of data on persons with cancer. Cancer Registry Center was established in 1998 in coordination between Ministry of Health and Middle East Cancer Consortium (MECC) in both Gaza Strip and West Bank,



which play important role in reporting and classifying the malignant diseases. The main sources of data collection are; Governmental hospitals, histopathological laboratories, private radiology centers and UNRWA, referral office for treatment abroad, and death certificates (El-Sakka, 2006). The main center for Palestinian cancer registry in Shifa hospital to cover north of Gaza, Gaza town and the middle area, the second branch of Palestinian cancer registry in European Gaza hospital and serve Rafah and Khanyounis governorates.

## **1.9 Operational Definitions**

### **1.9.1 Cancer**

Cancer is a generic term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade adjoining parts of the body and/or spread to other organs. Other common terms used are malignant tumors and neoplasms. Cancer can affect almost any part of the body and has many anatomic and molecular subtypes that each require specific management strategies (WHO, 2019).

### **1.9.2 Breast Cancer**

Breast cancer starts when cells in the breast begin to grow out of control. These cells usually form a tumor that can often be seen on an x-ray or felt as a lump. The tumor is malignant (cancer) if the cells can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. Breast cancer occurs almost entirely in women, but men can get breast cancer, too (CDC, 2016).

### **1.9.3 Evaluation**

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

### **1.9.4 Cancer treatment**

Treatment is the series of interventions, including psychosocial support, surgery, and radiotherapy, chemotherapy that is aimed at curing the disease or prolonging life considerably while improving the patient's quality of life (WHO, 2009).

### **1.9.5 Screening**

Screening is defined as the presumptive identification of unrecognized disease in an apparently healthy, asymptomatic population by means of tests, examinations or other procedures that can be applied rapidly and easily to the target population (WHO, 2019).

### **1.9.6 Management**

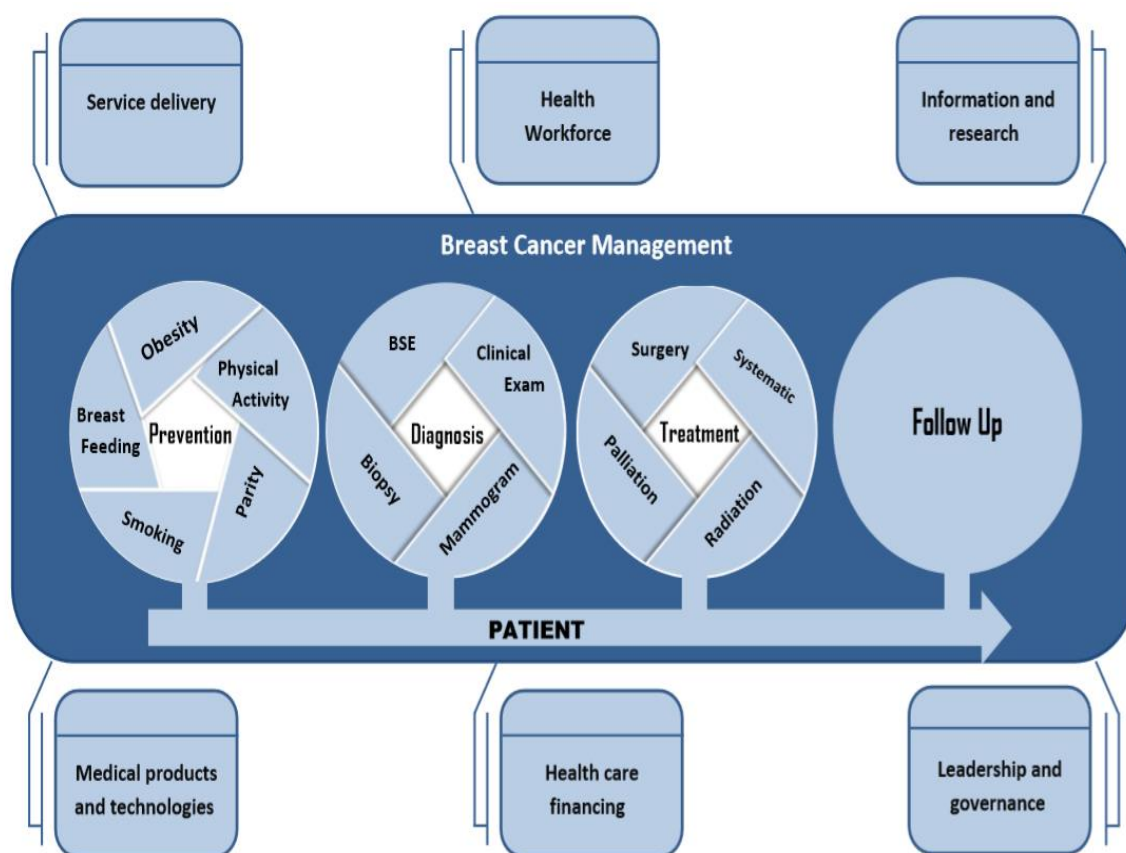
Management is the process of planning, organizing, leading and controlling the efforts of organization members and of using all other organizational resources to achieve stated organizational goals (Eze, 2007).

### **1.9.7 Health services**

Consist of medical professionals, organizations, and ancillary health care workers who provide medical care to those in need. Health services serve patients, families, communities, and populations. They cover emergency, preventative, rehabilitative, long-term, hospital, diagnostic, primary, palliative, and home care. These services are centered around making health care accessible, high quality, and patient-centered. Many different types of care and providers are necessary in order to offer successful health services.

## Chapter Two

### 2.1 Conceptual Framework (self-developed)



**Figure (2.1): Conceptual Framework (self-developed)**

Conceptual framework is crucial as it gives the holistic, critical, historical perspective of the research topic, and it indicates research gaps. As Bordage (2009) mentioned that, Conceptual frameworks are used to represent thinking methods about a problem or a study, or it shows in simple way complexity of the problem and how difficult thinks work.

This conceptual framework was developed by the researcher to illustrate breast cancer management in the Gaza Strip based on WHO six building blocks which are:

#### 2.1.1 Health services delivery

Good health services which include personal and non-personal health interventions that are delivered to persons who are need it in holistic manner with guarantee of its safety, effectiveness and high quality and it takes in consideration the appropriate time and place without harm to anybody and minimum waste of resources (Beange, 1996). Personal health

services are delivered individually. They can be of therapeutic or rehabilitative nature, and may generate positive externalities. Non-personal health services are actions applied either to collectives (e.g., mass health education) or to the non-human components of the environment (e.g., basic sanitation). Health services consist of all services that patients need for diagnosis, treatment and follow up of disease, or the promotion, maintenance and restoration of health. Health services are the most apparent functions of any health system. Service provision can be referred to the way inputs such as financial costs, staff, facilities, equipment and medications are combined to allow the delivery of health interventions in a good manner. Improving coverage and quality of health services depends on availability of main resources which are needed for patients; and how those services are used, well organized and managed in best ways (ICHSM, 2019).

### **2.1.2 Health workforce**

Health workforce is considered as the backbone of the health care system, good health workforce is one which has well performance with fast response and efficient ways to gather the best health results as possible as when there are enough available resources that help in their tasks and in addition to the good circumstances, sufficient number of staff who are competent, productive and fairly distributed.

There are many challenges still facing developing countries, they are working hard to overcome it especially on the sustainability and development of health workforce as availability of sufficient number of staff, competency, training, rapid responsive in addition to adequate support to meet population needs and have positive outcomes.

WHO mentioned some key areas for health workforce support which include: HWF strategic response to evolving and unmet health service needs, education, training and continuing competence, utilization, management and retention, in addition to governance, leadership and partnerships for sustained contributions to improve populations outcomes.

### **2.1.3 Health information system**

A well organized and performing health care system which apply its functions effectively and properly which include: data collection, production, analyzing, reporting, dissemination of data to whom it may concern, in addition to the use of reliable information on health system performance and health status. It is used by different groups of qualified people in different aspects in health include: policy makers, decision makers,

planners, health care providers and other key informant people who have a good thinking approaches to set and modify health policies which facing gaps and to make effective health decisions that will give positive outcomes and high level of satisfaction from population. In developed countries, there are sustainable efforts from all levels to improve health care system from various aspects like: availability, quality, staff, staff, needed equipment and use of health information at country, regional and global levels.

Using appropriate health data standards, good validation processes, data sharing and data analysis will improve the utilization and quality of health information as consequence decrease the gaps that impeding its functions. WHO has ongoing efforts to develop health care system in developed in developing countries. It assists them to strengthen capacity, improve data quality and put in place information systems to generate more reliable population health information, such as vital statistics (WHO, 2015).

#### **2.1.4 Leadership and governance**

A strong and effective leadership and governance which ensure the availability of strategic policies that meet population needs and combined with effective planning, monitoring, appropriate regulations and accountability. Health governance (or stewardship) is defined as the wide range of functions and tasks carried out by governments to improve population health and achieve population health needs while ensuring equity in access to services, affordability of services, quality of services, and patient's rights of health. Governance is also concerned with the roles and responsibilities of all country sectors which include: public, private and voluntary sectors - including civil society - and their relationships with each other in pursuit of national health goals (WHO, 2015).

#### **2.1.5 Health financing system**

One of the most advantages of good health financing system that it ensure adequate funds for health, in clear ways that ensure people can use needed health services easily, protect them from financial burden that increase population costs.

Health and health care are major economic and political issues. Health economics is a branch of economics that is concentrated on how health resources are allocated in its appropriate places and how it used in different health systems in effective ways. Health financing is a major focus of health economics and is important in establishing and analyzing health policies, sources of funds and effectiveness of health services delivered to

the population. The major goal of health financing is to ensure adequate spending on health and effective allocation of financial resources to different types of public and personal health services that meet population needs and satisfaction. In most developing countries still there are many challenges that interfere with health services delivery as consequence it affect negatively in the quality of care provided.

#### **2.1.6 Essential medications**

Equity in access to essential medicines is part of human right. The title itself give an important impression, Essential medicines is consider as a basic of life for its importance because it can save lives, reduce sufferings and improve health and all it happened if it was available, easy access to it and affordable. In addition quality should be assured and it should be properly used by both providers and patients to meet needed outcomes. Essential medications should be available at all times, in all circumstances in adequate amounts, in the appropriate dosages and at a price that individuals and systems can afford without any financial burden. Thus, they should be selected properly based on patients and population real needs, evidence of efficacy and safety and cost effectiveness.

### **2.2 Literature Review**

#### **2.2.1 Overview of cancer**

Cancer is defined as abnormal cells growth and division without control and have the ability to invade other tissues. Normal body cells are grow, divide and then died in normal body mechanisms. In normal differentiated cells, there are cellular mechanisms, which control cell division. When these mechanisms do not function properly, cells may multiply excessively forming a tumor(Cooper & Hausman, 2000). There are two types of tumors malignant and benign tumors. Malignant tumor is an abnormal growth and division of cell which form a mass of tissue have the ability to invade and spread into neighboring tissue and often to other parts of the body. Malignant tumors are composed of cancer cells. Cancer cells are very resemble to cells of the organism from which they originated and have similar deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). Cancer cells form from cells dividing out of control caused by alteration (damage) of DNA, and these changes can occur at many levels. Changes in many genes are required to transform a normal cell into cancer cells (Cooper & Hausman , 2000).

### **2.2.2 Breast cancer**

Breast cancer happens when there is abnormal growth and out of control for breast cells. These cells combined together and forming tumor can often be diagnosed and seen on an x-ray or other diagnostic facilities or it can be felt as a lump when female make breast self-examination. The tumor which formed as a result of adhesion of breast cells together can be malignant if the cells of the tumors invaded the surrounding organs, tissues or spread (metastasize) to distant areas of the body. Breast cancer occurs almost entirely in women, but men can get breast cancer, too but in low incidence rates (ACS, 2016).

Breast cancers can be happened from different parts of the breast, but most of breast cancers starts in the ducts that carry milk to the nipple (ductal cancers). Other breast cancer start in the glands that make breast milk (lobular cancers). There are also other different types of breast cancer that happened but they are less common. A low percentage of cancers happen in other tissues in the breast, these cancers are called sarcomas and lymphomas and are not really thought of as breast cancers. In addition to that there are many types of breast cancer can cause a mass in the breast but not all types do that. Screening mammograms can be helpful in detection of breast cancer cases in early stages and before development of symptoms which give a chance for patients for early treatment and as sequence low mortality rates. Some of symptoms should be reported to a health care provider when it watched or felt. It's also important to recognize that most breast lumps or masses are benign and not malignant. Benign breast tumors which have abnormal growth and division, but they do not invade outside of the breast and they are not life threatening conditions, in the other side some benign breast lumps can increase a woman's risk of getting breast cancer if they didn't take care and make follow up. If there is any breast lumps or any changes in the breasts like its shape and color it should be checked by a health care professional to determine if it is benign or malignant (cancer) and if it might affect your future cancer risk and to make a plan for follow up to decrease possible complications.

Women should know the normal shape and color of breasts because it will be easier to detect any abnormalities and in addition to have regular mammograms and other screening tests. Early detection of breast cancer in early stages gives a better chance for early and successful treatment. Screening tests can help find breast cancer in its early stages of the disease, before any symptoms appear or the disease become complicated and hart to be

treated. The most common symptom of breast cancer is a new lump or mass which had different signs and symptoms include: painless or in rare times it can be painful, hard mass that has irregular edges is more likely to be cancer, but breast cancers can be tender, soft, or rounded. For that, breast self-examination in regular matter is very important to early detect any new mass, lump, or breast changes in color or shape, it should be checked by a health care professional experienced in diagnosing breast diseases for early treatment and follow up (ACS, 2016).

### **2.2.3 Epidemiology of Breast Cancer**

#### **2.2.3.1 International epidemiology of breast cancer**

Over years the damned disease which named cancer has been threatening the comfort of scientists by its multi faced and the hard methods to combat this disease. The word cancer alone is enough to induce fears and desperation inside us, but not anymore, nowadays physicians feel more excited to be engaged in this field because of the many research achievements related to it.

According to WHO global health estimates report (2013) it showed that breast cancer is the most common cancer in women all over the world. It was obvious that there are increasing in the mortality rates from breast cancer, it is estimated that worldwide over 508 000 women died in 2011 due to breast cancer. (GLOBOCAN 2008) mentioned that breast cancer is thought to be a disease of the developed countries in the world, almost half of breast cancer cases and 58% of deaths occur in developing countries which indicate to burden of this disease. There are variation of incidence rates of breast cancer among countries from 19.3 per 100,000 women in Eastern Africa to 89.7 per 100,000 women in Western Europe. In most of the developing regions the incidence rates are below 40 per 100,000 (GLOBOCAN 2008). African countries had the lowest incidence rates but breast cancer incidence rates are also increasing.

Breast cancer is consider the most frequent diagnosed type of cancers and the leading cause of cancer death among females all over the world, with an estimated 1.7 million cases and 521,900 deaths in 2012. Breast cancer alone accounts for 25% of all cancer cases and 15% of all cancer deaths among females (WHO, 2014).

There are variation of survival rates between countries worldwide, ranging from 80% or over in North America, Sweden and Japan to around 60% in middle-income countries and



below 40% in low-income countries (Coleman, et al. 2008). There is still low survival rates in developing countries due to mainly the lack of prevention and early detection programs, which lead to delay diagnosis of breast cancer or to be diagnosed in late stages after the disease was metastasized in the body, as well as by the lack of adequate diagnosis and treatment facilities and in addition to insufficient number of specialists in oncology (WHO, 2016).

### **2.2.3.2 Regional epidemiology of breast cancer**

Arab world countries still have many challenges and gaps in the availability of data; some countries either have a national or regional registry for data collection, analyzing and reporting, while others have no data to be used for cancer control, but breast cancer still ranks the first type of cancers among females in Arab countries with a young age of around 50 years (13-35% of all female cancer). The disease remains very common in Egypt, Tunisia, Saudi Arabia, Syria, Palestine and other countries (El Saghir, et al. 2009). El Batrokh study (2013) reported that the 72% of breast cancer patients were >45 years old with statistical significance. 10.7% of the participants have family history of breast cancer of which 15 had breast cancer with statistical significance. Fertility among breast cancer (92.9%) was lower than control (100%) with statistically significant. The mean number of parity for breast cancer and controls was found to be (6.83 and 6.01), respectively with statistical significance. The mean of duration of breast feeding in month for cases and control equals (14.15 and 17.25 month) respectively and this disparity was statistically significant.

### **2.2.3.3 Local epidemiology of breast cancer**

Nationally, according to the Palestinian Health Information Center (PHIC) and MOH annual reports in Palestine it reveals that breast cancer at the forefront of cancers that affect the Palestinians. Breast cancer in the Palestinian women is continuously increasing; it occurs at younger age at onset and advanced stage at presentation. In Gaza Strip the number of breast cancer cases was 684 a rate of 20.5% of all cancers and 36.9% from female cancers and incidence rate 18/ 100,000 from all population. In 2005 a report showed that breast cancer causes the highest cancer related mortality among Palestinian women, 21.1% of all deaths from cancer, and 5.2 deaths per 100,000 women.

A study was made among Palestinian women who are resident in the West Bank to evaluate the use of screening method and mammography for the detection of breast cancer.

The study revealed that more than 70% had never undergone mammography or clinical breast examination and 62% done self-breast examination. Large tumors are diagnosed in advanced stages because most women fear of cancer and fear of social withdraws that affects woman's standing in the community and affects her daughter's chances of being married. Adding to this, the ignorance about the disease itself and the difficulty of access to the breast health care centers (Younes, 2015).

## **2.2.4 Risk Factors of Breast Cancer**

### **2.2.4.1 Gender: Being a Woman or Men**

Women's breast maturity takes 3 to 4 years and usually complete by age 14. It's once fully formed, breast cells are very immature and highly active until a woman's first full-term pregnancy. When women still immature, their breast cells are very responsive to estrogen and other hormones. In the other side men's breast cells are inactive and most men have extremely low levels of estrogen and not responsive to estrogen hormone. Particularly during the extra-sensitive period of breast development, is why breast cancer is much more common in women than in men. In 2016, an estimated 246,660 new cases of invasive breast cancer diagnosed in women in the U.S., along with 61,000 new cases of non-invasive breast cancer. In contrast with males there were about only 2,600 new cases of invasive breast cancer are diagnosed in men in 2016. A man's lifetime risk of breast cancer is about 1 in 1,000. So, that's mean the rate of morbidity and incidence rate of breast cancer are higher in females than males, but if it happened with males they have high mortality rates and low survival rates than females, but breast cancer is still rare to occur in males, but it does happen. A large study showed a results were presented on May 4, 2012 at the annual meeting of the American Society of Breast Surgeons found that when men are diagnosed with breast cancer in early stages they have more percentage to die from the disease than women.

There are records were reviewed by researchers from large database of breast cancer patients called the National Cancer Data Base. It revealed that people who are diagnosed with breast cancer between 1998 and 2007, there are very low percentage of all cancer cases are males and all other cases were females. From the aspect of the survival rate in the 5 years after diagnosis it showed that the differences are not too large: 74% for men and 83% for women while lower survival rate with males who are diagnosed with breast cancer seen in cases who are diagnosed in early stages of the disease. It showed also people who

are diagnosed with late stages of breast cancer, there are equal chance of survival for both gender. Advanced-stage breast cancer is cancer that has disseminated to non-breast tissue in the breast area (locally advanced cancer) or metastasized to other parts of the body away from the breast (metastatic cancer). Five-year survival for late stage breast cancer was: 16% for men and 19% for women. On average, the breast cancer stage at diagnosis men have higher incidence compared to females. When breast cancer is diagnosed in men it tended to be: larger in size, higher grade, which relates to how aggressive the cancer cells are and it easily metastatic to other part of the body, treatment of breast cancer in males not always the same as treatment of breast cancer for females, though the researchers aren't sure why. For cancer in men they have higher percentage to be hormone-receptor-positive than females (88% in men vs. 78% in women), but in the other side men were less likely than women to get hormonal therapy than females as part of treatment plan. Hormone-receptor-positive breast cancers are cancers that depend on the hormone estrogen level, its growth and spread, men's bodies secrete estrogen but in low level compared to females. By minimizing or blocking estrogen's effects in the body, hormonal therapy can help in treatment of hormone receptor-positive breast cancer and make its recurrence rare to happen.

When men are diagnosed with breast cancer and have surgical treatment, it's rare to use radiation therapy after surgery not like women it's more common to use it. Radiation therapy is often given after breast cancer surgery to reduce the possibility that the cancer will come back in the breast area (local recurrence).

There are many main reasons for the variations in breast cancer rates between genders which are:

- Development of female's breast is usually completed by age 14, not like male to be fully formed, in addition most of male breasts are fatty and not formed glands.
- When women breasts are fully formed, breast cells still immature and highly active till full term pregnancy, and cells became very sensitive to estrogen and hormones changes.
- Most of men have low levels of estrogen and their breast cells are inactive.

Due to highly responsive and vulnerability of breast cells in women from hormonal stimulation, especially during breast development time, this is increase the incidence of breast cancer in females more than males (Breastcancer.org, 2019).

#### **2.2.4.2 Age**

Females who are diagnosed with breast cancer in their second and third decades of age have high possibility of mortality and slow prognosis compared to females who are diagnosed in other ages, but the reason of that is still unclear. Early aged women who are diagnosed with breast cancer tend to have affected lymph nodes, be negative for estrogen receptors and in addition to that the size of tumor are larger with advanced histopathological grading in comparing to other ages, many studies explained the reason of that and suggested that they have higher possibility for late diagnosis because it is difficult to detect breast cancer in young females due to high density of mammary glands which is more obvious in pregnant and lactating women, in addition to that young women still have higher risk than other women ages to have axillary lymph node diseases and tumors with negative estrogen receptor and advanced histopathological grading, for that the cause of mortality among young aged females is usually from breast cancer itself.

Young aged women tend to have more favorable chance to survive in advanced stages of breast cancer than other older females. When females diagnosed with breast cancer in age less than 40 years, they have poor chance of surviving stage I and stage II than older women. But when they diagnosed with stage III studies showed that younger females have favorable chance for surviving than old age females. It was evidenced based that older women tend to have milder severity of breast cancer than young age females, in contrast regarding survival rates, younger women have high survival rates than older females confronting advanced stages of the disease. The highest survival rate in stage I of breast cancer tend to be in women with age group from 50 to 69. For other stages of breast cancers, women between 40 and 49 years of age show the highest survival rates. Women younger than 40 years tend to have the lowest level of survival rates for stages I and II breast cancers, while women over 70 tend to show the poorest survival rates for stage III and IV breast cancers.

A prospective cohort study was conducted to examine the risk of breast cancer that influenced by maternal history of breast cancer prospectively with taking in consideration sister's history of breast cancer or mother diagnosis age. It showed that the risk of breast cancer is almost twice among females who had family history (mother) of breast cancer before the age 40 years or who had sister diagnosed with breast cancer, and it remains with high incidence rates for those whose mothers were diagnosed with breast cancer at the age of 70 years or older (Colditz, et al. 1993).

#### **2.2.4.3 Family history**

There are evidenced based studies showed that there are increasing risk of breast cancer in females with family history of breast cancer by using different study designs. However, the extent of this risk varies according to the nature of the family history (who are affected, age at diagnosis and number of relatives affected) and may also vary according to age of the individual (Pharaoh, et al. 1997).

Females who had family history especially close relatives who are diagnosed with breast cancer have higher possibility to develop breast cancer. In case of first-degree female relative (sister, mother, and daughter) who are diagnosed with breast cancer, the risk to have breast cancer is doubled. If there are two first-degree relatives have been diagnosed with breast cancer, the risk is greatly higher about 5 times to develop breast cancer. Sometimes, a strong family history of breast cancer is linked to have abnormalities in genes formation associated with a high risk of breast cancer. When comparing with women who didn't had family history, women with first-degree family history of breast cancer had a 40% reduction in the risk of dying. Women who are diagnosed with breast cancer and have family history with breast cancer second degree have the same mortality percentage to those women without family history of breast cancer, in addition to that the risk of death is reduced in women with family history and greater number of affected relatives. This can't be explained by the differences in screening, diagnosis and treatment. Tumors in women with a first-degree family history had generally more favorable prognostic profiles.

A study was conducted by medical students from Al Azhar University in (2016) and they found that only 26.1% of breast cancer patients in the Gaza strip have a family history of breast cancer, 57.1% second degree relative 42.9% first degree relative (Medical students, 2016).

#### **2.2.4.4 Obesity and Overweight**

In the last two decades it was noticed that the percentage of overweight and obesity in adult and children have been increasing, in US it was estimated that one third of adults are obese which increase the risk of other diseases. Some studies revealed that obesity is a risk factor of breast cancer postmenopausal period and it increase the risk to develop other types of cancer. In addition to the impact of obesity on cancer risk, obesity play an important role to be recognized as a poor prognostic factor among survivors of breast and colon cancers. Other studies showed that an obvious increasing of mortality rate in breast

cancer patients due to obesity it is estimated that 11,000 to 18,000 deaths per year as a result of breast cancer in US women age 50 years or older might be avoided if women maintained a body mass index (BMI) under 25 throughout their adult lives and make changes in sedentary lives. Obesity is still a common and public health problem but its modifiable risk factor, so it can be reduced as sequence decrease the incidence and mortality rates of cancer. The relationship between breast cancer and obesity is still vague and complex, a major factor is the increased production of estrogen in excess adipose tissue in obese women after menopause which increases its level in the body. For that, estrogen-sensitive tissues are exposed to more estrogen stimulation in obese than in other women, which can enhance the growth and development of breast cancer. Obesity-related effects on insulin levels and the insulin-like growth factor-1 (IGF-1) axis, in addition to altered production of adipokines by adipocytes, may be considered as important contributors to increase the risk for breast cancer development and progression. Furthermore, obesity is recognized as a pro-inflammatory state as it results in the release of inflammatory mediators that promote tumor growth.

A case-control study was conducted by a group of medical students in (2016) from Al Azhar university to identify the major risk factors associated with mortality and survival from breast cancer in the Gaza Strip for 50 breast cancer patients and they found that women whose weights are between 76-90 kg, their heights above 160 cm, their BMI between 25-29.9, have tumor grade III, tumor stage IV, metastatic breast cancer, ER/PR negative, HER-2/neu negative and post-mastectomy radiotherapy, have higher mortality rates (Medical students, 2016).

On the other hand, women whose weights are between 50-75 kg, their heights are between 140-159 cm, their BMI below 25, have tumor grade I or II, early tumor stages (stage I or II), localized non-metastatic breast cancer, ER/PR positive, HER-2/neu positive and post-mastectomy chemotherapy without radiotherapy, have higher survival rates.

## **2.2.5 Management of breast cancer**

### **2.2.5.1 Breast cancer Prevention**

There is no confirmed method for breast cancer prevention, but there are things females can do that reduce the risk to develop breast cancer. There are risk factors that can't be modified, such as being female and the age, But other risk factors can be controlled and changed and may lower their risk to have breast cancer (Shamim, et al. 2008). Controlling

of modifiable breast cancer risk factors is consider an effective way for prevention of non-communicable diseases which include: promotes healthy diet, increasing physical activity, reducing weigh and decrease exposure to hazardous materials, all this could eventually have an impact in reducing the incidence of breast cancer in the long term as sequence decrease the burden of this disease (WHO, 2016).

#### **2.2.5.2 Diagnosis of breast cancer**

There are multiple diagnostic tests used to evaluate and diagnose of a possible breast cancer usually starts when a woman have a mass or abnormal shape and color of the breast on a screening mammogram, or there is a lump or nodule in the woman's breast during a clinical or self-examination. In less common cases, females may notice swollen or red area in the armpit area (Cancer.net, 2019).

#### **2.2.5.3 Imaging tests**

Imaging tests are used to show pictures of the organs inside the body. There are series of tests are used to diagnose breast cancer or to confirm any suspicious area found in the breast during screening and these tests are the following:

- **Diagnostic mammography.** Diagnostic mammography is one test help in early diagnosis of breast cancer it is similar to screening mammography except that the number of pictures that taken for breast are more. It is often used usually when a woman is experiencing abnormal signs in the breast, such as a new lump, change in the size and color of the breast or nipple discharge. Diagnostic mammography may also be used as a first choice of diagnosis if there is something not confirmed is found during a screening mammogram.
- **Ultrasound (US).** It's another device used to diagnose breast cancer. Its mechanism based on the uses sound waves to create a picture of the inner breast tissue. Its helpful method that can distinguish between a solid mass, which may be cancer, and a fluid-filled cyst and mass, which is usually not cancer cyst.
- **Magnetic Resonance Image (MRI).** It's an advanced device can be used before the diagnosis of breast cancer and after diagnosis for follow up. It works by using of the magnetic fields to produce detailed images of the small organs inside the body. There is a special dye called a gadolinium contrast medium is used when women need to make MRI. This dye is given before making MRI scan which help to make a clear picture of the suspected cancer area. It can be given by different ways to the patients (injection

into a patient's vein). MRI also can be used after women diagnosed with breast cancer for follow up the prognosis of the disease and response of women bodies to chemotherapy treatment and if tumor was shrink or not. Breast MRI is also can be used a screening option, for some women with a very high risk of developing breast cancer and other diagnostic devices didn't detect any abnormalities.

#### **2.2.5.4 Biopsy**

A biopsy is defined as the removal of a small part of tissue from body organs for examination under a microscope for more investigations. There are many tests can suggest the presence of cancer, but only a biopsy can confirm the diagnosis. After the biopsy was taken, a specialist pathologist analyze the biopsy under special circumstances. A pathologist is specialized doctor whose job is interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease and give the final results. There are many types of biopsies, classified according to the method and size of needle used in taken biopsy and these types are as the following:

- **Fine needle aspiration biopsy:** This technique of biopsy is done through using a small needle to take a small sample of cells from the targeted organ. There is a subtype of fine needle aspiration biopsy called core needle biopsy it's done by using a larger needle to remove a large sample of cells. This technique is the best and preferred method for discovering any abnormalities on a physical examination or an imaging test is cancer. During this procedure the doctor may use local anesthesia, to reduce pain discomfort during the procedure.
- **Surgical biopsy:** It's a technique used when a large amount of tissues are removed. It's done after the patient was diagnosed clinically with cancer, but this technique is not the best one to diagnose patients with breast cancer. In contrast core needle biopsies which are non-surgical procedures are recommended to diagnose breast cancer. This means patients with breast cancer need only one surgical procedure to remove the mass and to take samples for more investigations.
- **Image-guided biopsy:** this type of biopsy is done through using a needle is guided to the identified location with the help of a continuous imaging technique, such as mammography, ultrasound, CT scan or MRI. A stereotactic biopsy is a special type of image guided biopsy and is done by using mammography to help in insertion the needle into the breast. There is a small metal clip may be fixed into the breast to identify the place of the biopsy sample was taken, in case more surgeries or investigations were



needed. This clip is made from titanium which will not cause harm or complications to the patient in the future imaging tests, but patients need to make follow up and consultation from doctors before any imaging tests. An image-guided biopsy can be done using the previous mentioned techniques as a fine needle, core, or vacuum-assisted biopsy, it depends on the amount of tissue are needed to be removed (Cancer.net, 2019).

### **2.2.6 Staging of breast cancer**

Staging of breast cancer depends on a special criteria which include: breast tumor size, the location of the tumor in the breast in addition whether it has metastasized to lymph nodes or other organs of the body. Stages of breast cancer are described by using the Roman numerals 0, I, II, III, and IV and the letters A, B, and C. while Stage I in breast cancer means the patient has breast cancer in early stage, and Stage IV it means that the patient has advanced cancer stage that has metastasized to other organs in the body, such as the lung.

#### **2.2.6.1 Clinical staging**

This type of staging is based on the estimation of the extent of the tumor bases on physical examination, other imagining tests and tumor biopsies results. There are some types of cancers used blood test results to define the stages of cancer. The clinical stage is consider the most important part of deciding the best treatment to use for the disease. It's also used as baseline to compare patient current situation with her past condition and if there is any response to the treatment or not (ACS, 2015).

#### **2.2.6.2 Pathologic staging**

This type of staging is done based on the results of surgical procedure so it can determine the pathologic stage (also called the surgical stage) of the cancer. The pathologic staging can be identified based on the results of the previous exams and tests, in addition to the information about cancer that have been noticed during surgery. Surgical procedure is often used to remove cancer mass and other nearby affected lymph nodes, but also surgery may be done to check the size of the cancer is in the body and take tissue samples for more investigations. The pathologic stage gives the health care team more specific data about the cancer that will be helpful in setting treatment plan as sequence the patient response to the treatment and outcomes (ACS, 2015).

There is a special system used for categorizing cancer into stages, the staging system most widely used is the TNM (Tumor size, Node involvement, Metastasis)

The **T** category gives details about the (primary) tumor, as its size, location in the body and if the tumor is metastasized to other body organs or not.

- **TX** means that the tumor can't be measured.
- **T0** means there is no evidence of a primary tumor (it cannot be found).
- **Tis** means that the cancer cells are only growing in the superficial layers of tissue, without invasion to the deeper tissues. It also be called in situ cancer or pre-cancer.
- Numbers after the T (such as T1, T2, T3, and T4) describe the tumor size and/or invasion of the tumor into nearby structures. The higher the T number, the larger the tumor and/or the more it has grown into nearby tissues.

The **N** category describes whether the cancer has metastasized into nearby lymph nodes.

- **NX** means the nearby lymph nodes cannot be evaluated.
- **N0** means there is no cancer in the nearby lymph nodes
- Numbers after the N (such as N1, N2, and N3) describe the size, location, and/or the number of nearby lymph nodes affected by the tumor. The higher the N number, the greater the cancer spread to nearby lymph nodes.

The **M** category give information about whether the cancer has spread (metastasized) to distant organs of body.

- **M0** means that there is no cancer affect the distant organs of the body
- **M1** means that the cancer has metastasized to distant organs or tissues

Many cancer types have their own specific type of classification system, it means that letters and numbers don't have the same meaning for every type of cancer. For example, in some types of cancer, the T categories mean the size of the primary tumor, while in other types of cancer they describe how deeply the tumor has grown in to the organ it started in, or whether the tumor has metastasized to other organs of the body (ACS, 2015).

### **2.2.7 Treatment of breast cancer**

There are many types of breast treatment which include: surgical, systematic, radiation, chemotherapy, hormonal and targeted therapy. Breast cancer treatment and management

are based on the clinical staging of cancer, tumor biology, and molecular subtype, include surgery, local tissue-targeting radiotherapy, in addition to the systemic therapies such as chemotherapy, hormonal, and targeted therapy. In early stages of cancer, the surgical treatment of breast cancer by doing lumpectomy (breast-conserving surgery) or mastectomy (surgical removal of breast tissues) with the removal of clear margins of both invasive and non-invasive cancer, is required to remove the total breast mass and to decrease the possibility to be metastasized (Ng,Z et al. 2017).

#### **2.2.7.1 Surgical treatment**

Surgical treatment is consider the most common type of breast cancer treatment. There are different types of surgical treatments that are used to manage early stages of breast cancers. Mastectomy is defined as the removal of the whole breast of the patient and it's used when cancer is suspected to develop bad complications that threatening the patient's life. Breast-conserving surgery, such as lumpectomy or partial mastectomy, can also be helpful for some women when tumor with small size that there is no need to make mastectomy. If a breast conserving surgery is combined with post-operative radiation therapy, it is as effective at curing breast cancer as a mastectomy. Sentinel lymph node biopsy (removing the first lymph node that drains the affected area) should be performed in invasive breast cancer cases staged I to III to make assessment about whether the cancer has begun to be metastasized to nearby lymph nodes. If the lymph nodes are affected with cancer, an axillary dissection is preferred to be done to remove the affected lymph nodes in addition to examine other nearby lymph nodes. To decrease the burden of mastectomy as there are changes in the women chest there is surgery called reconstructive surgery that can be done at the time of mastectomy or in later time to restore the shape of the breast (Stöppler, 2014)

#### **2.2.7.2 Radiation therapy**

Radiation therapy is a common type of treatment for women with breast cancer who have had breast-conserving surgery and in sometimes it used to treat women who had mastectomy, particularly if the cancer had metastasized to the chest wall muscles or skin, or to the reginal lymph nodes. This type of treatment is done through using of high-energy rays to kill the remaining cancer cells after surgical treatment. It can be used in two ways externally or internally. While external radiation therapy is given in a special health clinic, usually five days a week for several weeks and it consider the most common type of radiation therapy used to treat breast cancer. But, internal radiation therapy can be used in

some cases. This done through placement of radioactive material which called brachytherapy directly into the breast tissue through a thin tubes and after short duration of time this material is removed. This procedure can be repeated daily for a week (Stöppler, 2014).

### **2.2.7.3 Systemic therapy**

This type of breast cancer treatment is done through taking systemic therapy orally or through a vein that enter directly into the bloodstream to reach the targeted cancer cells wherever they in any part of the body. There are 3 main categories of systemic therapy that are used for early-stage and locally-advanced breast cancer treatment which are: chemotherapy, hormonal therapy, and targeted therapy. Treatment options of breast cancer are based on the available information about the tumor in addition to the patient overall health and treatment preferences (Stöppler, 2014)

### **2.2.7.4 Chemotherapy**

Chemotherapy is consider as a part of systemic therapy and it's another option for breast cancer treatment and it's defined as the use of chemotherapy medications to get rid of cancer cells, by inhibition cancer cells of uncontrolled growth and division. Chemotherapy treatment is just prescribed by a medical specialist oncologist (ASCO, 2018).

Systemic chemotherapy gets through patient vein and directly into the bloodstream to reach the targeted breast cancer cells throughout the body. There are different methods that are used to give chemotherapy to patients and which include: intravenous (IV), subcutaneous or intramuscular, or orally through swallowing pills or capsules. It can be before surgery to shrink the size of a large tumor and make surgery easier and this called neoadjuvant chemotherapy. In addition it can be also given after surgery to reduce the risk of recurrence or complication and this process is called adjuvant chemotherapy. A chemotherapy regimen, is usually consists of a specific number of cycles given over a set period of time. Chemotherapy may be given on many different regimens based on what worked best in clinical trials or evidenced based for that specific type of regimen. It may be given once a week, once half of month, once every 3 weeks, or even once one month.

#### **2.2.7.4.1 Hormonal therapy**

Hormonal therapy is a type of systematic treatment which called also endocrine therapy, it is one of the best treatment type for most cancer that has a positive result for estrogen or

progesterone receptors. Most tumor use hormones to enhance its growth and duplication. When hormones action are blocked this prevent tumors from recurrence and growth and it helps to kill breast cancer cells when it used alone or after adjuvant or neoadjuvant chemotherapy. In addition it can also be used before surgery to minimize the tumor size and to facilitate the surgery. This type of treatment is called neoadjuvant hormonal therapy. It can be also given after surgery to reduce the risk of recurrence and prevent tumor complication and this called adjuvant hormonal therapy (ASCO, 2018)

#### **2.2.7.4.2 Targeted therapy**

This type of treatment works by targeting specific types of cancer genes, proteins, or the tissue environment that enhancing cancer growth, duplication and survival. Targeted therapy are more focused and work in different way than chemotherapy. It helps in blocking cancer cell growth and metastasis and its limiting damage to other healthy cells in the body (ASCO, 2018).

### **2.2.8 Breast Cancer Treatment by Stage**

- **Stage 0:** Ductal carcinoma in situ (DCIS), in this stage breast cancer is localized in one place and didn't spread to any other organs of the body. Nowadays, there are a lot of interest in the diagnosis of this condition and the potential for over diagnosis and overtreatment because there are few as 14% to as many as 50% of cases of DCIS will be complicated to advanced stages and became into invasive cancer. Surgical treatment is preferred to treat DCIS, in addition to the radiation therapy is also used to minimize the risk of recurrence of the cancer.
- **Stage I and II:** In these stages of breast cancers are treated surgically by removal of the tumor, either by a lumpectomy or mastectomy. Stage I cancers have a small size and its localized location and didn't spread to the lymph nodes or it spread to a small area within the lymph nodes. In the other side, Stage II cancers are larger than stage one in size and it may be spread to a few number of lymph nodes. When surgery is done, affected lymph nodes are removed, a biopsy of a nearby lymph node is typically done. After breast conserving surgery (lumpectomy) or even after mastectomy in some cases, Radiation therapy is almost given to prevent the recurrence of cancer. Moreover after the surgery, if the tumor expresses hormone receptors, hormone therapy with tamoxifen or aromatase inhibitors may be given to shrink the tumor size and prevent it from recurrence and sometimes chemotherapy is used also. In some cases, neoadjuvant

chemotherapy is given before the surgery to decrease the size of the tumor and chances of other surgeries.

- **Stage III:** In this phase, cancer have a large size and it spread to a larger number of lymph nodes in addition to that it metastasized to other body organs that are near to the breast and they didn't spread to distant body organs. In this stage tumor can be treated surgically which may be followed by radiation therapy to prevent it from recurrence. Other types of treatments options can be used such as hormone therapy, chemotherapy, and drugs to target HER2 activity depending on the specific characteristics of the tumor. Treatment with chemotherapy may also be used before to surgery (called neoadjuvant chemotherapy) for stage 3 tumors to shrink the size of the tumor.
- **Stage IV (metastatic):** This is advances stage which is breast cancers have spread to other distant sites and organs in the body. In stage 4, systematic treatment is used rather than local treatment because the cancer is more widespread. In addition to that, sometimes a combination therapy can be used such as chemotherapy, hormone therapy, and/or biologic therapy is the main treatment. Chemotherapy and radiation therapy can be used in some cases (Stopper, 2014).

### 2.2.9 Quality of care

All patients in general and cancer patients especially expect to receive a high quality of care, that's need appropriate services in a technically competent manner, good communication, involvement in decision making, effectiveness, safety, timely, efficient and equitable introduction of care (Berwick, 2002).but unfortunately; not all what we desire we always received, The complex management of cancer cases is based on the integration of multiple services, which involves multidisciplinary teams working at primary, secondary and tertiary care (Blazeby, et al. 2006). To provide high quality of care it is not enough to be effective in the technical spect, the client-centered approach is another dimension necessary to improve the quality of care and lead to better patient satisfaction (Massoud, et al. 2001; Davis, et al. 2005; Moran, et al. 2008).

A study was conducted by Anan (2011) it showed that there are three main factors identified by the patient as good quality of care is the availability of drugs (67,3%), respectful interactions with health care provider (46.5%), followed by being curing of the disease (34.5%) (Anan, 2011).

Another study was conducted by Abu-El-Noor about the quality of life care of patient with prostate cancer in Gaza, he identified many challenges that facing cancer patients and it revealed that 61% of patients reported that they face some barriers at a certain point and 75% reported that they met at least one barrier. Abu-El-Noor categorized barriers into major categories and designed descriptive models for the barrier to health care (Abu-El-Noor, 2010).

#### **2.2.10 Breast cancer survival**

The survival rate is defined as: “The percentage of people in a study or treatment group who are still alive for a certain period of time after they were diagnosed with or started treatment for a disease, such as cancer” (National Cancer Institute, 2016).

The most general health outcome measurement used is survival. For breast cancer as well as other cancers, 5-year survival is often used to evaluate the success of treatment as a surrogate parameter for overall survival. However, a 5-year perspective is not sufficient to estimate the rate of breast cancer patients that are actually cured since some patients may experience relapses after having been disease free for many years. It is therefore also relevant to look at 10-year or even 15-year survival rates in order to determine the actual outcomes in breast cancer.

Europe-wide analyses of cancer survival over the last two decades show a steady improvement of the relative survival from breast cancer in all European countries, but at different rates (Coleman, et al. 2003). Finland, France, Sweden, Italy, The Netherlands and Norway have reported the highest survival rates since the 1980s and to the current time. Spain reports a great improvement in breast cancer outcomes in the last two decades, from 65% to over 80% and presents today survival data in line with the countries with best outcomes in Europe (left graph). Germany and Denmark have, despite relatively high survival rates already in the mid-1980s, according to available data not reached survival rates above 80% in the latest assessment available (outcomes for Danish patients diagnosed in 2000-2002 were not available). The UK and Slovenia reported survival trends that have increased from 60-65% in the mid-1980s to 75-80% according to the latest assessment and Poland reports an even higher improvement in survival in the last 10 years (De Angelis, et al. 2009).

A study was conducted by Alrun (2017) it revealed that the survival rate of colorectal disease in Gaza is affected by co-morbidity status, smoking, stage of diagnosis, tumor grade, tumor site, and treatment type (Alrun, 2017).

#### **2.2.11 Evaluation**

WHO defined evaluation as a systematic examination and assessment of the features of an initiative and of its effects, in order to produce information that can be used by those who have an interest in its improvement or effectiveness (WHO, 1998). Wheelen (2006) defined evaluation as it is the process in which any organization control its activity and performance results are monitored. It compares the actual performance or achievement with the desired performance, allow the decision makers and planner to take a feedback for their action, to use those result to correct any underperformance or to take corrective action and intervention. Nevertheless, evaluation is a mandatory step it dons as final step for any strategy (Wheelen, 2006). An important item in the evaluation of cancer management is to identify the existing gaps and barriers.

A study was conducted by (Abo Amer) 2012 about Cancer Prevention and Control Evaluation of the Strategy in Gaza Governorates and it revealed that there are many gaps in the strategy of cancer control in Gaza Governorates starting from planning phase to implementation phase. These gaps are mainly related to poor financial and administrative coordination, shortages in health care human resources and inadequate staffing, inappropriate infrastructure of oncology buildings and deficiencies in necessary equipment and supplies. Moreover, there are heavy workloads on health personnel, prolonged waiting times for patients joined with poor privacy and comfort ability. In addition, the results showed the absence of clear guidelines and policies that should regulate the workflow and referral systems between health facilities. Regarding the (Abo Amer, 2012).

Another study was conducted by (Hamad, et al. 2016) about evaluation of palliative care services provided to cancer patients in the Gaza Strip, it revealed that a total of 374 respondents out of 396 (94.4%) positively responded and participated in the study. The overall mean percentage of all items for all domains, which reflects the availability of palliative care, is 68.72%, which means that the provided palliative care services are reasonably moderate. The medical aspect of care provided by physicians elicited the highest score (74%); meanwhile, the nursing aspect of care scored less (68%). Younger patients, whose malignancies were discovered at early stages and those who were treated in



one single hospital, elicited higher scores with statistically significant differences in comparison to their counter groups. Despite being available, palliative care services are not well-framed in Gaza's hospitals (Hamad, et al. 2016).

From the aspect of screening, a study was conducted by (Iamyian, et al. 2007) about barriers to and factors facilitating breast cancer screening among Iranian women: a qualitative study, it showed that the main facilitating factors for breast cancer were self-care, fear, proactive coping, state of mind and advocacy. On the other side, barriers were negligence, cancer related fear, low self-efficacy, fatalism, misinformation, ineffective health communication and competing priorities (Iamyian, et al. 2007).

A cross sectional survey for 370 female teachers working at Governmental schools in Gaza city was conducted by Abu-Shammala & Abed (2015) about Breast Cancer Knowledge and Screening Behavior among Female School Teachers in Gaza City and it revealed that more than 75% of women had never undergone clinical breast examination and 60% had never undergone mammography, whereas 62% performed breast self-examination (BSE). Women who performed BSE had significantly higher knowledge about breast cancer screening ( $P=0.001$ ). Women attending CBE and mammography screening also had significantly higher knowledge ( $P=0.001$ ). There were significant associations between the practices and presence of positive breast cancer family history ( $P=0.002$ ) and the level of education of husbands ( $P=0.024$ ). The oldest women demonstrated higher performance rates of screening methods than the youngest ( $P=0.001$ ). Lack of breast screening knowledge was identified among more than one third of the women, and 24.6% of women did not know any screening method. About a half of women harbored misconceptions about breast cancer screening, including the belief that breast cancer is not treatable. Women residing in Gaza city ( $P=0.00$ ) and with husbands less educated were more likely to have a high level of misconceptions ( $P=0.01$ ) (Abu-Shammala & Abed, 2015).

Regarding cancer management services, Evaluation of the strategic cancer care initiative report (2015) showed that the Gaza Strategic Health Plan indicates there are serious problems with the cancer services available in the Gaza Strip with shortages in human resources, inappropriate infrastructure and equipment for oncology services, deficiencies in necessary drugs and supplies, and an absence of clear guidelines and policies for referrals. It is thought that the shortage of drugs for chemotherapy in Gaza may contribute to increased referrals out of Gaza for treatment as well as failures in treatment.

## **Chapter Three**

### **Methodology**

#### **3.1 Introduction**

This chapter discusses the method at which the relevant information is gathered in order to answer the research questions or in order to analyze the research problem, including research approach, research design, instrument modifications, recruitment sample, study population, eligibility criteria, pilot study, data collection procedures and way of data analysis. The analysis includes investigation of reliability and validity of the modified instrument, limitations of the study and ethical and administrative approval.

#### **3.2 Study Design**

Research design is the overall plan for connecting the conceptual research problems to the pertinent (and achievable) empirical research in which the researcher adopts to develop information that is accurate and interpretive. The design of this study is triangulated design in which both data quantitative and qualitative approaches are used in order to strengthen the design and reduces any weaknesses in either approach (Phellas, 2006 and Punch, 2005). The triangulation model is frequently used in health research, the purpose of the triangulated design is to gather both quantitative and qualitative data at the same time (Bowling, 2005) and this method will increase the confidence in study research findings (Burns, 1997).

The quantitative part presented by four checklists that developed to help in identification number of the available rooms for patients and beds, human resources, diagnostic equipment and for auditing the completeness of patient's files. The checklist part of the study helped the researcher to use structured framework (Stufflebeam, 2000). The qualitative method includes three parts; key informative interviews, breast cancer patient focus groups and life histories for breast cancer patients.

#### **3.3 Study Settings**

This study carried out in all centers and departments involved in breast cancer management in the Gaza Strip. This includes the main hospitals for providing the breast cancer management, Shifa hospital, which include the central Archive, histopathology laboratory, surgical department and radiology center. European Hospital, which includes cancer

outpatient clinic, surgery department and radiology center, and Rantisi Specialized Hospital, which includes cancer outpatient clinic and inpatient departments. In addition to all governmental hospitals which are known to be concerned about breast cancer management in the Gaza Strip.

The study included also health information centers as information technology unit of MOH and Cancer Registry of the MOH as they considered of the main sources of breast cancer management data.

By the end, the study concerned on the data from primary health care clinics, public breast cancer associations and private centers and non-governmental hospitals which are concerned with breast cancer management.

### **3.4 Study Period**

The study started in February 2018 and completed in March 2019.

### **3.5 Study population**

#### **3.5.1 Quantitative study population**

Breast cancer patient medical records: are group of inpatient and outpatient files for each breast cancer units at (Shifa hospital, Al Rantisi Specialized Hospital and European Gaza Hospital) and it were selected according to its availability.

- Diagnostic facilities: basic x- ray, basic lab, mammography, CT, fluoroscopy, MRI, Gama Camera, linear accelerator, pathology tests.
- Breast cancer service rooms (cancer beds) of Shifa, European Gaza Hospital and Rantisi Specialized Pediatric Hospital.
- The number of all health staff in oncology service, hematology, surgery, pathology, radiology service running the cancer beds/departments in Shifa, European Gaza Hospital and Rantisi Specialized Hospital.

#### **3.5.2 Qualitative study population**

Qualitative population includes: Health care providers, specialists, directors who are involved in breast cancer management, the selection criteria depended on their positions and roles in breast cancer management. In addition to the breast cancer patients who are receiving medical care. There are two separated groups of patients selected, one group of

patients from European Gaza hospital and other one of patients from Rantisi hospital, they asked to participate in focus groups to discuss their satisfaction and perspective toward the provided services, in addition to two life histories for two breast cancer patients, the selection of life histories based on the experiences of patients (referral process, diagnosis, survival, and treatment).

### **3.6 Sampling process**

#### **3.6.1 Sampling of quantitative data**

The researcher planned to collect data from a sample extracted from the expecting total registered breast cancer cases from the year of 2016-2017, which were 684 cases, but during data collection there are some gaps were faced in the availability of medical files. The researcher reached to 120 files from the three targeted hospitals which include: Shifa, Rantisi Specialized and the European Gaza hospitals and other files are not found during data collection; therefore, the researcher examined all the available files.

#### **3.6.2 Sampling of qualitative data**

The method of selecting patients to participate in the focus groups, the key informants for the in depth interview and life histories were a purposive sample. It is a non-probability method which aims to select people purposively whom are involved in breast cancer management, this method help the researcher to gather direct information from the target knowledgeable in addition to that, it's easier and quicker to do and economic method (Burns, 1997; Dolan, 2001)

##### **3.6.2.1 Selection of breast cancer patients to participate in focus groups**

Selection of breast cancer patients started in the outpatient clinic where the researcher observed the patients who are receiving oncological services. Then, the researcher took in consideration the appropriate time to make the first contact with potential participants. The researcher presented himself to the patients and explained the goals of the research, the importance of their role in participating in this research that might help in improving the quality of care for breast cancer patients. The researcher ensure the confidentiality and privacy. The researcher took the phone numbers of the patients who agreed to participate and called them to fix a tables appointments with them. The researcher was confirmed that all participants in the study agreed to participate (informed consent).The researcher selected two focus groups patients then the researcher conducted two focus groups one for

9 women from European hospital and the other for 10 women from Rantisi specialized hospital. Each group discussion last for 1-2 hours discussing their needs, satisfaction and their perspective about the services received, the building design, and quality of care services (Annex 7). This method is economical, quick appraisal technique that can provide managers with a direct qualitative information about the problem. It's more flexible than other techniques which allows the facilitator to discover unexpected issues and encourages interaction among participants (USAID, 2011a).

### **3.6.2.2 Selection of key informants interviews**

The selection of the key informant is a purposive sample started by writing a list of 13 key informants from different places: MOH, NGO's and private sectors, who had the knowledge about breast cancer management and responsible for providing or planning for providing breast cancer services. The researcher started calling each key informant, introduce himself and the aim of the study and set a suitable appointment with him/her. The researcher assured the privacy and confidentiality, during the interview. The researcher answered all the key informant concern about the study. The researcher presented the administrative approval that obtained from the MOH to conduct the study. This way assisted the researcher to gather important information regarding the problem directly from knowledgeable people and it help to explore the other side of the picture with are hidden in reality in addition to that it provide a sense of flexibility which give the chance to discover new ideas and issues not expected during planning of the study, moreover its inexpensive and easy to conduct (USAID, 2011b).

**Table (3.1) Distribution of key informants who are involved in the interviews**

| <b>Organization</b> | <b>No. of key informants involved</b> | <b>Speciality or position</b>  |
|---------------------|---------------------------------------|--|
| <b>MOH</b>          | 9                                     | Two consultants oncologists, Two specialists surgeons, Manager of cancer registry, Head of histopathology department, Nursing manager, Oncology pharmacy manager and Radiologist |
| <b>NGO's</b>        | 1                                     | Manager of NGO which provide breast cancer services  |
| <b>Private</b>      | 3                                     | Manager of private hospital and two consultant surgeon   |
| <b>Total</b>        | 13                                    |  |

### **3.6.2.3 Selection of breast cancer patients to participate in life history interviews**

The life history approach attempts to structure the process of the telling of stories to yield rich, in-depth details about the specific life experiences, memories and interpretations that the individuals produce during her life, so the selection of breast cancer patients for life history interview was purposively from outpatient clinic or inpatient departments who are receiving oncology services based on the experiences of patients (referral process, diagnosis, survival, and treatment).

The researcher presented himself to the patients and explained the goals of the research, the importance of their role in participating in this research that might help in improving the quality of care for breast cancer patients, the researcher ensured the confidentiality and privacy. The researcher selected two patients for life history interview then the researcher conducted two life histories interview one for woman from European hospital and the other another woman from Rantisi specialized hospital. Patients discussed their needs, satisfaction and their perspective about the health services received, the building design, quality of care services, referral process by their own words. The researcher has to be alert of his role during the discussion. The researcher must be sharp enough to probe the hidden issues to be raised in the surface.

### **3.7 Eligibility criteria**

#### **3.7.1 Inclusion criteria**

##### **3.7.1.1 Selection of focus groups participants**

- Breast cancer patients aging between 25- 65 years and were diagnosed during the last 2 years.
- Who was diagnosed with breast cancer and receiving care from cancer services at least for six months.
- Physically and mentally are being with the ability to respond.

##### **3.7.1.2 Selection of key informative persons:**

The researcher selected the managers based on their positions and participating in breast cancer management for at least two year and still working.

##### **3.7.1.3 Selection of life history patients:**

The researcher selected patients based on their experiences (referral process, diagnosis, survival, and treatment) and suffering who are diagnosed during the years 2016-2017.

##### **3.7.1.4 Selection of patients files:-**

Files are selected based on patients who are received breast cancer services in 2016-2017.

#### **3.7.2 Exclusion criteria**

##### **3.7.2.1 Exclusion criteria for focus group:**

- Breast cancer patient suffering from contagious disease (to protect others participant patients).
- Patients who are physically and mentally unable to participate in focus group.
- Breast cancer patient who received breast cancer services for less than six months.

##### **3.7.2.2 Exclusion criteria for key informants:**

- Key informant people who have experience less than two year.
- Key informant people who do not practice their tasks and responsibilities currently.

##### **3.7.2.3 Exclusion criteria for files**

- Damaged files.
- Files of breast cancer patients who didn't receive any health services since 2016-2017.

- Files of breast cancer patients, which is not presented in the archive of cancer service.

#### **3.7.2.4 Exclusion criteria for diagnostic facilities:**

- The ultrasonography in the maternity and cardiology services.
- Damaged and not working equipment.

#### **3.7.2.5 Exclusion criteria for human resources**

- Human resources who are not on their jobs
- Volunteers
- New employees for less than 2 years.

### **3.8 Development of tools**

#### **3.8.1 Quantitative study**

The researcher used Adult Medical Record Review Tool-Primary Care Provider, Emblem health (2012) model to evaluate the breast cancer patients files that are selected according to the inclusion criteria (Annex 6). This model includes the following: biographical data about the breast cancer patient, author identification, medication record, allergic and adverse effects, illnesses, history and physical examination and follow up.

#### **3.8.2 Qualitative study**

Open-ended questions prepared for key informants, focus groups and life history, based on related literature reviews like-books, journals, articles periodicals, published and unpublished research studies, it was reviewed and used for the development of tool. Experts in public health and oncology units are consulted for developing appropriate tools. In the open-ended questions, designed topics, which reflect personal opinions, feelings, and views, were avoided.

#### **3.8.3 Development of checklist:**

The researcher used four checklist to evaluate BC management which include: number of the available rooms for patients and beds (checklist number one- annex 3), human resources (checklist number two- annex 4), diagnostic equipment (checklist number three- annex 5) and for auditing the completeness of patients files (checklist number four- annex



6). The checklists included the information that the researcher planed for covering about breast cancer management.

### **3.9 Data collection**

Data collection process started after obtaining ethical and administrative approval from the appropriate departments, the collection of data started; privacy and confidentiality were maintained at all times.

#### **3.9.1 Quantitative data:**

The researcher selected tool to evaluate breast cancer patients file which are selected based on the inclusion criteria from Shifa, European and Rantisi Specialized hospitals.

##### **3.9.1.1 Checklist**

The researcher used four checklists helping to identify number of the available rooms for patients and beds (checklist number one- annex 3), human resources (checklist number two- annex 4), diagnostic equipment (checklist number three- annex 5) and for auditing the completeness of patients files (checklist number four- annex 6).

The researcher collected data from the three major hospital providing cancer services: Shifa, European Gaza Hospital and Rantisi Specialized Hospital and other governmental hospitals in the Gaza strip in addition to private centers, hospitals and semi and non-governmental hospitals.

#### **3.9.2 Qualitative data:**

##### **3.9.2.1 Focus group**

The researcher conducted two focus groups one for 10 women from Rantisi specialized pediatric hospital (temporary place) and the other for 9 women from European hospital. Each group discussion was for 1-2 hours discussing their needs, satisfaction and their perspective about the services received, the building design, and quality of care services. Patients focus group discussion was in Arabic language, the patients used a surname for more confidentiality.

Interviews schedule contained number of questions that were clear, brief, and reasonable sometimes others asked for more explanation or to expand on a topic. The interview conducted in a comfortable environment. The researcher choose the place to conduct focus group as it is quiet, accessible, neutral, secure and comfortable.

Open-ended questions were used because it's helpful that allow participants in the study to tell their story using their own words and add they can add details that were hidden for the researcher. The moderator and his assistant used tape recordings in addition to written notes. These notes should be holistic and reflect the content of the discussion as well as body language behavior (facial expressions, hand movements) should be written. As possible as after finishing each group interview, the team summarized information that gathered from the participant, in addition to the team's impressions, and implications of the information for the study (USAID, 2011a).

### **3.9.2.2 Key informant**

The data gathered from key informative person's interviews were conducted at the place preferred by the key informant after taking a consent form to participate in the discussion, an explanation of the purpose of the interview, the intended uses of the information and assurances of confidentiality were provided. The data was collected through audio recording and written notes by the researcher (Annex 8), and the transcript was done immediately after the meeting. Theses transcripts were considered the study raw data, which after were analyzed and interpreted (USAID, 2011b).

### **3.9.2.3 Life history**

The researcher was conducted two life histories interviews, one for life history interview was with breast cancer patient who have experience with referral process to seek for treatment and what are the obstacles that she faced it? And the other was with breast cancer patient who has experience with diagnosis journey and her feeling of survival after she had medications, after that the researcher took a consent form from the patients to participate in the study, an explanation of the purpose of the interview, the intended uses of the information and assurances of confidentiality were provided. The data was collected through audio recording and written notes by the researcher, and the transcript was done immediately after the meeting. Theses transcripts were considered the study raw data, which after was analyzed and interpreted (USAID, 2011a).

## **3.10 Data analysis:**

### **3.10.1 Quantitative Data:**

The researcher used the Statistical Package for Social Sciences version 20 for data coding, entry and analysis. All data in patients medical files were statistically analyzed using SPSS computer software. This was done through several steps; checking and verifying the

collected data from errors as missing data. After that data was entered through the mode was prepared, data cleaning and then the processing of this refined data was established. SPSS program version 20 was used as statistical programs to analyze the obtained quantitative data. Each item of the breast patient's medical files was assessed through frequency tables. Numbers and percentages presented the results through the used tables in the result chapter.

### **3.10.2 Qualitative data:**

The researcher analyzed the data after several consultations with the supervisor. The researcher obtained the main findings from the transcripts of the key informant interviews, focus groups and life histories. He started by deep reading of the raw data until he became familiar with it, in other words the researcher has become immersed with data.

The researcher examined data again to identify words or phrases on common, highlighted them via software (Pope, 2000). This process was continued until the transcripts has been finished, at the same time a margin notes were taken that help in identifying themes (codes) which are health workforce, services delivery, health information system and research, essential medications, health financing, leadership and governance, buildings, breast cancer management in Gaza, screening, quality of care and follow up and referral system. The researcher was passed after that to the next step, which is the process of coding that means to integrate categories, condensing subcategories into broader categories where by comparisons were drawn amongst the emerging themes. The researcher was displayed the important data in a way that the interpretation became easy, the process permitted to assemble or reconstruct the data in a meaningful or comprehensible fashion (Abo Amer, 2012).

## **3.11 Scientific rigor**

### **3.11.1 Quantitative data:**

Rigor refers to the working extent that the researcher applied to enhance the quality of the studies. In quantitative data, this is can be achieved through measurement of the validity and reliability. More effort was applied to improve validity in quantitative data which means the extent to which any measuring instrument measures what it is to be measured, so the researcher should take into his consideration that it is necessary to consider how

effective the instruments were used in collecting data which answers the research questions and is representative of the sample.

From the reliability aspect, test is called a reliable when it can be used by a different number of researchers under stable conditions, with give consistent and fixed results. Reliability reflects consistency and replicability over time. In other words, reliability means to which degree is the test free from measurement errors, which mean the more measurement errors occur the less reliable the test, So the researcher tried to improve reliability by standardization of data collection methods, follow up for the gathered data was obtained for mistakes , in addition data review should be done before data analysis.

### **3.11.2 Qualitative data:**

Unlike the quantitative data, the qualitative data reliability and validity replaced by data trustworthiness, which can be obtained and improved by the following criteria:

- Credibility which means confidence in the truth of the findings.
- Transferability which means that the findings and results of the study can be generalized to other contexts.
- Dependability which means that the findings are consistent and could be repeated.
- Conformability which means that the researcher is neutral, the findings are shaped by the participant and not researcher bias, and have no interest.

There are several ways are used to increase credibility in qualitative data like the following:

- Triangulation: in this method the researcher view the research problem from different aspects by using different data collection ways and use different theories to mirror the developing result (Ohman, 2005).
- Peer review: the researcher prepared open ended questions for key informants interviews and focus groups, then asked two experts to revise the questions in order to enhance the quality of the questions and to assure that it will get the required answers for the research study.
- Pilot interview and pilot focus group: before starting the study, the researcher made two pilot trials for the in depth interviews with key informant persons and the focus groups participants. This helped the researcher to assure the suitability of the questions, and examine the questions that understood well or not. In addition, this

allowed the researcher to measure the required time needed for the interviews and the focus groups.

- Begin writing early, after finishing in depth interviews and the focus groups, the researcher should analyze them directly. This helped the researcher to memorize voice tones, facial expressions m body language and general discussion atmosphere. This enhanced the transparency and reliability of the results.
- Prolonged engagement: this methods help the researcher to assure that the participants understand the meaning of questions and also search for the appropriate answer by asking questions from different aspects.
- Audit trial: in this way the researcher explained the research steps through this chapter to assure the transparency of the research steps. In addition, the researcher kept all the records the tapes, the transcript, and written notes for the in-depth interviews and the focus groups, product of data reconstruction.
- Member check external audit with the supervisor

### **3.12 Pilot Study**

Pilot study is a preliminary small-scale studies which aim to investigate whether crucial components of a main study and it can reveals gaps in the design of a proposed procedure and these can then be addressed for small group of participants then after checking it expended on large scale studies. Pilot study was done before starting data collection for further improvement of validity and reliability of the study through taking consultation from experts' researcher to check and evaluate questions of focus group breast cancer patients and key informant questions. A pilot focus group and pilot key informant interview were done and they aren't included in the study analysis. The researcher should check the needed equipment is working well before the interviews are done.

A pilot study was carried out in 5 breast cancer patients from Rantisi hospital. Cases were randomly selected from the list of patients were identified by the researcher to evaluate its clarity and to determine whether it was friendly and easy to understand, considering inclusion criteria in order to test the study tools and to revise the methods and logistic of data collection before starting the actual fieldwork.

The pilot study also was investigated the following: (1) how long it takes to complete the questionnaire; (2) whether participants felt they had enough opportunity to share their views; (3) suggestions for changes; (4) other comments.

### **3.13 Ethical and administrative considerations:**

The researcher maintained throughout the research an adherence and commitment to the ethical principles developed by Helsinki declaration. Ethical approval to carry out the study was obtained (Annex 9). Approval letters were sent to the general director of hospitals (Annex 10). In addition to the approval was obtained from Al-Quds University before starting the thesis. Official letters were sent to the Palestinian Ministry of Health, the all governmental hospitals and other institutions to obtain the approval request for the study. An informed consent attached to each focus groups, life histories and key informants interviews obtained from each participant in the study. The researcher explained the purpose and the objectives of the study to all the participants, and the inclusion in the study was optional and confidential. Neither name nor personal data had been published. All participants were received sufficient information about the goal of the study and the procedure of data collection to encourage their participation, with assurance of their confidentiality and anonymity and having the freedom of being a member of the study population.

Files manipulation were performed delicately to prevent any damage or loss. Honesty in data collection, reporting, analysis and respecting of results were assured, also sharing of findings with others whom are interested such as managers and associations to get maximum benefits of the research.

### **3.14 Limitations of the study**

- The Arabic Publication: literature, research and studies are insufficient.
- Qualitative methods often contain small samples and personal perception and could skew the sample towards patients who find it easier to talk about their illness.
- There are some cultural barriers for women participation, the researcher sometimes need to take the approval from patients husbands in order to participate in the focus group.
- The physical and psychological condition of the patients represented as a challenge to participate in the focus groups because sometimes they didn't have the enough energy to take due to medications side effects
- Collection of patients in one place at the same time is considered another obstacle due to differences in patients priorities as work, social life and health conditions.

- Taking appointments from key informants for interviews was taken some times long periods due to their free times.
- Cost and time.
- Limited published up-to-date reports especially from the MOH.
- Poor handwriting of some physicians in the patients medical files, made it difficult to read it and fill the checklist.

# **Chapter Four**

## **Results**

### **Introduction**

This chapter explains the results of the quantitative and qualitative data obtained in this study based on using WHO six building blocks which include: Health Workforce, Services delivery, Health information system and research, Essential Medicines, Health Financing and Leadership and Governance. The researcher thought that by using the qualitative data, probably he could illustrate some points about breast cancer management in the Gaza strip and he could discover where the gaps are.

#### **4.1 Human workforce**

Teamwork is fundamental to the successful delivery of breast cancer treatment. Human resources play a crucial role in the process of breast cancer management. Every cancer patient has the right for holistic health approach which include: timely access to diagnostic facilities, referral to specialists oncologist in efficient way, evidence based treatment and regular effective follow up care to ensure the best possible prognosis and quality of life. Breast cancer management can be effective when it starts prevention, including health education and promotion to the healthy population and those living with a cancer diagnosis after their treatment in addition to regular screening programs to detect the disease as possible as (Society and college of radiographers, 2014).

As shown in (annex 11), there are lack of staff and other resources can be a significant impediment in the process of diagnosis and treatment of breast cancer patients. To be more specific if we look to the total number of oncologists in Gaza it equals (7) which represent about 0.4 per 100,000 who are responsible to treat and make follow up for all the cancer patients in the Gaza Strip. This situation will increase the burden and pressure on them despite obvious increasing in the number of cancer patients in the Gaza Strip, this will lead to increase the medical mistakes and decrease the quality of care and treatment plan will provided to the patients. The rate is 1.4 per 100,000 in Australia and 3.5 per 100,000 in the United States and 0.7 per 100,000 populations in Ireland.



The National Cancer Control Programme (NCCP) in Ireland recommends 1.8 medical oncologists per 100,000 populations, which means that the oncologists number are too much little comparing to Gaza Strip total population, in same time the total number of nurses who work in oncology departments in inpatient and outpatients departments equal (51), which the number is too low in comparing to the total number of cancer patients in the Gaza Strip, so this will effect on both staff that will be exhausted and to the quality of care provided to the patients that will be affected negatively.

The shortage of human resources is not restricted to the oncologists but it includes also psychologists, radiologists, and pathologists, as mentioned in the table (annex 11) it appeared that the number of pathologists in the governmental hospitals of Gaza was only five which represent about 0.3 per 100,000 distributed as four at Shifa hospital and one in the European hospital. Pathologists are considered the core in understanding of disease and disease mechanisms to bear on patient diagnosis and management. We can conclude from the qualitative and quantitative data there is a severe shortage in pathology specialists in Gaza compared to the total number of patients in Gaza. Compared to the estimated number of pathologist in Egypt which is 369 (Regional Health system Observatory WHO, 2006a) and in Ireland 2.4/100,000 while 5.7 per 100,000 people in the U.S (Wolff, et al. 2013).

Data in the (annex 11) shows that the number of radiologists in the three governmental hospitals were 17 radiologists doctors who served all the patients not only cancer patients which represent about 0.9 per 100,000. Alwan (2001) reported the shortage of the radiologist in EMR which was been estimated as 3 in 100,000 population compared to Europe where the number of radiologist is 8 per 100,000 population. While in 2015, the UK had an estimated 4.8 consultant radiologists per 100,000 people and 7 radiologists (including trainees) per 100,000 people and this consider as one of the lowest in Europe, and compares to a mean of 12 radiologists per 100,000 population for Western Europe (GE Healthcare Partners, 2018).

Healthy and good nutrition is considered as part of treatment for cancer patients because both the illness and its treatment can affect patient's appetite and have other side effects. Both cancer and cancer treatments can also affect negatively on patients body's ability to tolerate certain foods and use nutrients in addition affect to bowel movement (ACS, 2018). Nutrition therapy is used to support cancer patients to preserve on their healthy body

weight, structure, and strength, keep body organs healthy, and decrease side effects of treatment (NIH, 2018). It's a clear from the (annex11) that there is no nutritionist for cancer patients in all the three governmental hospitals which increase the burden on the patients as they need to know which nutrients they should eat and which they shouldn't, there also a great variation among countries as ranged from 0.19/100,000 in Indonesia to 39.3/100,000 in Japan and 0.1/100,000 in Pakistan (ICDA, 2016).

Increasing number of people who are with cancer will require more medical treatment for cancer, long-term surveillance system, in addition to advanced palliative care centers in the future. For that, cancer has become a life-threatening chronic condition conforming a large proportion of patients that enhancing new challenges for comprehensive cancer management. These include individual needs and expectations may influence the patient's role towards active engagement in treatment decisions and treatment itself. Treatment sometimes may produce substantial short- and long-term side effects, some functions are lost in different behavioral and life domains (physical, cognitive, emotional, social, and vocational), as well as psychosocial distress. As consequence, quality of life and other functional status of the patients may be affected and reduced, in addition to many obstacles facing patients and surrounding persons in coping and adjustment with the disease (Weis, et al. 1996). As mentioned in the (annex11) there is just one psychosocial worker at Rantisi hospital which represents 0.05 per 100,000 which is not enough and affect the quality of care and psychological status of the patients, in comparing to other countries like Egypt 0.11 psychologists per 100,000 population (WHO, 2006a) while in Brazil 9.60 per 100,000 (WHO, 2011). This give an overview to increase the number of psychosocial workers in oncology departments in Gaza to support patients and decrease the disease burden.

- **Qualitative analysis regarding distribution of human resources**

Apparently, Gaza suffers from this gap. Most of key informants agreed that the shortage in the human resources constitutes as a barrier in breast cancer management and they described that by the following:

A manager oncologist said that *“MOH doesn't provide enough attention or care to the oncology departments in the Gaza Strip in general”*. He added, *“At least we need 10 oncologists in European Gaza hospital to meet patients needs and to cover the oncologists gap, we requested many times to increase the number of human resources who are providing oncology services for cancer patients, but no one need to hear us or meet our*

requirements". He also said *"there are many external medical delegations visit from different health departments, but there is no any foreign oncologist delegation so why?"*

A private hospital manager said that, *"We have a big gap and trouble in the health care system as any general physician is sent to the oncology department without any training or orientation despite that it's the most dangerous department and its cost the MOH about 60-70% of its financing"*. Another oncology consultant said that, *"The human resources in the oncology departments especially oncologists are greatly inadequate due to increased number of newly discovered cancer cases and the staff number still the same as in the past"*.

A manager surgeon explained that, *"We have strong human resources who are scientifically and practically based, but the number of them in comparison to the total number of cancer patients are not enough, there is a big shortage in the quantity of specialized oncologists, doctors and nurses, breast cancer specialists surgeons, social worker for cancer patients, psychiatrists and cancer specialized nutritionists Specialists"*.

A manager of institution for breast cancer patients care said that *"For sorrow we have only 4-5 oncologists for all cancer patients in the Gaza Strip and this effect the quality of care provided for the patients so we should increase the number of oncologists to decrease the load on them"*.

A manager pathologist said that, *"pathology department at Shifa Hospital is considered as the largest and the main department of pathology in the Gaza Strip, which receive at average 5000 cases per year, which is a huge number comparing to the number of staff in the department which may cause overload on the staff and increase the number of mistakes"*. He added *"Due to the deficiency in the staff in the pathology department it was off for many days because the resident doctor was absent for health reasons"*.

A radiologist said that *"about surgical aspect we have a good number of surgeons and they have a good experience, regarding oncology, the number of oncologists isn't enough, we have radiology specialization here in Gaza, we don't have any experience about radiology scholarship abroad from MOH but most of doctors are self-developed"*.

One of the key informants said, *"The radiologist doctors who have the ability to read magnetic resonance imaging are very rare number, their number is very limited which may effect on the process of breast cancer management in the Gaza Strip"*.

A manager in cancer registry said that *"about the cancer center, the staff number aren't sufficient for the new system, but for the system that needs a lot more, and for the quality, it is self-propelled. However, development and improvement is lacking in epidemiological, statistical and researches aspects, even in cancer registries there are gaps"*.

About the psychologists and social workers, one of the key informants explained that *"Social and emotional support in our oncology departments are almost absent and MOH doesn't provide any sense of this care"*. Another key informant added *"actually poor patients have double disease burden because in addition to their bad economic status they don't found any psychological support in the hospitals which in consequence deteriorate their conditions faster than others"*. Another added *"Governmental health insurance doesn't cover psychological which decrease the dire of patients to make psychological consultations"*

A manager nurse said that *"as nursing staff we have defect in the number but we can deal with it, the great deficiency in the oncologists and the quality of care provided "*.

*"We tried to make in service education for nursing staff but MOH itself rejected this and said you need approval for that"*.

From the patient perspective the researcher found that there is gap in the oncologist number with is compatible with key informants interviews as one patient said *" we are waiting long time, I came from 7 am to get my treatment because the number of doctors aren't enough"*.

Another patient said that *"I am waiting from 2 hours to see my doctor because there are a large number of patients and limited number of doctors" "" يومى راح "I lost my day"*.

*"We have an experienced doctors and they respect us as patients"*.

Another women said that *"we appreciate the health staff job but the problem is the number of cases that is too much, making overload and long waiting time"*.

*"Nursing staff is very qualified and very respectful"*.

Another women said with anger *" I am a cancer patient I shouldn't wait for long time for my treatment they should increase the number of doctors and nurses "*.

Another women added *"Nursing team is very qualified and support us as patients "*.

*"We have female nurses which we can talk and deal with them comfortably ".*

From the collected data (qualitative and quantitative), a significant shortage in oncologists number was clear. The shortage of human resources is not limited to the oncologists but included also surgeons, nurses, psychologists, radiologists, pathologists and nutritionists which will lead to bad quality care provided to the patients consequently bad outcomes.

### • **Training for health workforce**

Training is considered as a central objective of health workforce progress and development which its aim is to have sufficient numbers of qualified health staff with theoretical and practical competencies in addition to the social attributes which facilitate their accessibility and ability to reach diverse clients and populations (WHO, 2006b). It must be strengthened to manage any educational or technical gaps in order to deal effectively and in evidence based with patients which enhance food quality of life and good prognosis in patients health condition.

A well-qualified health workers and effective multidisciplinary health team help in services delivery in high quality with effective manner to the patients. if countries need a positive effect on health outcomes and good prognosis, it need to develop effective HWF training and education that has the capacity to produce , develop and improve health workers in different aspects (WHO, 2012).

### • **Qualitative analysis regarding training**

In the same time with the shortage of the health workforce in the oncology departments another problem discovered which worsen the situation, it is represented by the lack of training for that workforce and this was clear by key informants explanations as the following:

A manager oncologists said that *"Training is the backbone of diagnosis and treatment plan, because if the staff didn't know what he or she do then the diagnosis and treatment plan will be failed and then the outcome will be miserable".*

Another oncologist added *"I was outside Gaza since 2010 and till now no one help me or give me a chance for training here or outside Gaza, MOH didn't provide anything for oncology neither in the Gaza Strip or in West bank".*

A manager consultant surgeon *“MOH doesn’t provide or give support to any training courses or scholarships for health care staff in the oncology departments, they don’t give and tiny care for this important part”*. Another surgeon added that *“The quality of surgeries should be increased by providing intensive courses for specific surgeries as plastic mastectomy surgery as it is almost absent in the Gaza Strip”*.

A consultant surgeon *“We have no training at all, the general idea we have, that senior surgeon trains his staff on what he knew from his own experience, but we don’t know whether the training is right or not, we have no supervision on this form of training”*.

A manager nurse said that *“We tried to make in service education for nursing staff but MOH itself rejected this and said you need approval for that”*.

*“I am in oncology department from about 9 years no one came and told us what types of training you need, where the weakness point to strengthen are it”*.

On the other side another surgeon stated *“Every 4-5 months there are specialists doctors in breast cancer come from abroad to make follow up for breast cancer cases and to revise protocols and types of surgeries and they already do surgeries about 12 cases, so training is available and its good”*.

From the collected data from key informant it showed that in addition to the shortage of the health workforce in the oncology departments another problem appeared which worsen the situation, it is represented by the poor and not enough training for that workforce in different aspects includes cancer surgery, oncology, palliative care and pathology, all this worsen breast cancer management in Gaza, the researcher recommended that policy makers should establish a strategy to develop the health workforce in Gaza to help in breast cancer management and decrease the burden of that disease.

#### **4.2 Services delivery for breast cancer patients**

Services delivery concept is based on understanding that effective breast cancer management should have sustainable services that start from primary prevention, early detection through effective treatment, quality and safe care, pain management and follow up services. For health outcome improvement there should be a multidisciplinary effort from all aspects to improve breast cancer prevention and control programs.

Health services includes personal and non-personal services. It is considered the most visible functions of any health system. Service delivery means the way inputs such as money, staff, equipment and drugs which are combined together to facilitate the delivery of health services to breast cancer patients. Availability of key resources in addition to their management and distribution are play a vital role in improving coverage and quality of provided health services (Regional Health Systems Observatory & Emro, 2006).It should be to take in consideration where are services located? And to the distribution of the services such as mammography, transportation, chemotherapy, other medications, social services, etc., and if it is accessible and affordable in the same time

But in the other hand, lack of coordination among breast cancer management activities and services is still an obstacle commonly recognized by stakeholders and the patients too and it give adverse effects toward breast cancer patients. Collaboration among services is the key to overcome challenges that facing staff and patients and for high quality services for the patients.

- **Qualitative analysis regarding services delivery for breast cancer patients**

The researcher reached to this conclusion through collecting and analyzing many phrases cited by the key informants and breast cancer patients accompanied by some facial expressions difficult to describe but it may represent their dissatisfaction, upset, and their disagreement.

A manager of institution for breast cancer patient care said that "*There's no coordination or partnership between governmental and non-governmental hospitals and centers. So sometimes the story turned into business oriented, and the patient will be lost in the cycle*".

A specialist surgeon said that " *The number of experts radiologists are very rare (MRI isn't in a ratio with population, we have deficiency in MRI) in other hand, we can't have MRI in all cities of Gaza Strip as expert in MRI are rare*". He added "*All options of treatment can be done in Gaza except for radiotherapy, and we have a problem in chemotherapy as we have interrupted cycles (on & off)*".

Another surgeon said "*We should have central services center for cancer in Gaza as Gaza needs only one oncology center for best options of treatment, best surgery from the first time, and not everyone works based on his interests*".

One specialist surgeon for breast cancer said that *"It's supposed to have centers for oncology to deal with the cases from A to Z, and this we deprived from it, the unified body to deal with cases is not present in Gaza"*.

*"فلان بيشغل ع كيفه و فلان يشتغل ع كيفه"* "Every one work based on his interests"

From the focus group analysis and patient perspective the researcher conclude that most patients are not satisfied about the service delivery for them as one patient mentioned that *"there is no complete services for us as patients in the hospital "حنا بنتشرشح" " we are insulted"*.

Another women added *"I must be referred from one hospital to another hospital for a specific health services and this takes very long time"*.

Other women explained that *"Cancer patient should be as angel and have all services because we know our end is death "*.

Another mentioned that *"I must go to private doctor to facilitate my services at hospital "*.

From the collected data, we can reach to the result that the oncology service in Gaza are inadequate, unavailable and endure many gaps especially the limited space of the services which lead to overcrowded rooms and increase waiting time, as consequence reducing the privacy and comfort, and increase the negative stress and sometimes bad ventilation and cleanliness. Which may influence badly the quality of care, the staff performance, morbidity, and morality, the satisfaction of cancer patients and as consequence bad outcome.

#### **4.3 Diagnostic facilities**

A clinical assessment of breast complaints is a crucial first step in breast cancer diagnosis and treatment plan. Diagnosis process needs multidisciplinary efforts which include: a good referral process and timely coordination of services that include: initial presentation for evaluation of a breast complaint, to include a medical history and a clinical breast exam (CBE), imaging studies, biopsy of suspicious lesions, pathology (histology/cytology) studies and follow up visit to examine the results of diagnostic studies and to initiate the suitable treatment plan. Late diagnosis process may be due to present of gaps in the coordination process of care and in addition may the patient can't access the care which affect negatively in patient general health outcomes (Zujewski, et al. 2017). The accurate



and timely diagnosis of breast cancer is essential to improving patient outcomes. Patient delays in seeking medical care for a breast complaint and system delays in breast cancer diagnosis, all contribute to late initiation of treatment and affect quality of care and outcomes. Enhancement of early diagnosis and early detection of breast cancer can be done through improving the accessibility of health services in addition to the good utilization of these services which as sequence will enhance positive health outcomes, as well as increase survival and quality of life for affected patients.

There are a lot of efforts exerted by the Palestinian Ministry of Health and its partners in order improve the process of detecting and treating cancer, but still there are a large percentage of patients who are diagnosed in advanced stages, more than 60% of breast cancer cases get detected in the third stage of disease which give a narrow area for effective treatment and long-term survival (UNFBA, 2018).

(Annex 12) shows the availability of equipment and facilities that are necessary in cancer diagnosis and management, the researcher found that some diagnostic facilities as basic X-ray, ultrasound and were available in the governmental hospital and in the private sector. In the other side there are a gap in some diagnostic facilities like CT scan, MRI, PET scan, Gamma camera and linear accelerator. Total number of CT scanners are 14 distributed as 8 in the governmental hospitals and 6 in a private and semi-governmental and non-governmental hospitals which represents 0.7 per 100,000 which is very low in comparing to other countries like Australia there are 6.4 devices per 100,000 inhabitants and in Switzerland 4 devices per 100,000 inhabitants while in US 4.3 devices per 100,000 inhabitants (Statista, 2017), there is an obvious variation was noticed between Gaza Strip and other compared countries, in the Gaza Strip the total number of CT scan is not enough which lead to other problems and challenges to the patients like accessibility and waiting time .

There were five MRI devices in Gaza 4 of them are working they were distributed as two in Shifa hospital (one is working and one is bread down), one in the European Gaza, and one in Al Quds hospital and one in Red Crescent society. Which represents 0.3 devices per 100,000 population, comparing to other countries like Jordan 0.2 devices per 100,000 population while Lebanon 0.9 devices per 100,000 population and Libya 0.5 devices per 100,000 population and Malaysia 0.3 devices per 100,0000 population (WHO, 2015), the researcher found that there is no big variations among countries but in general the total

number of MRI devices in Gaza is still not enough comparing to the total number of patients which increase the burden on the patients from different aspects like accessibility, cost and waiting time .

There is no PET scan devices in the Gaza Strip which make an obstacle facing the doctor and the patients in cancer management process, so the doctor should refer the patient outside Gaza to do it, the Gamma Camera and the Linear accelerator were present at Shifa hospital but unfortunately they doesn't work due to unavailability of some pieces of equipment for maintenance, in comparing to other countries, Egypt has 0.52 linear accelerators per million, Libya has 0.32 Gamma camera devices per million and 0.16 linear accelerator devices per million and Sudan has 0.13 Gamma camera devices per million and 0.08 linear accelerator devices per million (WHO, 2015). The researcher found that other diagnostic facilities as basic X-ray, ultrasound and fluoroscopy were available in all governmental hospitals, private centers and hospitals and in semi and non-governmental hospitals which is a good indicator for breast cancer management in the Gaza Strip.

**Table (4.1) Distribution of mammogram and fluoroscopy**

| Hospitals                           | Mammogram              | Fluoroscopy |
|-------------------------------------|------------------------|-------------|
|                                     | Governmental hospitals |             |
| Abu Yousef Al-Najjar hospital       | 0                      | 0           |
| Al-Aqsa hospital                    | 0                      | 0           |
| Shifa hospital                      | 1                      | 2 (1)1      |
| European Gaza hospital              | 1                      | 0           |
| Indonesian hospital                 | 1                      | 0           |
| Nasser hospital                     | 1                      | 0           |
| Rantisi specialized hospital        | 0                      | 0           |
| Private hospitals and centers       |                        |             |
| Ajjour center                       | 1                      | 0           |
| Al-Hayat hospital                   | 2                      | 0           |
| El-Helou hospital                   | 1                      | 0           |
| Gaza scan center                    | 0                      | 0           |
| Palestinian German center           | 0                      | 0           |
| Gaza Diagnostic center              | 1                      | 0           |
| Semi and non-governmental hospitals |                        |             |
| Al-Ahli hospital                    | 2                      | 1           |
| Al-Awda hospital                    | 1                      | 1           |
| Al-Quds hospital                    | 1                      | 0           |
| Patient's friend society            | 1                      | 1           |
| Public Aid hospital                 | 0                      | 0           |
| Red Crescent society                | 1                      | 0           |
| <b>Total</b>                        | <b>15</b>              | <b>5</b>    |

(-)1: No of working devices

Diagnostic mammograms are used to assess and diagnose for breast cancer after a lump, discharge or other sign or symptom that have been discovered after physical examination, while screening mammograms are used to assess women who haven't any abnormal signs and symptoms. Screening mammography is used for early detection of breast cancer in the early stage of the disease, as sequence it will reduce breast cancer morbidity and mortality (The Palestinian National Institute of Public Health & WHO, 2014). The previous table shows the total number of mammogram devices in Gaza which are 15 distributed as the following: 4 in the governmental hospitals, 5 in the private hospitals and centers and 6 in the semi and non-governmental hospitals which represents 0.8 device per 100,000 population in comparison to other countries like Turkey there are 117 mammogram devices per 100,000 population and in France 73 devices per 100,000 populations (OECD, 2019). The researcher conclude that there are a great deficiency in mammogram devices in Gaza which interrupt breast cancer control and management and increase the burden of the disease by late discovering of the cases in late stages and decrease early detected case and increase mortality rate.

By reviewing the previous table there are 5 devices of fluoroscopy helping in the process of breast cancer management that are distributed as 3 in the governmental hospital (two at Shifa "one isn't working") and 3 in semi and non-governmental hospital . These devices represent as 0.3 per 100,000 inhabitants, there is no clear data about the distribution of fluoroscopy devices worldwide, but the researcher conclude that the deficiency in this diagnostic facilities can be another obstacle facing breast cancer management in Gaza.

#### **4.4 Infrastructure**

##### **4.4.1 Building Capacity and Quality**

The physical environment that surrounded patients paly as important role in the healing process, quality of care provided and well-being and this have been proved to be increasingly relevant for patients and health care staff who are included in the same environment. The well-built environment can reduce errors, falls, and spread of infections as well enhancing the quality of care. The built environment can enhance the privacy, comfort, and control which assist in providing positive health outcomes (Huisman, et al. 2012).

Sanitation of the hospital is an important indicator of quality of care provided in addition it will reflect patient satisfaction. Health care services which are provided should be safe, effective, patient-centered, timely, efficient and equitable. In addition to that hospitals and clinics should ensure that patients are the center in the whole health care delivery process. For that health facilities should be responsive to the values, beliefs and culture of patients in all different aspects to create healthy environment which affect health outcomes. Hospital concept as treatment places in all aspects should have good reputation between all members as such as: staff, attendants, patients and management.

As shown in the (annex14), and after using checklist No (Annex 3) Shifa hospital which is considered the major hospital in the Gaza Strip didn't have any beds or rooms for cancer patients, Oncology department was transferred temporary to the Rantisi hospital from 2015 till now. Rantisi hospital which covers middle area, Gaza city and north area of Gaza strip it contains just 30 beds and chairs and 12 rooms (three from the total rooms for isolation) for inpatient cases and 20 beds and chairs and 2 halls for outpatient cases which is inadequate in comparison with total cases in the mentioned areas which will effect on the patient privacy, comfort and quality of care provided. The same in European hospital it contains 30 beds and 7 rooms (two of them where isolated rooms) for inpatient cases and 29 bed and 4 rooms for outpatient cases which is clearly insufficient for the total cases in Khanyounis and Rafah cities with total cancer patients beds 60 which represents 0.03 bed/1000 population which consider very low percentage in comparison to other countries like Turkey 2.68 bed/1000 populations and France 6.18 beds/1000 populations, and there are EL-Hayat Hospital which considered one of the private hospitals in the Gaza Strip it contains 19 beds and 9 rooms in for inpatient cases and 1 hall with 14 beds and chairs for outpatient cases but it still waiting for licensing to start working from Ministry of Health.

- **Qualitative analysis regarding building capacity and quality**

The researcher concluded through collecting and analyzing many key informant interviews and focus group cited by the key informants and breast cancer patients accompanied by some facial expressions describe their disagreement and dissatisfaction about the building quality for oncology patients.

A consultant oncologist said that "*The buildings situation is catastrophic in the oncology department in the European Gaza Hospital, there is leakage of water to the walls of rooms, so for sorrow we have bad walls in the inpatient rooms that maybe broken anytime in*

*addition to the whole building must be reconstructed to protect the privacy of breast cancer patients”.*

*Another consultant oncologist added that "The building quality in both oncology centers in the Gaza Strip doesn't meet the low level of patients requirements, there is no respect for the privacy or humanity patients especially poor ones". A senior oncologist said that "oncology centers in both Rantisi and European Gaza hospitals are needed to be fully reconstructed as soon as possible for staff and patients satisfaction in addition to have the best possible health outcomes”.*

*A private hospital manager said “there is absent of the concepts psychological and emotional aspects of the cancer patient when cancer departments are designed which include everything in the building such as walls colors, pillows and curtains should be according to standards which help in decrease patients stress, but there is aspects didn't take any attention”. He added “oncology departments are considered as the places where cancer patients waiting to die there, policy makers should stop and think again and again”.*

*One of the breast cancer surgeons said that “oncology building has great deficit regarding to the capacity with the total number of breast cancer patients in the Gaza Strip and there is no respect to the patients and staff privacy or humanity”.*

*Another chief surgeon said that “our hospitals aren't prepared well enough to receive all patients”. A third surgeon “ It's for a sorrow, that patient has enough burden from her disease, so she needs a five stars center to start her journey with treatment plan and adapt with her disease”.*

*A specialist surgeon added "most of our hospitals aren't equipped enough and we have poor and delay in maintenance system of facilities and this increase the burden of the disease”.*

*Another specialist added that " The current place for breast cancer patients and for all cancer patients isn't suitable at all even for the staff, it is not enough, we are promised that we will have another better place from long time, and about the pathology department which consider the most important place which has a special concern it needs more development for equipment and staff”.*

A manager of institution for breast cancer patients care said that *"We succeeded to transfer 33 breast cancer female to Jordan for their treatment, and they said as if we aren't treated in Gaza. We don't want to blame the siege any more, we need capacity building for the available workforces"*.

Regarding the pathology unit a chief pathologists said *"Our working place is not appropriate, is not appropriate place for working and its space is not wide enough, we are promised from MOH to be transferred to another suitable place, but we are waiting since a long period of time"*.

From patients perspective the researcher found that the result of focus group is nearly as key informants results with some variations. One patient from Rantisi hospital said that *"the space is very limited and not enough "*.

*"They should respect us as patients and reconstruct a specific building for cancer patients"*.

Another patient added *"the place is too much narrow, crowded and noisy"*.

*"The sanitation is good, but the problem is that we have mutual bathroom with males which is a big problem and in the same time there is no good ventilation"*.

*"Sanitation should be better than this because we have possibility to loss our immunity always "*.

One patient from European Gaza Hospital mentioned that *"the place have a small size and narrow and there is no privacy, every patient should be in isolated room from other patients"*.

Another women from Rantisi hospital have a different opinion said that *"the place is good and have a good ventilation"*.

Other women said *"the place is generally accepted almost but the problem is the overcrowded"*.

From the collected data we can conclude that there is inadequate building design of cancer service in Gaza, the main problem was the limited space, especially the number of rooms and the quality of it. Consequently, the rooms become overcrowded and lead to poor privacy, high noise, uncomfortable setting, and poor ventilation.

#### **4.5 Information system and research**

The main goal of data and research center should be used as reference to set priorities in health in addition to develop strategies to be confirmed that decisions making are based on evidence data, accurate and complete data and solid research techniques that help in the process of diagnosis and treatment of breast cancer, it help planners and policy makers to understand the size of breast cancer as a health problem and the needed infrastructure to decrease that burden. In addition it help planners and policy makers to assess the social and policy environments to decide whether or not to move forward with scientifically valid approaches to breast cancer control. One planner stated that *“Cancer is one of the best opportunities to do evidence-based public health, where we don’t implement policies unless we have good science behind them”*.

In contrast, when the data which used in decision making are limited, incomplete and not evidence based as consequence this will affect negatively in the process of planning. In addition to that when staff who are working in data and research unit not be integrated into planning this also lead to negative results, moreover breast cancer data systems or linkages with other surveillance programs may be insufficient and unsuitable. All these factors will affect negatively in the breast cancer incidence and treatment data reporting system as sequence data analysis will affected also.

- **Qualitative analysis regarding information system and research about breast cancer**

A manager oncologist said that *"There is no cancer research center and researches done individually, there is no united system for the data"*.

Another oncologist said *"There is no researches ever, there are a lot of information and data about breast cancer and we should deal with it well and help the researches to use this data to decrease the burden of breast cancer "*.

A manager consultant surgeon *"I don’t know if an information system presented in governmental hospitals regarding breast cancer patients"*.

Another surgeon said *"the available information about programs related to breast cancer management in the Gaza Strip are not enough, there should be frequent evaluation for the breast cancer data and information"*.



A specialist surgeon in breast cancer added *"Most of breast cancer research are individualized and most of it from master students and it is unmanaged well, we have archive system and all breast cancer patients file are separated alone"*.

A consultant oncologist said *"There is no regular researches on breast cancer, I am as a doctor I should have an easy access to cancer registry to be updated, there is no central agency for cancer and there is no follow up from the managers and most of data about breast cancer is fragmented, in addition to diagnosis code which is not always used in the files "*.

A specialist surgeon said that *"There is a national cancer center for cancer information and data but this is not enough we need more and more "*.

Another specialists added that *"we should build linkages between hospitals, primary care centers and cancer registry center to make it easier to access the data for researches and to know where the real gaps in cancer control are"*.

A specialist surgeon of breast cancer said that *"we asked policy makers to make a united system for cancer patients including their names, ages, history of the diseases and everything related to the patients to overcome files loss and to make researches easier"*.

A manager of institution for breast cancer patients' care said that *"we don't have good cancer health information system and in the available system we don't have transparency"*.

A pathologist said that *"The only place for cancer information is cancer registry and they disseminate reports from time to time despite the bad conditions, there are good archiving system in the pathology department and we make follow up for patients files regarding pathological aspect, after that it's not from our responsibilities"*.

He added that *"Even now we use traditional hard copies for recording, and from 2016 MOH made a program for reporting and research and it will depend on ICD 10 or ICD O systems, and before that it need a great effort to make a report"*.

From the collected data, it was obvious that there are many gaps appeared in this block related to breast cancer management, it mainly related to the insufficient knowledge in research methodology and the there is no incentive factors or plans to improve the research in Gaza. Most of research efforts are limited and restricted to graduated thesis which done individually .Moreover the information system, even if it is existed in Gaza it may suffer

from poor linkage which can influence negatively the outcome of breast cancer control and consequently, the burden of breast cancer is poorly known.

#### **4.6 Breast cancer medical records**

Medical records are considered an important part of a breast cancer patient management process. Which give information about the patient health in the past, current situation and the future plan in addition its crucial for the continuity of patient. Moreover it has an important role in the process of planning and management of health care services, research in health care in addition to make statistics related to provide health care. Medical health team including doctors, nurses and others make documentation in medical records so it becomes easier to know the patient health history from the files in follow up visits so for that it should be available and saved in a suitable manner. In other side, when medical records didn't include all information about the patient health status or not saved well, this leads to increase breast cancer patient suffering due to loss of files or information so may need to repeat other investigations. If there are gaps founded in the medical record that affect the patient care, this means that the recording system of medical files also contains gaps and not working properly and all health care provided will be affected (WHO, 2006c).

Medical records should contain complete information about the patient medical history and current situation in addition it should be updated because these file will help all health care providers who are included in the management process of cancer patients. Documentation of patient medical history facilitates in sharing information with new staff who will be included in management process as new doctors, nurses, students and psychologists. This will confirm to us that breast cancer patient can continue to receive the best care possible (Breast cancer .org, 2016). Documentation of medical notes, patient history, follow up and prognosis of the disease act as a learning tool, they are needed in medico-legal circumstances and more importantly, for patient safety and communication between multi-disciplinary team members in addition it can be used for research to know more about risk factors, causes of morbidity and mortality of the disease.

- **Completeness of Breast cancer medical records in the Gaza strip**

Medical records form an essential part of a patient's past, present and future health care (WHO, 2006d). Patient record completeness considered as quality indicator of patient medical record. Quality of medical patient records facilitate sharing of valuable information for continuing of patient care, and it would help in reducing medical errors, so

it will affect positively in patient safety in addition it is considered as a reference for decision making and health policy planning (Gommami, et al. 2016).

#### 4.6.1 Demographic domain:

After auditing the completeness of 120 files using checklist (Annex 6), it seemed that most items of demographic domain are necessary in the completeness of the medical files underwent great defects, as shown in table (4.2). About 95% of the patient's files contained a patient's name, which is a strong power that can help the informatics workers to record the cases without any confusion if it is used properly. But the rest of this domain contents which include (ID number, age, DOB, Gender, telephone number, address and marital status) are almost not available in the records or may found partially which may reflect negatively in the patient care safety and continuity of the care.

**Table (4.2) Completeness of demographic data domain in breast cancer medical records**

| Demographic data domain  | Score of completeness |     |         |     |            |     | Total |
|--------------------------|-----------------------|-----|---------|-----|------------|-----|-------|
|                          | Complete              |     | Partial |     | Incomplete |     |       |
|                          | N                     | %   | N       | %   | N          | %   | No    |
| Patient's name           | 114                   | 95% | 5       | 4%  | 1          | 1%  | 120   |
| Patient's ID number      | 2                     | 2%  | 45      | 37% | 73         | 61% | 120   |
| Patient's age            | 0                     | 0%  | 38      | 32% | 82         | 68% | 120   |
| Patient's DOB            | 0                     | 0%  | 48      | 40% | 72         | 60% | 120   |
| Patient's Gender         | 6                     | 5%  | 85      | 71% | 29         | 24% | 120   |
| Patient's address        | 0                     | 0%  | 8       | 7%  | 112        | 93% | 120   |
| Patient's home tel.      | 1                     | 1%  | 5       | 4%  | 114        | 95% | 120   |
| Patient's marital status | 0                     | 0%  | 5       | 4%  | 114        | 94% | 120   |

#### 4.6.2 Medical record domain

Regarding medical record domain, date entry represent 83%, chief complain represent 74%, diagnosis plan represent 72% and discharge summaries represent 69%, which is good but need more strengthen to improve the quality of care provided for patients , but in contrast author identification had a great deficiency which may need more efforts to encourage health care providers to document their work to protect themselves from legal issues, and as shown in the table (4.3) below there is no electronic medical records for breast cancer patients which is very important part for patient care, the EMR can play a crucial role in decision making process, coordination of health services between different departments, categorize the care of patients according their priorities, assist in reducing medical mistakes, improving quality, reducing personal and financial costs, etc. In addition, it can facilitate transferring patient information from one health facility to another one in effective manner and in this way help in referral system of patients and improving accessibility to healthcare (Okpala, 2013).

**Table (4.3) Completeness of medical record domain in breast cancer medical records**

| Medical record domain | Score of completeness |     |         |     |            |     | Total |
|-----------------------|-----------------------|-----|---------|-----|------------|-----|-------|
|                       | Complete              |     | Partial |     | Incomplete |     |       |
|                       | N                     | %   | N       | %   | N          | %   | No    |
| Chief complaint       | 89                    | 74% | 13      | 11% | 18         | 15% | 120   |
| Author identification | 33                    | 28% | 13      | 11% | 5          | 4%  | 120   |
| Dated entry           | 100                   | 83% | 20      | 17% | 0          | 0%  | 120   |
| Record legacy (EMR)   | 0                     | 0%  | 0       | 0%  | 0          | 0%  | 120   |
| Medical impression    | 33                    | 27% | 13      | 11% | 74         | 62% | 120   |
| Diagnosis plan        | 87                    | 72% | 21      | 18% | 12         | 10% | 120   |
| Discharge summaries   | 83                    | 69% | 22      | 18% | 15         | 13% | 120   |

#### 4.6.3 Medications record domain

Regarding medications record domain, as shown in the table (4.4), treatment consistency ranks the first percentage with represent 91% which consider a strong point that help in patient recovery and safety, but from the other hand medications side effects and medications side effects are almost lost in patients records which decrease the quality of medical records and this leads to increase the medical error and interrupt patient continuity of care.

**Table (4.4) Completeness of medications record domain in breast cancer medical records**

| Medications record domain | Score of completeness |     |         |     |            |      | Total |
|---------------------------|-----------------------|-----|---------|-----|------------|------|-------|
|                           | Complete              |     | Partial |     | Incomplete |      |       |
|                           | N                     | %   | N       | %   | N          | %    | No    |
| Treatment plan            | 92                    | 77% | 17      | 14% | 11         | 9%   | 120   |
| Treatment consistency     | 109                   | 91% | 4       | 3%  | 7          | 6%   | 120   |
| Medication dosage         | 69                    | 57% | 31      | 26% | 20         | 17%  | 120   |
| Medication side effects   | 0                     | 0%  | 0       | 0%  | 120        | 100% | 120   |
| Adverse reactions         | 3                     | 3%  | 6       | 5%  | 111        | 91%  | 120   |

#### 4.6.4 Patient history and examination domain

Documentation of the patient history and examination is important to help health care providers to gather more information about patient history, it also help health care providers to deal with the patient in an appropriate manner and they can identify the best treatment plan for the patient. As shown in the table (4.5) there are 38% of the total files has medical and surgical history which should to be more high to increase the quality of care provided for the patients, moreover documentation of family history and psychosocial history which considered important components in the treatment plan for the patients are not found which will affect negatively in the care provided to the patients.

**Table (4.5) Completeness of patient history and examination domain in breast cancer medical records**

| Pt. history and examination domain | Score of completeness |     |         |     |            |      | Total |
|------------------------------------|-----------------------|-----|---------|-----|------------|------|-------|
|                                    | Complete              |     | Partial |     | Incomplete |      | No    |
|                                    | N                     | %   | N       | %   | N          | %    |       |
| <b>Family history</b>              | 2                     | 2%  | 11      | 9%  | 107        | 89%  | 120   |
| <b>Psycho social history</b>       | 0                     | 0%  | 0       | 0%  | 120        | 100% | 120   |
| <b>Surgical-Medical history</b>    | 45                    | 38% | 53      | 44% | 22         | 18%  | 120   |
| <b>Physical exam</b>               | 27                    | 23% | 58      | 48% | 35         | 29%  | 120   |

#### **4.6.5 Breast cancer characteristics domain**

Completeness of breast cancer characteristics domain in breast cancer medical record play a vital role in the process of diagnosis and treatment plan for the patients, as seen in the table 4.6, in general there is great deficit in documentation of breast cancer characteristics in patient's files, cancer laterality represents about 47%, which is not enough and may interrupt patient safety , and about other contents they are partially mentioned or even not available which need more focusing from decision makers to enhance the documentation process in breast cancer medical files to prevent and decrease medical errors and interruption of care provided for the patients and moreover to facilitate and accelerate the diagnosis process which helps in treatment plan for them and decrease complications .

**Table (4.6) Completeness of breast cancer ch.ch domain in breast cancer medical records**

| Breast cancer characteristics domain        | Score of completeness |     |         |     |            |     | Total |
|---|-----------------------|-----|---------|-----|------------|-----|-------|
|   | Complete              |     | Partial |     | Incomplete |     |       |
|   | N                     | %   | N       | %   | N          | %   | No    |
| Cancer laterality                           | 57                    | 47% | 37      | 31% | 26         | 22% | 120   |
| Cancer morphology                           | 41                    | 34% | 21      | 17% | 58         | 48% | 120   |
| Cancer behavior<br>(aggressive -metastasis) | 31                    | 26% | 22      | 18% | 67         | 56% | 120   |
| Cancer grade                                | 21                    | 18% | 25      | 21% | 74         | 61% | 120   |
| Cancer stage                                | 3                     | 2%  | 14      | 12% | 103        | 86% | 120   |

#### **4.6.6 Chemotherapy record domain**

The quality of documentation in the medical record is dependent upon the consistency and completeness of information entered into the record by all individuals involved in the patient's care (Abiy, et al. 2018)). Most components of chemotherapy domain were recorded nearly completely as shown in the table (4.7), which affect positively on the patients' health, quality of care, continuity of the care and early recovery.

**Table (4.7) Completeness of chemotherapy record domain in breast cancer medical record**

| Chemotherapy<br>record domain | Score of completeness |     |         |    |            |     | Total |
|-------------------------------|-----------------------|-----|---------|----|------------|-----|-------|
|                               | Complete              |     | Partial |    | Incomplete |     |       |
|                               | N                     | %   | N       | %  | N          | %   | No    |
| Diagnosis                     | 83                    | 98% | 0       | 0% | 2          | 2%  | 85    |
| Chemotherapy<br>regimen       | 78                    | 92% | 0       | 0% | 7          | 8%  | 85    |
| Height and Weight             | 68                    | 80% | 0       | 0% | 17         | 20% | 85    |
| BSA                           | 74                    | 87% | 0       | 0% | 11         | 13% | 85    |

#### **4.6.7 Overall domains**

The most complete recording across domains was identified for medical record domain which represent 26%, while the poorest one were indicated for demographic data domain 1%, history of examination domain 1% and medications record domain 2%. All domains are partially or incompletely recorded which had many weaknesses in documentation process that need to be more strengthen to improve the quality of care provided for breast cancer patients.



**Table (4.8) Completeness of medical records for each domain**

| Items                                | Score of completeness |      |         |     |            |      | Total |
|--------------------------------------|-----------------------|------|---------|-----|------------|------|-------|
|                                      | Complete              |      | Partial |     | Incomplete |      |       |
|                                      | N                     | %    | N       | %   | N          | %    | No    |
| Demographic data domain              | 1                     | 1%   | 78      | 65% | 41         | 34%  | 120   |
| Medical record domain                | 31                    | 26 % | 82      | 68% | 7          | 6 %  | 120   |
| Pt. history and examination domain   | 1                     | 1%   | 49      | 41% | 70         | 58 % | 120   |
| Medications record domain            | 2                     | 2%   | 105     | 87% | 13         | 11%  | 120   |
| Breast cancer characteristics domain | 9                     | 8 %  | 45      | 37% | 66         | 55%  | 120   |
| Chemotherapy record domain           | 71                    | 84%  | 13      | 15% | 1          | 1%   | 85    |

#### 4.6.8 ICD-O3

As shown in the (annex15) Rantisi hospital ranks the first in writing ICD-O3 with percentage 46 %, but almost all hospitals are near to each other with slight variations, about 40 % of all breast cancer files in all hospitals providing breast cancer services missed ICD-O3 classification and there are many files that are classified under breast cancer C50 and in fact they are not breast cancer patients.

#### **4.6.9 Variations of completeness score between hospitals**

Complete and accurate documentation of health information about the patient health status helping to improve the quality and continuity of care provided. It also facilitates communication health staff about health status of the patients, needed investigation, treatment plan, planning, and quality of delivered care. On measuring the completeness of medical records it was revealed that European hospital ranks the first in documentation of demographic data represent 53%, Shifa and Rantisi hospitals have almost the same percentage with overall percentage 34% which means that they need to be higher to improve the quality of provided care for patients and for patient's safety. From medical record aspect, Shifa hospital was the first represent 66% which is good but not enough, and European hospital was 55% with overall percentage 60%, this domain should be supported more to decrease medical errors and to help in patients treatment plan. Documentation of medications domain is almost the same in all hospital with overall percentage 50% but it should be strengthen for patient safety and decrease adverse effects of medications on patients. Patient history and examination domain ranks the lowest percentage among all domains which represent an overall percentage among all hospitals 30 % which is too much low that should be motivated to help in diagnosis and treatment process for the patients. Documentation of Chemotherapy record domain ranks the first among all domains between hospitals which represents 78% of overall percentages and as shown in the table (4.9), there is no chemotherapy services at Shifa hospital, and Rantisi hospital represent 88% it considers as a strong point and affect positively in the patients' health outcomes, in the other side European hospital represents 68% that need to be more higher to help in patient recovery. About the last which is breast cancer characteristics domain as shown in table (4.9), European hospital have the highest percentage 42% while other hospitals had the same percentage 28% with an overall percentage 33% which is very low that may affect negatively on the patients diagnosis and treatment plans.

**Table (4.9) Variations of completeness score for breast cancer medical files by domains between hospitals**

| <b>Hospital name</b>                        | <b>Shifa hospital</b> | <b>Rantisi hospital*</b> | <b>European hospital</b> | <b>Total</b> |
|---|-----------------------|--------------------------|--------------------------|--------------|
| <b>Demographic data domain</b>              | 26 %                  | 24%                      | 53%                      | 34%          |
| <b>Medical record domain</b>                | 66%                   | 60%                      | 55%                      | 60%          |
| <b>Medication record domain</b>             | 50%                   | 54%                      | 46%                      | 50%          |
| <b>Chemotherapy record domain</b>           | NA                    | 88%                      | 68%                      | 78%          |
| <b>Pt. history and examination domain</b>   | 36%                   | 30%                      | 24%                      | 30%          |
| <b>Breast cancer characteristics domain</b> | 28%                   | 28%                      | 42%                      | 33%          |

\*Temporal place

#### **4.7 Cancer registry and research**

Cancer registries is unique part in the process of breast cancer management because it provide population-based data which assist in monitoring of geographic variation and changes in risk factors, survival rates, morbidity and mortality over long periods of time. It has an important role in the process of collecting population-based data and information about all cancers types which are diagnosed, treated in addition to their morbidity and mortality rates. Recently, most of cancer registries has expanded their work tasks to include the data analysis, treatment and care and what are the suitable ways for cancer prevention. It also can help in assessing if the target of cancer services provision are met or not, it addition it can also provide policy makers about the important data for cancer services distributions and where the gaps are located. Its tasks are closely linked to the evidence bases research approaches and best practical techniques to fight against cancer diseases and are adapted in parallel (Arndt V., 2016).

Breast cancer registry aims to collect and conduct analysis on data from local breast cancer cases to provide comprehensive reporting on demographics, risk exposures, clinical examinations, treatments, clinical outcomes and psychosocial impacts on patients. These reports will allow patients, medical professionals and public health policymakers to better understand the breast cancer landscape stay informed with up-to-date facts on the disease. These reports will also provide insight and evidence to support advocacy for better prevention, detection and treatment of breast cancer (HKBCR, 2018).

- **Qualitative analysis regarding breast cancer registry and research**

Most of the key informants confirmed that there are many gaps in research and cancer registration and it must be strengthen and they commented by the following statements:

Manager of cancer registry said that about breast cancer as a health problem in the Gaza Strip *"There are many reasons that can't be limited, but in general breast cancer may be the early detection of the disease increases its incidence. Because the patient can be diagnosed simply when she started to complain through doctors visits. In addition to the integrated reasons like the chemicals, radiation and pollution in general"*.

*"There is no cancer research department is the Gaza Strip; it is the core of prevention"*.

Another key informant commented *"Breast cancer is like a war, we should won it by early detection and screening"*.

A specialist in cancer registry explained about the real number of registered breast cancer cases and said that *"The number of cases we have are larger than the real number because we rely on many sources of information, either from clinics or hospitals that provide surgical services. We collect cases from different sections, histopathology departments, referrals or death registrations. But if the numbers were less than half the numbers that discovered, there would be a defect"*. He added that *"The pickup of cases is based on ICD-O3 and the files are reviewed before that, despite that there is shortage of information"*.

Cancer registry manager talked about the current cancer registry system *"there is gaps and challenges facing accessibility of data in current existing system even in accuracy sometimes. The development was in computerizing the system and we are wishing that medical staff would apply this system and commitment with this system"*. He added that

*"Research efforts in my view are individualized, we have a great gap in the researches which are adopted by institutions and this is may be available abroad too".*

Another key informant added that *"we have many gaps in the existing registration system, it should be more developed and more accurate because policies made based on the existing data".*

A specialist in breast cancer said that *"cancer registry should be computerized from A to Z to make it easier for accessibility and analysis".*

The manager of cancer registry talked about the main obstacles facing cancer registry in the Gaza Strip and said that *"Firstly we have mentioned that we lack the surveillance system about cancer in Gaza and secondly there is no the clear statistics".*

Another key informant added " *One of the main obstacles facing cancer registry which its need to electronic registration system".*

From the obtained data from key informants, it's a cleat that cancer registry play an crucial role in breast cancer control as its one main part of information system but it's endured also some gaps and challenges, in fact there were some efforts trying to develop and improve it, but they are still limited with constraints. One of the main gaps are the performance quality is low of cancer registry due to mal coordination between hospitals, deficiency in the well qualified team, and in addition to the incompleteness of the medical files which affect negatively in the database, analysis and information system because based on the real information policy makers can know what are the most common prevalence and incidence of cancer and try to put a policy to decrease it as possible as they can.

#### **4.8 Breast cancer financing**

It's known that the diagnosis of breast cancer is sometimes costly and in addition to that the journey of management is also has a financial impact. Breast cancer financial burden which are presented in the management process of breast cancer should be assessed accurately from all different aspects. Financial costs and burden still remain an obstacles facing breast cancer patients and their families too, with some groups bearing a disproportionate burden. There should be further studies and researches related to improving monitoring and support of financial costs in relation to out-of-pocket costs and

exploration of the 'value for money' proposition within the private system. Reducing financial costs related to breast cancer patients management should be a long term goal due to its importance in reducing the burden of disease on patients and their families in addition to improving financial impacts is also important in the short term. When costs of management and availability of support become a part of treatment discussion and process it will be helpful in decreasing the burden of financial costs (Paul, et al. 2017).

A survey was conducted by the Association of Oncology Social Work (AOSW) reveals that there is a negative impact in recovery process from more than half of cancer due to the financial costs of cancer. Health care providers who are working with cancer patients know well the stressors that facing cancer patients and in addition to that they understand the negative impact they can have on family, caregivers, and most importantly the patients.

- **Qualitative analysis regarding breast cancer financing**

Key informants summarized their concerns about the financial barriers by the following:

A manager oncologist said that *"There is no specific budget for cancer in general, a lot of cancer tasks done randomly as available, there is no financial support for patients, and there are a lot expensive tests that patients can't do it, and MOH didn't have the preparedness to make contract with other organizations to decrease the burden on patients"*.

Another manager in oncology said that *"Financing for cancer is not fixed and it is changeable from time to time, and the current budget is from MOH in West Bank and there is no continuity in the medication, the cost of chemotherapy medications is very expensive it overcome 70 million shekels yearly (treatment outside Gaza), and the patient doesn't pay from his pocket anything, and there are very rare percentage from patients who buy medications"*.

A specialist surgeon in breast cancer said *"Breast cancer patient is full covered financially from MOH, diagnosis cost, lab costs and surgeries are all free"*.

Another surgeon said that *"Sometimes breast cancer patient and most cancer patient are blackmailed to finish his investigations so he or she went to the private sector to end his investigations quickly "*.

A manager pharmacist said that *"there is something called financial toxicity which means that is the cost of medications and what it causes due its defect on the patient, ministry of health and the country "*.

A manager nurse said that *"there is no specific budget for oncology, the political aspect plays an important role regarding this "*.

To sum up, the researcher found that there are many barriers in financial aspect which constituted the main obstacles facing breast cancer management in the Gaza Strip and this include that there is no fixed budget for oncology department costs in Gaza, the budget has many interruptions which affect continuity of care, in the other side breast cancer patients is totally financially free from the costs of care in MOH hospitals, but sometimes the patients go to private hospitals and pay out of pocket to fasten her care.

#### **4.9 Essential medications**

Cancer is a disease that have obvious increasing in morbidity and mortality rates in developing countries and which considered as a public health problem worldwide. The availability of essential medicines for cancer patients is playing an important role in the process of treatment various different types of cancer, there are many types cancer medications are available today but on the other hand it has a high cost and may have limited benefits. However, different efforts are exerted to evaluate the effectiveness of these medications but still there is a complicated gaps due to the variation in therapeutic end-points and the use of other alternative medications to assess the impact of treatments. There is a challenge in the selection of cytotoxic medications for an essential medications list, especially for developing countries which have a limited resources. One of the main obstacles is that the treatment of cancer is not defined by the selection of appropriate cytotoxic medication alone but treatment with an effective cytotoxic protocol is just one single component of a national cancer control program. A national cancer control program also contains of primary prevention. It should also include programs for cancer early diagnosis, screening, and suitable treatment and palliative care. And surely cancer patients often develop complications after period of time, it is also should be taken in consideration that they need supportive care with analgesics, antibiotics and other medications for treating side effects of chemotherapy (Robertson, et al. 2016).

Effective management of breast cancer depends on holistic process which include: early detection of breast cancer, good diagnosis process, and accurate treatment plan. One of the main challenges in the providing care to breast cancer patients is the affordability and accessibility of cytotoxic modifications, especially developing countries with limited resources (Robertson, et al. 2016).

- **Qualitative analysis regarding essential medication for breast cancer patients**

Many key informants noted that from the major obstacles that facing breast cancer management is the shortage related to the infrastructure and the medical supplies such as medication and chemotherapy.

A manager oncologist said that *"Medications for breast cancer patients are developed for advanced stages and part of this medications are not available in Gaza so we forced to refer the patient outside Gaza"*.

Another specialist said that *"There is no continuity in the medications and chemotherapy regimens that given for breast cancer patients, there are interruptions between cycles for long times and the reason still unknown, so the patients forced to buy some medications but not all of them can do that very low percentage can do this"*.

Another specialist added that *"Hormonal therapy is not available for long time about 6 months or more so we are between two solutions and both of them are difficult on the patient, the first one is telling the patient to buy the medications and rare percentage who can buy it, the second one is to refer the patient outside Gaza and this also hard on the patient because it cost a lot "*.

A manager of private hospital said that *"A lot of breast cancer medications are not available for long time, and if this medications are available in Gaza so the patients didn't need to be referred and they will refuse that "*.

A manager of institution for breast cancer patients' care said that *"the main difference between us and others which consider one of the main gap, is that we haven't specific specialization in the oncology such as palliative care specialty, palliative surgery and so on, the problem is what we have is the shortage in the infrastructure. MOH and the government should know what is the best treatment for all patients and it should be available always without any interruptions to prevent any delay in the treatment plan, and*



*then we can say that patients are OK regarding availability of medications, but in contrast if there is any interruptions of medications during the treatment plan then it will cause the situation more worsen, the cancer will return aggressive and metastatic. We should have a suitable plan to make locking on the treatment of every patient. That is why we don't have high survival rate".*

A manager pharmacist said that *"Essential medications for oncology are about 65 types for the essential drugs of MOH and most of times we have gaps in the availability of it". He added "From my experience, we must take care and try not to be sick as possible as we can, because treatment and medications are difficult to get them ".*

*"Medications for cancer patients became a chronic crisis, we try to adapt with it sometimes there is good stock and sometimes there is a great deficiency ".*

He explained the interruptions of chemotherapy protocols for breast cancer patients and said that *"Sometimes oncologists can't continue the same protocol that they start with the patient due to the deficiency of medications ".* He added *"Interruptions in protocols make oncologists and pharmacists unable to continue the same protocol or start new one".*

*"There are new diagnosed cases, we need to start chemotherapy with them and old cases can't continue their treatment so we lost the expected results from protocols".*

He commented to the special criteria that they follow when there is deficiency in the chemotherapy and he said that *"We have a special criteria in selection patients when there is deficiency in chemotherapy, and this make dilemma to select patients to take chemotherapy and other patients will not take it". He added "From 70 patients we should select just 10 cases to take medications and this is a hard decision ".*

*"For example like Herceptin it's very important medication for breast cancer patient, every dose of it costs MOH about 2100\$ if we have about 100 breast cancer patients need it and we have about 30 vials just !".*

*"We have the decision for who will take the medication based on special criteria which include patients who are rejected for security reasons, young age patients and prognosis of the disease and other patients will be referred".*

*"Deficiency rate was about 80% in last September and October, we have a temporary fund but it is not enough, we need sustainable solutions".*

*"Cancer is a matter of time, delay or prevention of medications exacerbate the patient condition ".*

*(المرض ما ينتظر الدواء لييجي)"Cancer didn't wait medication arrival".*

*"We have a fixed stock with average from 1 month to 3 months, for in case of deficiency of medications".*

*"there always defect, no anytime there was a perfect and complete medications for sorrow ".*

*"The most difficult moment is when patient asking about her medications and you reply that medications are not available and you don't have any idea when it will be arrived".*

From patients perspective the researcher found that there are contradictions opinions about access to essential medications as one patient said that *"my chemotherapy medications was available in all my cycles treatments, I received 4 doses and all was available".*

Some of focus groups attendants stated about the availability of their medications, for example one women said that *"my medications was available always ".*

One women said that *"I received all my chemotherapy cycles without any interruptions".* She added *"There is no any delay in any doses of my chemotherapy ".*

Another patient commented that *"my doctor prescribed 8 doses for me, just one was delayed due to the pervious dose side effects".*

Another patient mentioned that *"I was delayed in my dose for one and half month and the cause was me because I wasn't prepare myself psychologically to receive chemotherapy".*

While in other aspect one patient mentioned that *"I didn't receive my chemotherapy in the previous months and other three previous times due to unavailability of my medications ".*

Another women added that *"I was referred to Egypt to continue my treatment plan".*

She said too *"When I heard that my medications are unavailable I became depressed and told myself that my death became soon".*

Another women said that *"sometimes medications are available at the hospital but they didn't give us all the quantity ".*

From the collected information it seems that there are a contradictions in opinions, the researcher can reach to the result that in spite of the effort exerted to provide the necessary drugs and chemotherapy for breast cancer patients, there are still some challenges and gaps to overcome. It appeared the main challenge facing breast cancer treatment in the Gaza Strip is the sustainability of medications especially for the chemotherapy and opioids.

#### **4.10 Leadership and governance**

Governance in health means is how to establish effective rules in the health facilities as such as enhancing suitable policies, programs, and health activities in different levels related to public health goals to achieve health system related objectives regarding all aspects (Brinkerhoff, D. W., & Bossert, T, 2008). Good leadership and governance which focuses in improving transparency and credibility, facilitates support and guidance, and in addition to it ensures the mechanisms for approving, endorsing health for who are need it. In the other side, Effective management which makes follow up on the processes which are doing in a structured and timely manner with appropriate managerial consultation (USAID, 2009). In contract, there still some major obstacles facing effectiveness of leadership and governance in the health sector which leads to the deteriorate the situation of health systems, as sequence the quality of care will be affected to in addition decrease the development process of human resources which will lead to unsatisfied health outcomes.

- **Qualitative analysis regarding leadership and governance for breast cancer patients**

A consultant oncologist said that *“oncology departments constitute a big burden on the MOH, for that MOH doesn’t give enough attention to these departments”*.

A specialist surgeon said that *“MOH doesn’t work in effective way in the Gaza Strip, no any policy makers are motivated to take a decisions that enhancing breast cancer management in Gaza”*.

Another specialist surgeon said that *“MOH neglect the oncology departments sometimes”*. He added *"There should be a clear policy to support oncology departments and patients in all Palestine"*.

One manager of private hospital said that *"MOH doesn’t give oncology departments a priority like other departments "*. He added that *" they ignore it too much, there is no a clear policy regarding oncology in Gaza "*.

Another key informant said that *"we need a strong leadership that can support breast cancer management and control it"*.

The researcher conclude from the analysis of key informants interviews that there are a huge gap in leadership and governance related to oncology departments and patients should be strengthen and should be give more attention to improve breast cancer management.

#### **4.11 Management of breast cancer**

##### **4.11.1 Breast cancer Prevention**

All efforts exerted to prevent breast cancer still not enough, but on the other side factors that contribute development of breast cancer can be reduced by using special prevention and screening activities. The most important preventive activates are regarding modifiable risk factors such as make changes in sedentary lifestyle, good nutrition, overall physical activities and BMI, and interventions for females who are suspected to be in the dangerous area of developing breast cancer specially who are used tamoxifen and other anti-estrogen medications, for that, the first step to enhance prevention plan is to determine women who are at high risk to have breast cancer.

Screening and early detection programs still remain the best available measures for patients who are diagnosed with breast cancer to prevent complications of the disease. When women who are diagnosed with breast cancer in early stages this help in early treatment plan in addition it will gives a good prognosis related to patients health condition. Moreover, early detection will enhance in decreasing morbidity and mortality rated and as sequence the survival rate will be increased (Berry et al. 2005; Elmore et al. 2005).

- **Qualitative analysis regarding breast cancer prevention**

The key informants agreed on the shrinking efforts and many gaps in breast cancer prevention in Gaza and they expressed that by the following expressions:

A manager oncologist said that *"there is no prevention programs absolutely, but mat there are screening programs and it is not good enough and I am personally not satisfied about it because it's not in regular pattern"*.

An oncologist said that *"there is no any prevention system for cancer in general, but there are screening program for breast cancer and it is not satisfied"*.

A specialist surgeon in breast cancer said *"Early detection is a big dilemma and it needs a lot of resources, it needs governmental strategy other than strategy at the MOH level"*. He added *"The Government should cover MOH programs totally"*.

Another surgeon said that *"there is no any prevention programs here in the Gaza Strip, the health education activities in addition to increase the awareness among community should be increased "*. He commented also *"Prevention is hard, we can't prevent breast cancer or other types of cancer, but we should make regular screening programs especially for women who are at high risk to discover the disease as early as possible"*.

*"I'm personally not satisfied about screening and prevention programs in the Gaza Strip, we need to discover the disease in early stages so we can start treatment plan as possible as we can and this will help in prolonging patient's life"*.

Another surgeon added that *"there is no any prevention programs from MOH or from private sectors, MOH should have national perception"*.

A manager of private hospital said that *"from the basic there is no prevention programs, we designed a special hall in our hospital just for health education sessions"*. He added that *"Health services is the basic measure for each country, all over the world" health is the basic "(الصحة هي الاساس)"*.

A pathologist said that *"I think breast cancer ranks the first in prevention and screening program, because there are many organizations and institutions provide fund for it financially and in other ways "*.

The results that were obtained from the participants in the focus group regarding the prevention of breast cancer were in parallel with the results found during key informants interviews. The majority of patients who participated in the focus groups discussion were explained that they read about breast cancer in internet or on TV or other patients experiences but in general details with no much information about the symptoms or causes, how to prevent it, but in the other side one women said that *" I was attend educational activity in private institution about breast cancer"*

Another one said *"I went in frequent times to assess myself in UNRWA clinics"*. She added that *"There was a female nurse educate me how to make breast self-examination"*.

While the majority of patients did not attend any health educational lectures about breast cancer as they said *"I heard about breast cancer on the T.V and internet by I never thought I will suffer from it"*.

Another one said *"I heard about breast cancer from the people and the TV but I never know its symptoms, causes"*.

Another patient said that *"I knew about breast cancer from the experience of my friend but I don't know that I will be a breast cancer patient like her"*.

From that obtained result from both key informants and focus groups it is shows that there are a clear limited efforts and activities regarding breast cancer prevention through health education were present (as breast self-exam), but it needs more attention and to be strengthen and unified efforts form policy makers to establish and implement a strategy for breast cancer prevention, with coordination with other ministries like media and education ministries.

#### **4.11.2 Screening**

Screening is considered as a secondary prevention technique which can be defined as examining women without signs and symptoms of the disease in order to detect disease in its early stages for earlier treatment or to categorize women who are in the risky zone. It is mostly considered as the first step in the diagnosis process while primary prevention involves health promotion and risk reduction in the general population so that invasive cancers do not develop. These primary preventive measures include the cessation of smoking, lifestyle and diet modification, vitamins and micronutrients supplementation

There are many techniques that are used in screening process of breast cancer:

- The first approach is breast self-examination which has been prompted widely by most of cancer organizations, institutions and authorities all over the world. It depends mainly on providing health education about regular self-examination for women and especially to women who are in high risk to be with breast cancer (WHO, 2006d).
- The second approach is clinical breast examination as it considered as one of the primary approaches that are used in screening for breast cancer. It's mostly depends on the

knowledge and skills of health care staff and in addition to the availability of diagnostic facilities. For that it's important to use evidence based approaches in training and in standard techniques to make sure that health staff are well trained (WHO, 2006e).

- **Mammogram**

It is defined as a tool that used to diagnose breast cancer by using imaging modality with low energy x-rays for imaging of breast tissue to detect any abnormalities. It facilitates to use standardized views of breasts to assess any mass or lesions in the breast (WHO, 2014). It plays a crucial role in the process of breast cancer diagnosis especially it helps to detect cancer in early stages because it enables health care providers to show changes or abnormalities in the breast up to two years before a patient or physician can assess them. In the Gaza Strip, there is an extra advanced mammogram device was installed at the MOH (Al-Rimal Clinic) in 2017. It is expected that this advanced mammogram machine will increase MOH capacity to deliver high quality mammography and to reduce coverage gap by more than 3,000 tests per year (UNFPA, 2018).

- **Qualitative analysis regarding screening and mammogram**

The weak and non-continuity of screening programs in Gaza is confirmed by the results commented from the key informants. Other key informant explained that there are some efforts to do screening programs but it represented for small funded programs and not for long time, beside that it faced many obstacles.

A manager oncologist said that *"Breast cancer ranks the first in screening and there projects for short time then finished"*.

Another oncologist said that *"we have early detection programs for breast cancer although it is initial programs but it had a good results and many cases were discovered in early stages"*.

A manager of institution for breast cancer patients' care said that *"we discussed the deficiency in screening programs with many of policy makers, we discovered breast cancer cases and then! Costs? "*.

A specialist surgeon said that *"Screening tools are not good enough"*. He added *"We need small centers, with mammograms for diagnosis and screening (in relation to other diseases we don't need big resources for the diagnosis)"*.

Another surgeon said that *"Early detection of breast cancer: our people are somewhat aware but not comprehensive awareness as there is no universal steps taken by each women above 40 years".* He added *"there is no specific policy for screening programs in MOH for breast cancer"*

*"Women should be categorized according to their risk score, not doing screening is a big insult for breast cancer care".*

*"People are aware about breast cancer, because of community based centers activities (we have 8 mammograms in the Gaza strip), 3 in Remal primary clinic and Shifa hospital".*

*"Early screening of breast cancer is available but not organized, "every woman should do a screening program for herself" and know to which risky group she belongs to: High risk group: family history +ve, long time taking of contraceptive pills, obese".*

*Every one of us should perform a screening program for himself/herself"*

*"Every woman should by the government of herself (كل ست لازم تكون حكومة)"*

*"We should increase people awareness regarding screening of breast cancer in all hospital and centers in Gaza, and instructed affected women to advice every women such as her relatives and friends to do screening".*

A manager of private hospital said that *"every person should make routine tests every 6 to 12 months, and who had risk factors should make screening from time to time".* He added *"Late detection of cancer leads to increase mortality rate "*.

Another specialist surgeon in breast cancer said that *"there is no clear protocols for early detection".* He mentioned also *"Early detection programs are funded by international organizations and it had limited time and in irregular pattern, and these organizations concerned to finish the fund just by anyway "*.

A manager pharmacist said that *"from 45% to 50 % are advanced cases because there is no screening".* He expressed also *"Early detection in breast cancer means high percentage of recovery about 90 to 100 %".*

The participants in the focus group were asked if they have previous knowledge about screening test to exclude cancer before their diagnosis of breast cancer the responses of



most of them were "No"; and most of them agreed that they did not know about screening tests or did it before.

One patient said that " *I never do any screening test before, and I don't know where and how to do it*".

Other women added " *I heard about screening before but I didn't do it for cultural reasons*".

Another women added "I was diagnosed with breast cancer suddenly without any early detection test or exam". She added " *we should have continuous health education and screening activities to help in prevention of this disaster*".

But in the other side one women mentioned that " *I read about screening of breast cancer and I went to UNRWA clinic for more clarification and for my bad luck I had a mass and it was in stage two*". Another one added " *my daughter is a nurse and she supported me to make screening and how to make breast self-examination and the results was bad*".

From the collected data, the researcher found that there are screening programs for breast cancer patients but it's not in ongoing process and for short time based of the fund, it should be supported form policy makers to establish and implement a strategy for breast cancer early detection and prevention, with collaboration of other ministries and community to increase the awareness of people about the importance of screening and early detection of the disease in early stages.

#### **4.11.3 Diagnosis of breast cancer**

Detection of cancer in early stages may reduce the mortality rates significantly over period of time. To identify early stages of breast cancer is consider the most important point for early treatment, management and good prognosis. There are different diagnostic devices which are used to diagnose breast cancer such as mammography, magnetic resonance imaging, ultrasound, computerized tomography, biopsy and tumor markers tests (Wang, L, 2017).

- **Qualitative analysis regarding breast cancer diagnosis**

As an extension gaps founded in breast cancer prevention and early detection in Gaza, the diagnosis of breast cancer at late stages appears as consequence. The data collected from the key informants concerning this situations allow us to think that breast cancer diagnosis

in Gaza is certainly enduring critical conditions and it need a hard job to overcome this crisis as the key informants said.

A manager oncologist said that *"we have good diagnostic services, breast cancer case take about 3 weeks to be diagnosed and if all equipment and medication are available patient will take her treatment in a less time"*. He added *"In UK, patients need from 4 to 5 weeks to be diagnosed and have treatment"*

*"If the patient went to a general physician we add more 1 to 2 weeks to the defined diagnostic duration"*

A consultant oncologist said that *"the problem is before arriving patient to the hospitals, she needs long time to take analgesic then go to the primary health care for symptomatic care"*.

*"Doctors in primary clinics must be educated about risk signs of breast cancer to diagnose cases early"*.

A specialist surgeon said that *"Radiologists aren't expert very much (MRI isn't in a ratio with population, we have deficiency in MRI) in other hand, we can't have MRI in all cities of Gaza Strip as expert in MRI are rare"*. He commented also *"Advanced steps in diagnosis are deficient in Gaza as sentinel lymph node biopsy, which can't be performed by all surgeons, only two surgeons master it"*

A specialist surgeon said that *"For diagnosis of breast cancer facilities are present"*.

Pathologist said that *"there are diagnostic facilities for breast cancer and there are a great deficiencies in the infrastructure like pathology department at Shifa hospital and it considers as the biggest pathology department in the MOH"*. He added *"We need more resources for diagnosis that are more developed other than the traditional ones, regular maintenance for diagnostic facilities and more staff, sometimes we have reply and sometimes we are ignored"*.

*"In the worst times, we need about two weeks to one month to have pathological results regarding breast cancer biopsies"*.

*Another specialist surgeon said that "breast cancer patient needs about 6 weeks from chief complain to be diagnosed and start treatment internationally, here in Gaza we are almost in the same average"*

*"Governmental hospitals used for confirm diagnosis and other private hospitals support us".*

*A manager pharmacist said that "not all tests are available, and we must be confirmed 100% that this patient has breast cancer".*

From the patient's perspective, the researcher found that almost the results of focus group is not far from the key informants results, and most of gaps summarized in mal coordination between hospitals, deficiency of diagnostic facilities or limited number of human workforce "Doctors and other specialists " and also the patient plays a role in the delayed of breast cancer diagnosis.

*One women explained that "after a mass detection in my breast, my doctor asked for a biopsy, then sent to pathology department and I waited about one month for the result".*

*Another women said that "I had a mass in my chest and I told my daughters and they told me don't worry its doubts just, but when it became a bigger I went to Al Ahli hospital , the doctor requested mammogram for me then asked for a biopsy".*

*Another women expressed " there was a mild pain in my chest then there was swelling then I did breast examination and I found a mass in my chest, I went to a private doctor for fast results, he was serious in my complain, he asked for lab tests, ultrasound, and a biopsy, I went to a private lab to have a fast result because in MOH hospitals it takes long time, the result was ready in 3 days and it was not good ".*

*One more women added about the long process of diagnosis and she said that "there was a small mass like " a bean " in my chest, I didn't care a lot about it and no one told me to follow up and to go to the doctor, after one year I went to a doctor at Shifa hospital he did investigations for make and he took a biopsy from the mass and the results was negative, he asked me to show the result to another consultant at Al Ahli hospital for more confirmation and reassurance, they remove the mass and they tool another biopsy and sent it to a private laboratory and the result was catastrophic and it showed cancer cells for my bad luck ".*

One patient explained her journey of diagnosis process with sad facial expressions and she said that *"I had repeated screening test , I discovered one small mass like a bean , then after one month it was bigger about 3 cm, I asked my family about it and they replied its normal and you shouldn't be worry about it and after one more month it became a bigger I was worry about it, I went to a private medical institution for follow up, my doctor was asked for a biopsy test for this mass, then I referred to Indonesian hospital then to Shifa hospital for more investigations and take a biopsy they told me the result needs about one month, I went to private laboratory for fast result and after one week I had the results "* *ويا ريتني ما عرفت النتيجة* and I wished in that moment didn't know the result ".

Another women described how much her diagnosis process was painful she said that *" I had a minimal pain with a small size mass at my right breast, I ignored that but after one month I went to Red Crescent society after I was referred from UNRWA clinic , he requested blood tests, CT scan and mammogram then it showed there is a tumor with about 2 cm size, they took a biopsy from my breast and it showed there was a cancer , after that I was shocked, depressed and afraid but (راضية الحمد لله )I am satisfied m thanks Allah, for follow up we went to a private doctor for less waiting time and reassurance and to have a quick appointment rather than Shifa hospital I need to wait long and longtime".*

#### **4.11.4 Treatment of breast cancer**

There are different treatment options are used for breast cancer management and all of these options aim to reduce the disease severity or get rid of this disease, prolong of patents life and in addition to that to improve the quality of life after the patient diagnosed with breast cancer by the best suitable and available procedures. The most effective and efficient treatment can be applied when the patients are diagnosed at early stages of the disease and in addition it should follows evidence-based standards of health care as sequence many cases will be highly responsive to treatment and have good prognosis (WHO, 2007).

Treatment options for breast cancer can be vary depending on cancer characteristics such as cancer stage, its size, location, if it is metastasized to other body organs or not in addition to the overall physical health of the patient. Treatment options for breast cancer include surgery, radiotherapy, and chemotherapy, hormonal and targeted therapies. These treatment options can be used alone or in combination together depending on the stage of the cancer. When breast cancer is diagnosed in early stages, the surgical treatment is of

breast cancer is consider the best option and these surgeries are vary depends on the size and location of the cancer such as lumpectomy (breast-conserving surgery) or mastectomy (surgical removal of breast tissues) with the removal of clear margins of both invasive and non-invasive cancer. Systemic treatment can be used as post-surgical procedure as adjuvant therapy to enhance removal of the disease and overall quality of patient health as consequence increase the survival rate. In the other side, when breast cancer is diagnosed in advanced stages, systemic treatment are the best choice in controlling the spread of the disease in addition to the palliative treatment. Controlling of breast cancer in advanced stages can be done by using neo-adjuvant systemic treatment which means that the patients have other medications before the main treatment option. This type of treatment is used to shrink the tumor size which will facilitates later subsequent treatment, surgical options, and long-term outcomes.

Breast cancer management which include detection, diagnosis, and treatment of breast cancer, during this journey patients may complain of other psychological and emotional stress. For that, it is crucial to understand all patients needs for better emotional and supportive care throughout their journey (Ng, Z et al. 2017).

### • **Qualitative analysis regarding breast cancer treatment**

A manager oncologist said that *"Chemotherapy and surgical treatment are available treatments options for breast cancer patients but not always"*. He added *"Radiotherapy isn't available ever, sometimes biological therapy is available and sometimes not so we refer patients abroad"*.

Another oncologist said that *"we have interruption in chemotherapy medications, and radiotherapy isn't available at all"*.

A specialist surgeon said that *"All options of treatment can be done in Gaza except for radiotherapy, and we have a problem in chemotherapy as we have interrupted cycles (on & off)"*. He mentioned also *"The conservative breast management done by few surgeons "*

Another surgeon described cancer surgery treatment in Gaza endure some gaps as it appeared from the collected data *"The intensive care unit refuses to admit the cancer patients after surgery or if they are metastasized, they consider it as a hopeless case not from the first priorities, so sometimes I hesitate to do a surgery for a cancer patient"*.

*"We are surgeons not specialized in oncology, we can't deal with every cancer. We can do it once but not many times because I have no team to support me and to follow the case with me, so we need a specialist's team for oncology surgeries ".*

A manager pharmacist said that *"chemotherapy is available but not all times, radiotherapy and PET scan are not available at all ".*

Participants in focus group results was almost matching with key informants results, one patient said that about the difficulty in having her medication by explaining, *"When I didn't found my medication I was obliged to travel to Egypt or to West Bank to have my medication, and as all we know this cost a lot of money and time too ".*

Another women said that *"I paid the cost of my treatment two doses, I bought it from Egypt, It was expensive, and we know how much bad the situation here in Gaza ".*

Other women clarified her treatment journey and said that *"after I had my surgery in my breast, I received two doses then it was interrupted, I was afraid too much, I asked for referral abroad to continue my treatment".*

One more women was depressed from repeated visits to hospital and she said that *"I went to hospital 3 consequences times and my doses are unavailable, I paid a lot for transportations but without any interest".*

Another women added *"I took all my treatment doses here in Gaza, but when I need radiotherapy treatment for sorrow it wasn't available here in Gaza so I refereed to West Bank for it".*

But in the other side there are a group of participants are satisfied about the treatment here in Gaza as one women said *"I had surgery here in Gaza for my breast and after that I took all my doses and I am fine, but every time I am here for follow up".*

Another patient said that *"I received all my doses without any interruptions"* she added that *"I don't want to be referred abroad because all what I need is present here in Gaza".*

One women commented that *"my doctor prescribed to me 4 doses and all of it was available, there is no any delay or interruptions, but when I need radiotherapy treatment isn't available here in Gaza so I must be refereed".*

From the collected data, the researcher conclude that the surgical treatment in Gaza is acceptable but it seems that some areas of breast cancer surgery treatment is absent or should be strengthen as palliative surgery, cosmetic surgery , it needs a special skills and well-trained qualified staff, both patients who are participated in focus groups discussion and key informant persons showed that drugs of breast cancer treatment are usually present as chemotherapy or sometimes there are interruptions, but occasionally some drugs were not available and all of them agreed that there is no radiotherapy here in Gaza which obliged doctors to referred patients abroad to continue their treatment which increase the burden on the patients . In conclusion it's a clear that there are many results are contradicted, the researcher can reach to the result that in spite of the efforts exerted to provide the necessary treatment (surgery, chemotherapy and radiotherapy) for breast cancer patients, there are still some challenges and gaps need to be overcome.

#### **4.11.5 Palliative and Emotional care for breast cancer patients**

Palliative care aims to improves the quality of life for breast cancer patients in addition to their families too who are complaining of life threatening conditions, by using special approaches to reduce or prevent patients suffering by adding it with treatment plan which constructed by specialists in palliative care and this can be done including different aspect rather than medical condition such as physical, psychosocial and spiritual aspects (Sepúlveda, et al. 2002). Palliative care is a wide approach that focusing in providing holistic care to cancer patients that concentrates on the whole aspects in the patients, not just their medical condition or cancer. Its goal is to prevent or treat cancer patients, as early as possible, which include: signs, symptoms and side effects of the treatment, moreover it deals with other aspects such as emotional, psychological, social, and spiritual needs. Palliative care has other names like supportive care, comfort care and symptomatic management. Palliative care can be provided in different places such as hospitals, an outpatient clinics, specialized centers in palliative care, or at home under the direction of health care providers.

In addition it can be provided at any point during breast cancer management process, from diagnosis till the end of life (NIH, 2017).

- **Qualitative analysis regarding Palliative and Emotional care for breast cancer patients**

The obtained results from the key informant interviews, it shows that the gaps of palliative and emotional care in Gaza was evident. The key informants described the gaps in this area by the following statements:

A manager consultant said that *"Psychosocial and emotional care aren't available at all, and we should have a palliative care center"*.

A consultant oncologist said that *"psychological support is a big failure for MOH (فشل كبير) (لوزارة الصحة)".* He added also *"There should be a palliative center for cancer patients with a well-trained team in palliative care including doctors, a specialist nurses, a psychologists, physiotherapists and of course with needed medications for palliative care and for sorrow that all are not available here in Gaza"*.

*"There is no specialized programs or institutions for psychological or emotional support for breast cancer patients in the Gaza Strip"*.

A manager of institution for breast cancer patients' care said that *"there is no palliative center or palliative care here in Gaza"*. He added also *"it's ok to see her dying عادي يشوفوها يتموت"*

*"Terminal stage patient is next to newly diagnosed patient in the same room"*

A specialist surgeon said that *"We haven't any kind of supportive or emotional care"*.

*"Most emotional care came from patient family and friends, there is no specific unit for emotional support"*.

*"Palliative care is almost absent, we haven't specialized palliative care center for cancer patients in Gaza "*.

Another surgeon said that *"psychological support is present recently inside hospitals, there are special groups for psychological support at Shifa hospital but support be in general, they are in an initial phase but there presence is good "*.

*"Almost palliative care and surgery is absent here in Gaza because they consider it as a hopeless cases"*. He mentioned that also *"It's actually something unethical not to have a*



*palliative surgeries here in Gaza, most of surgeons don't need hopeless cases to be recorded on them and they knew that the outcome isn't good almost "*.

*A manager of private hospital said that "we are as a private hospital must provide holistic care for breast cancer patients including social and emotional care to guarantee that the patient will come back again".*

*A manger nurse said that "we sent a message to MOH before about 8 years that we need a psychosocial worker for oncology patients for emotional and psychological support and till now there is no reply".*

*The data collected about palliative and emotional care from the participants in the focus groups interviews were resemble to the results of key informants interviews, as one women described her suffer from cancer and she said "I was very depressed when I was diagnosed with breast cancer, I didn't found any specialist who should provide the appropriate emotional and psychological support for me".*

*Another women expressed her pain by words and she said that "the problem is not with cancer, the problem that we need other to stand with us who can provide to us enough emotional support, at least to forget a little bit of our pain".*

*Other women commented that "we should have psychological and emotional support even during we take our medications doses, but for sorrow it's unavailable ". She added "We got emotional support from our daughters, husbands, and friends, there is no a specialist here in hospital to do this ".*

*One more women added that "after I received my chemotherapy dose, I had side effects post chemotherapy, my doctor decided to admit me to inpatient department, I felt sad and depressed, I admitted for 5 days, I didn't meet any psychological or emotional support ever, which in that time I really need it because I felt "I am near to death "" أنا قريبة من الموت"*

*One patient said that " I was too much afraid when I knew that I had breast cancer , and I am afraid more and more when I knew that it was metastasized , I didn't found the enough emotional and psychological support from the staff or from my family , they are waiting me to die".*

Another women said that *"I was admitted for post chemotherapy care , in the same room there was a another gasping patient , I was too much afraid and I went to home and I didn't continue my treatment , we should have a special center for that"*.

From the qualitative data which are collected from the key informants and participants in the focus groups, we can conclude that palliative and emotional care in Gaza is very limited or absent also palliative surgery is absent. There researcher recommended that there should be a special center for palliative care for cancer patients here in Gaza with specialized and well trained staff from all different medical fields who are experts in dealing with cancer patients ,in addition the breast cancer patients in Gaza not only should being supported for the physical, psychological and emotional consequences of the disease alone, but the family should have a strong role in supporting and encouraging them to be a part of the palliative care and emotional support of the patient.

#### **4.11.6 Quality of care and Follow up**

Quality of care is defined as accessible, delivering health care that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need (WHO, 2006e). The best possible care should be provided to the cancer patients, even we are in the century 21<sup>st</sup>, still there are many gaps that facing the continuity and quality of care provided to the breast cancer patients which affect negatively to the safety, efficiency and affordability of the care and as consequence poor breast cancer management (Spinks, et al. 2014).In oncology, quality of care is a major issue for patients and providers, when the patient has already diagnosed with breast cancer it's important to take in consideration that patient satisfaction paly very important role in the quality of care provided.

Follow-up care process for breast cancer patient's care includes many activities such as the clinical examination, laboratory investigations and imaging techniques. Examination process of breast cancer may be different from patient to patient which depends mainly on the size of cancer, location, if it is metastatic or not and in addition to the treatment plan. Mostly follow up care which includes making observation of general health of cancer patients in regular intervals comes after receiving the main recommended treatment. Mostly, after breast cancer patients receiving the main treatment, they are monitored for a period time for follow up care in special facilities or in out patients clinics then later in primary care centers patients. Follow-up care aims to detect early side effects post main

treatment are received, assessment of general health condition and in addition to ensure patients' rehabilitation (Grunfeld, E, 2005). It's an excited feeling when breast cancer women finished her treatment plan but in the other side there is still existence a fear feeling from recurrence of cancer. Most of breast cancer treatments can cause side effects which vary from patient to patients according to patient overall health, these side effects may be appeared directly after receiving treatment or after short period of time in addition it may last for few days and other may last for long time. Health education for breast cancer patient is very important thing that enhance in reducing treatment side effects and patient should be notified that they should visit health care providers in case of changes that happened or if they need more clarifications. If patients noticed any changes or abnormalities they shouldn't wait till the next appointment and they should visit health care providers immediately (ACS, 2017).

After finishing treatment plan, all breast cancer survivors should have appointments that decided with health care providers for follow-up care. This means they should visit health care providers in regular manner for medical follow up, investigations and overall assessment such as blood tests and in addition to the physical examination to ensure that there are no abnormalities are found, or any problems that occur due post breast cancer treatment. Moreover may include assessment of psychological and emotional status of patients that may develop months or years after treatment ends (ACS, 2017).

From the collected data it seems that many gaps emerge from breast cancer care, it's difficult to judge on the quality of cancer care and follow up in general, and it depends on the type of care (prevention, diagnosis, screening, treatment and follow up) or at the level of care provided to the patients. In general, most of the key informant persons who are participates in the interviews commented about the quality of care and follow up in Gaza to be acceptable to some extent as they said:

*A manager of institution for breast cancer patients' care said that "there is a big problem that excited in the follow up process related to cancer patients in general, there should be reminder system of the breast cancer women didn't come to her appointment, in addition to that there should be a special employee who is responsible on calling patients to remind them about their follow up appointments. At least follow up appointments should last for 5 years after patients finishing their main treatment".*

A consultant oncologist said that *"In Gaza the cancer care is accepted compared to the neighbor countries like Egypt and it takes more priorities especially in chemotherapy treatment and surgical treatment"*.

Another manager oncologist said that *"there is a wrong concept in Gaza that oncology departments are responsible for cancer services from A to Z but sometimes the problem with cancer patient is not related to cancer, she needs follow up from other specialties"*.

A specialist surgeon said that *"quality of care depends on many things such as the place of treatment which means that there are difference in the quality of care provided to cancer patient in different palaces and this depends on hospital and the availability of hospitals facilities that means not all hospitals have the same level of quality care"*.

Another surgeon added that *"breast cancer patient when she need for follow up her is listed as cancer patient in general without any specialization for surgeries"*.

One radiologist added that *"the care provided to cancer patients is like five stars services"* خدمات خمس نجوم *"because in radiology departments maximum 3 weeks the patient wait her result and if it was delayed she made a trouble "*.

Another key informant had another opinion and she said that *"In the Gaza Strip, there is nothing called quality or we hear about it but it's not applicable even in oncology departments, moreover services delivered to the patients are just meet their low needs without high level of quality"*. He added *"If we want to take about quality of care m firstly we oncology patients should have a special building with high quality and qualified staff"*.

One more key informant added that *"How we can take about quality of care and there are a lot of services aren't available here in Gaza and patients should be referred for it"*.

From the patients perspective about the quality of care and follow up they have different results, one women said that *"I can evaluate the quality of care provided to us as patients about 6/10 "*.

Other patient added that *"I am fully satisfied about the follow up system and quality of care , every 3 months I have an appointment with my doctor , it's about 9/10"*.

One more patient had experiences in private and governmental hospital and she expressed that *"the quality of care in private hospital was excellent, but it was totally opposite in the governmental hospital"*.

She added that *"I prefer to go to the private clinic, because the care better than governmental hospitals, care in the hospital is very bad and the doctors don't care for us"*.

Other women was angry from long waiting time and poor ventilation and when she asked about the quality of care she replied *"it's very bad, we don't have a good care to have a quality, we must be in a hotel not in this grave"*.

She added that *"Why when we go to the doctor's private clinic and pay for him he treated us well and with respect? He didn't treat us the same in the governmental hospital"*.

From the collected data the researcher noticed that there are contradictory opinions from key informants and patients regarding the quality of care and follow up for breast cancer patients which based on the hospitals, facilities, available treatment ,qualified staff and the patients themselves, so we can say that most of the burden in breast cancer management is localized on the three oncology departments in the three hospitals Shifa, the European Gaza and Rantisi specialized hospital, while the other departments have a limited role in the follow up of the breast cancer cases. The researcher may explain the differences between the key informants points of view concerning the breast cancer management and follow up, according to the type of care was provided and in which hospitals, but there is no doubt about the presence of many gaps through the breast cancer care and follow up in Gaza. It should be revised and make a special criteria for follow up and to assess the quality of care for breast cancer patients from specialized expert to decrease the burden of the disease.

#### **4.11.7 Referral system between facilities and abroad**

Last reports showed that there are increasing in the number of referral for cancer patients from Gaza Strip to other hospitals outside Gaza Strip due to unavailability of radiotherapy or some types of medications related to cancer in addition to some types of diagnostic tests and devices are not exist in Gaza. The lack of development process in the existing health system in the Gaza Strip increase the burden of breast cancer disease due to that patient preferred to be referred outside Gaza. Most of referrals are for getting diagnosis and treatment services in five common specialties: cardiovascular diseases, oncology,

orthopedics, neurosurgery and ophthalmology. WHO report revealed the percentage and causes for referrals and it's as the following: 28% of oncology patients referred for chemotherapy and 30% for radiation treatment and other cancer patients were referred for either consultation or "management of disease. In total, 1,523 patients had to leave the Gaza Strip in 2010 for oncological care and made up 12% of all referrals (WHO, 2010).

### • **Qualitative analysis regarding referral system**

The referral system between the facilities and abroad endured some gaps especially long waiting time related mainly to the poor communication and coordination between the hospitals involved in breast cancer management, which lead sometimes to confusion and misunderstanding between them or between the providers and patients as most of key informants explained.

A manager oncologist said that *"referral consider as a big obstacle facing patients because not all patients have the ability to travel via Erez cross point because they are rejected for safety and security reasons as Israel told them"*.

A consultant oncologist said that *"I am personally satisfied about referral abroad system and committee but I am not satisfied about the criteria of referral"*.

*"Crossing Erez or Egypt border is consider one of the main obstacles facing cancer patients that one day is opened other days is closed, moreover not all the patients have the same chance to be referred, and sometimes many of them are rejected or delayed or denied by Israel occupation or even the caregiver"*. He commented also *"About 50% of cancer cases referred for drugs deficiencies, if this problem solved the percentage of referral will be decreased too much surely "*. He added that *"patients insist to be referred due to cultural factors that people in Gaza believed that the care outside Gaza is better than provided in the Gaza Strip and there is treatment outside Gaza for metastatic cancer, and the same management was in Gaza, they prefer to be referred it from outside the Gaza"*.

*"Most of cancer cases are referred due to deficiency of the diagnostic and treatment facilities, there is interruptions in chemotherapy and there is no radiotherapy treatment here in Gaza"*.

A specialist surgeon said that *"Sometimes Referrals are based on personal relations, doctor relations, in addition if the patient have appointments in doctor's private clinic this*

*means not all the patients have the same chance to be referred ". He added "Most of breast cancer patients are poor people and referral cost a lot".*

*(معظم مرضى السرطان فقراء و الي بدو يسافر بدو مصاريف)*

*"Patients have an easy access to the governmental hospitals but with no facilities"*

*"Majority of Gaza families are poor and have low economic status and when they have a cancer in a family member; that means they have a double burden on the family to afford it especially if she referred and if she needs a caregiver".*

A manager pharmacist said that *"we hope referral patients will be finished by availability of the needed services, at least medications and not to be referred due to deficiency in medications". He commented also "There must be a clear policy for medication transfer and didn't be affected by political or geographical aspects".*

Another key informant added about the process if referral from primary health facilities and he said that *"The cases were referred from primary health care or others hospitals arrive on the outpatient clinic without any details or information; there is no communication between the primary health care and the hospitals. All the processes are individually made. Referrals are not coordinated, there is no specific protocol or criteria for referral patients between primary health facilitates and hospitals". He added "There is no referral from the primary health care that means we haven't internal referral system even its present its very weak and should have a clear policy ".*

One other key informant added that *"even the treatment available here in Gaza, some patients or their families insist to be referred abroad because they don't trust treatment here in Gaza".*

*"Cultural reason play important role in referral process, people and patients should know that treatment available here in Gaza is the same abroad".*

*"Many patients or their families who had metastatic cancer insist to be referred abroad, they believe that we can do nothing for them here, but outside they can be treated and find the appropriate care for them, they insist to be referred without any benefit".*

*"Patient and their families believe that they can receive better care outside Gaza so they insist to be referred we don't ignore that we need a better place but it doesn't mean the care is not good".*

Another key informant added and confirmed to unneeded referral and said that *"many patients do not need to be referred, some of these cases are at terminal stages to be referred and sometimes these cases are referred even the facilities for their diagnosis and treatment are present here, in spite that they insist to be referred, they don't trust health system here in Gaza "*. He added *"They just need to be referred, they don't know how much it cost them and MOH"*.

In conclusion external referral system is a crucial and critical aspect that needs more attention from policy makers, with re arrangement of referral criteria. Doctors are forced to refer cancer patients for many reasons related to the availability of medical equipment, deficiency of medications or deficiency in specific specialist in addition to cultural factors that people in Gaza believed that the care outside Gaza is better provided than here, and It is clear that the internal referral system suffered from some weakness points especially communication and coordination between both the primary and secondary health care levels which lead sometimes to confusion and misunderstanding between the providers and patients.

#### **4.12 Major obstacles facing breast cancer management**

Obstacles facing breast cancer management play a crucial role in the evaluation of breast cancer management in Gaza is , knowing it help decision makers to identify the existing troubles then take the appropriate actions to correct or minimize it .

- **Qualitative analysis regarding major obstacles facing breast cancer management:**

During the discussion with the key informants about the problems they found in their work in breast cancer management, many factors are discovered. Obstacles and challenges that were faced during breast cancer management in Gaza varied between the key informants; it may be due to their different points of view that may arise according to their different work positions, experiences, expectations and their priorities. The main problem areas that were observed are listed below as they mentioned.



A manager oncologist said that *"There are two aspects must be strengthen to improve breast cancer management which are manpower and diagnostic resources"*.

A consultant oncologist said that *"there are four major obstacles facing breast cancer management which include: availability of cancer drugs, health education for staff and patients and financial support"*.

A specialist surgeon said that *"major obstacles facing breast cancer management are: Lack of facilities for diagnosis, No good primary health care programs to pick up cases"*. He added *"There is no awareness programs (TV programs)"*.

*" حثلاقي كثير ناس بدت تدور ع حالها " "a lot of people will start to make follow up"*

Another specialist surgeon said that *"there are many Major obstacles facing management of breast cancer in the Gaza Strip which include: Culture, Instability in funding (some time we need to redirect funding), Policy of screening and early detection of cancer, Expert radiologists are needed, Screening facilities should be distributed more, Training of surgeons and Psychosocial support is needed"*. He commented also *"We need a national screening program"*.

A manager in cancer registry said that *"there are two main obstacles facing breast cancer and all cancer types in general which are lack the surveillance and there is no the clear statistics"*.

A specialized surgeon in breast cancer said that *"there must more control on private hospitals which make screening and surgeries which are untrusted, moreover health education and population awareness still at low level"*.

On the other hand the collected data from the participant in the focus group showed that there are many obstacles facing breast cancer patients as one patient said that *"my big problem is with long waiting time when I have an appointment I should wait for my rule at least 2 hours"*.

Another women added about the overcrowded of people and patients and she expressed that *"the place is small and there are a lot of patients here, there is no good ventilation but I should bear that because I need to take my medications"*.

One women said about absence of tests and other diagnostic facilities at hospitals *"Some tests are unavailable at the hospital as the tumor marker tests, it should be provided, we should so it in a private laboratories and it costs a lot". She added "my doctor asked me for MRI , I went repeated times to Shifa hospital because it was broken and need maintenance then I decided to do it in a private center it costed me about 400 shekels"*.

Another patient said about the political situation consider the main obstacles *"The political situation, closure and the siege represent consider the most important obstacles for us as patients and for the drugs availability and referrals"*.

From the collected data from both key informants and participants in the focus group it showed that there are many obstacles are existed in breast cancer management in Gaza. It includes financial, administrative, coordination, screening, health education and availability of medications obstacles as well as unstable political situation (siege, division between Gaza and West Bank), inappropriate oncology buildings, shortages in the human resources and their development, workload, long waiting time and the shortage in some necessary equipment and supplies which are used in diagnosis and treat breast cancer patients.

## **Chapter Five**

### **Conclusion and recommendations**

#### **5.1 Conclusion**

Universally, breast cancer ranks the first type of cancer among females and it considered the most common cancer in Palestine. Management of breast cancer can't be individualized, it requires multiple interventions provided by variety of health professionals from different levels over prolonged periods of time. This study aims to evaluate the management process of breast cancer in the Gaza Strip to assess available strategies and health care facilities serving breast cancer patients and challenges - barriers for service provision. This chapter summarizes the results and findings in the study and introduce suggestions and recommendations to improve the management process.

This study highlighted several domains and sub-domains in breast cancer management and it might help in identifying some gaps, barriers and challenges in the management process of breast cancer in the Gaza Strip.

There are many challenges-barriers are discovered during the journey of management process of breast cancer in Gaza. It includes financial, cultural, and administrative and coordination factors as well as unstable political situation mainly, siege and division between Gaza Strip and West Bank, inappropriate oncology buildings, insufficient diagnostic equipment and resources, unavailability of some treatment options, shortages in the human resources and related in service education and workload. The following points describe the gaps in details based on WHO six building blocks.

##### **5.1.1 Health Workforce**

It appeared that there are many gaps related to human resources who are included in breast cancer management in the Gaza Strip in many specialties as oncologists, pathologists, social workers nutritionists and physiotherapist, which affect negatively in the management process and the situation will be exacerbated in the next few years especially after the retirement of some specialists and some of the qualified workforce without replacement. The challenges of health workforce in Gaza is not only limited to the deficiency in the number of some specialists, but it also include in service education programs for all the staff, scholarships (inside and outside the country) and training activities to increase theoretical and practical aspects related to breast cancer management.

### **5.1.2 Services delivery**

The researcher found that based on the collected data that the oncology services in the Gaza Strip are inadequate and facing many gaps, in additions to that many services are unavailable, moreover to the limited space and number of the services which lead to overcrowded rooms and increase waiting time which lead to bad ventilation and cleanliness, as sequence reducing the privacy and comfort of patients which increase the burden on them. In addition to poor coordination among health facilities in different levels which may affect negatively to the quality of care provided, the staff performance, morbidity, and morality, the satisfaction of breast cancer patients and as consequence bad outcome.

**Buildings:** regarding breast cancer services buildings in the Gaza Strip, they suffer from serious gaps mainly related to their limited space which usually leads to overcrowding of patients in the available rooms and probably affect negatively on the work flow, quality of care provided and increase patients waiting time. Moreover, problems are found in the availability of the comfortable furniture, and environment besides poor ventilation, sanitation in bathrooms, noise, prolonged waiting time and the lack of privacy for patients which may harm them physically and emotionally and then increase their risk for infection and bad prognosis.

### **5.1.3 Health information system and research**

The information system and research regarding breast cancer in the Gaza strip could be considered inadequate and have many gaps that interrupt it. Cancer registry as a main part of the information system for cancer endures also some gaps in spite the effort done to enforce it. The underperformance of cancer registry is related mainly surveillance system which is not clear and moreover there is no updated statistics, in addition to the ignorance from stakeholders, the poor coordination between hospitals and primary care centers , shortages of qualified staff, incompleteness of medical files, and research which is considered a crucial part in the process of breast cancer management because data and research should be used in setting priorities and to develop strategies and policies in health care system to ensure that decisions are evidenced based, accurate and complete data but most of research in the Gaza Strip about breast cancer are individualized and there is no cancer research center which help on management and control of breast cancer by evidence based data.

#### **5.1.4 Essential Medicines**

Access to essential medicines is another challenge facing breast cancer management in the Gaza Strip which increasingly putting the lives of breast cancer patients at risk, some of breast cancer treatments, including all radiotherapy and increasingly chemotherapy, are completely unavailable in Gaza or there are interruptions in chemotherapy medications. This means many patients require costly referrals to hospitals in East Jerusalem, the rest of the West Bank, or abroad which lead to delay the cycles of patients and this affect negatively on the patients form different aspects and increase the burden of the disease. Effective treatment and availability of essential medications for breast cancer patients are playing a crucial role in improving the patient health condition as sequence they have a good chance of survival.

**Breast cancer patients medical records:** Documentation of the patient demographic data, patient complain, history and examination, breast cancer characteristics, is important to help health care providers to gather more information about patient history. It also help health care providers to deal with the patient in an appropriate manner and they can identify the best treatment plan for the patient, from the collected data it was noticed that all domains are partially or incompletely recorded which affect negatively on the patients care and its sustainability.

#### **5.1.5 Health Financing**

Not only does breast cancer take an enormous effects on the health of patients and survivors, it also has a tremendous financial impact. The costs and financial impacts of breast cancer constitute as a bid burden in management process for many breast cancer patients, their families and MOH, moreover there is no any specific budget for oncology patients in the Gaza Strip which increase the financial burden on the patients to pay for unavailable diagnostic services or medications and many pf patients can't do that due to their bad economic status and can't cover their financial needs which lead to deterioration in their lives and lower the quality of life.

#### **5.1.6 Leadership and Governance**

It was clear that there are many challenges affect negatively on leadership and governance related to breast cancer management mainly summarized in minimal attention from policy

makers and stakeholders in addition to that there is no specific and clear policies that help and support breast cancer management and reduce the burden of the disease.

### **5.1.7 Breast cancer management**

Breast cancer management process is a multi-steps process including prevention, screening, diagnosis, treatment, referral system and follow up and most of them facing obstacles interfere the management process of breast cancer it will be summarized as the following:

**Breast cancer prevention and screening:** those services included many weakness points that interrupt management process; there is no any prevention programs for breast cancer in the Gaza Strip which leads to decrease the awareness of people about breast cancer and increase the burden of the disease, screening program are found but sporadic programs and not in ongoing matter which delay the diagnosis of cases in late stages, in addition there is no clear policy for screening that encourage women to do screening in regular pattern.

**Breast cancer diagnosis:** from the results, there are many gaps and challenges that inhibit the process of early diagnosis of breast cancer cases such as the shortages in diagnostic facilities as mammogram, MRI, CT, in addition to that there is no good coordination among hospitals and primary care centers, limited number of human workforce " doctors and other specialists " play another role in the delay of cancer diagnosis due to misdiagnosis or insufficient examination and also the patients and family poor awareness plays a role in the delayed diagnosis of breast cancer.

**Breast cancer treatment:** there are various treatment options of breast cancer faced by many challenges and gaps, there are chronic and significant shortage in the diagnostic and treatment services in the Gaza Strip which decrease Gaza hospitals ability to meet patients needs in breast cancer management, in addition to the shortage in many types of medications that are needed in treatment plan, it will be summarized as:

- Surgical treatment: it's acceptable in sort of but there are specific surgeries are absent or need more qualified and skilled staff as cosmetic surgery and palliative surgery.
- Chemotherapy: often drugs of breast cancer treatment usually were present as chemotherapy or sometimes there are interruptions but occasionally some drugs were not available, there are serious gaps that found in the continuity of treatment due to

frequent shortages in essential medications, which are very important to have successful treatment.

- **Radiotherapy:** this type of treatment is not available in the Gaza Strip from long time, which is very important for breast cancer patients treatment and prognosis, the patients in forced to be referred outside Gaza for radiotherapy treatment to West Bank or Egyptian hospitals.
- **Palliative treatment:** palliative care suffer from serious gaps in Gaza's hospitals. This evidenced by the absence of palliative clinics, interruptions of pain killers medications, unavailability of palliative surgery services and the lack of skilled staff to provide this crucial type of care and shortage of training about palliative care for the staff. In addition to that there is absent of psychological and emotional support in hospitals it is almost provided by families and friends.

**Referral system:** referral system (internally and externally) facing many challenges that decrease the quality of breast cancer services provided to patients, the internal referral system between the health care facilities suffer from poor communication and coordination between the teams involved in the breast cancer management that leads sometimes to confusion and misunderstanding between them and the result is the delay in breast cancer patients diagnosis. Moreover, external referral is crucial sometimes due to deficiency in diagnostic facilities as PET scan or the treatment options is unavailable as radiotherapy, which leaves no chance for the health care providers and the patients to be referred outside Gaza which increase the burden on both the patients and the MOH.

**Quality of care and follow up:** the quality of care and follow up for breast cancer patients are fluctuated which based on the hospitals, facilities, available treatment ,qualified staff and the patients themselves, most of burden of follow up falls on oncology departments just. Moreover there is no specific criteria or policy to follow and evaluate the quality of care provided for breast cancer patients.

## **5.2 Recommendations**

### **5.2.1 Health Workforce**

- Increase the number of experts in oncology by giving advanced courses in oncology in Gaza or outside Gaza.
- Advertise for scholarships with full coverage for the scarce specialties such as, oncology, pathology, onco-surgery and palliative care.
- Delay the retirement period for specialties suffer from scarcity.
- Activate in service education in regular pattern for health staff in oncology department to be updated and increase the quality of care provided to the patients.

### **5.2.2 Services delivery**

- Developing a plan to build a national cancer center, it could be financed through national and international charitable organizations with coordination with MOH.
- The researcher suggests some rules for hospitals and health staff who are working in oncology departments which will help in service delivery for the patients which include:
  - Make a follow up appointments.
  - Define a specific number of patients to be checked by each doctor each day.
  - Define visiting time.
  - Follow up for sanitation of departments by infection control committee.
  - Preventing smoking in hospitals, providing some air conditioning sets and removing the electrical generator in Rantisi specialized hospital far from the oncology departments.

### **5.2.3 Health information system and research**

- Establishing cancer research center and a national committee for health and cancer research and conducting additional research in breast cancer related topics.
- Encouragement of health staff, local universities, and other institutions to conduct relevant studies and researches related to cancer control and gaps areas.
- The researcher also suggests to conduct a periodic and regular auditing for patient's medical records and reports, and to the collected data techniques and how it be entered, managed and analyzed.



- Train the entire registry personal and unify the registration procedures using the ICD-O3 classification and train doctors about how to use it to help in classification and management of cancer.
- Developing a plan to establish E cancer system, it could be financed through charitable organizations with coordination with MOH for easy access to patients files and prevent data loss.

#### **5.2.4 Leadership and Governance**

- Improvement of the breast cancer control strategy in the Gaza Strip and modifying its underperformance and define the weakness points, starting by sharing it between the stakeholders and policy makers with wide dissemination of it within the country.
- The researcher suggest that cancer should be from the MOH and other policy makers first priorities because its burden affect multi aspects of the patient, government and the community.
- Establish and reviewing the existed guidelines and protocols for breast cancer control in Gaza.

#### **5.2.5 Breast cancer management**

- Enforce the role of primary health care in controlling breast cancer through prevention and screening activities.
- Sharing primary health care with palliative care.
- Starting a broad health education program in the educational institution.
- Activate community based activities to increase people awareness about breast cancer, how to prevent it and how to make self-examination and the importance of screening.
- Establishment of specific department for palliative care.
- The reactivation and support of other cancer organizations and institutions which can play vital roles in reducing the suffering of breast cancer patients.
- Regular monitoring of patients perspectives and regular feedback about the breast cancer care services and quality provided to them through meetings, routine data collection, reporting, patients satisfaction questionnaires and interviews.
- Develop a plan for regular trainings and advanced courses for health staff who are included in breast cancer management about the proper communication skills,

emotional supportive for breast cancer patients and to be updated about the newest in breast cancer management.

#### **5.2.6 Recommendation for further research**

- Breast cancer researchers and MOH should make an integrated studies that help in providing evidence based data about causes factors of breast cancer across the life, in addition to the development of creative prevention and diagnosis approaches that are applicable and accessible for all patients.
- Establishing and enhancing a special center for health research in addition to conduct additional research in breast cancer management related topics.
- Motivate researchers working in oncology departments, health programs, local universities, and other institutions to conduct studies related to breast cancer management gaps and barriers to control it and to decrease its burden.

## References

- Abed, Y. (2007): *Joint Report on Health Sector Review (HSR)*, Palestine.
- Abiy, R., Gashu, K., Asemaw, T., Mitiku, M., Fekadie, B., Abebaw, Z., & Kebede, M. (2018). A Comparison of Electronic Medical Record Data to Paper Records in Antiretroviral Therapy Clinic in Ethiopia: What is affecting the Quality of the Data? *Online Journal of Public Health Informatics*, 10(2).
- Abu Amer, W. (2012). *Cancer Prevention and Control. Evaluation of the Strategy in Gaza Governorates*. Palestine: School of Public Health. Al-Quds Abu Dis University.
- Abu Hamad, B. Skaik, N. and Abu-Odah, H. (2016). Evaluation of Palliative Care Services Provided to Cancer Patients in the Gaza Strip. *Journal of US-China Medical Science* 6 (2), 95-107.
- Abu Shammala, B. I., & Abed, Y. (2015). Breast Cancer Knowledge and Screening Behavior among Female School Teachers in Gaza City. *Asian Pacific Journal of Cancer Prevention*, 16(17), 7707–7711.
- Abu-El-Noor, N. (2010): *Quality of Life and Barriers to Health Care of Prostate, Cancer Survivor Residing in Gaza strip*. USA: The University of Akron (PhD thesis/unpublished).
- Alrun, M. (2017). Survival Analysis of the Registered Colorectal Cancer Cases in the Gaza Strip. (Unpublished Master thesis). Palestine: School of Public Health. Al-Quds Abu Dis University.
- Alwan, A., Maclean, D. and Mandi, A. (2001): *Assessment of National Capacity for Non-Communicable Disease Prevention and Control: The Report of a Global Survey*. World Health Organization, Geneva.
- American Cancer Society (2011). *Global Cancer Facts & Figures 2nd Edition*. Atlanta: Georgia: USA.
- American Cancer Society (2013): *Treatment and Support: Nutrition for People with Cancer*. Retrieved from <https://www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/nutrition.html> Accessed on 15/3/2018

- American cancer society (2016): Breast Cancer Basics. *Cancer Practice*, 8(2), 55–57.
- American cancer society (2018): *Nutrition for People with Cancer*. Atlanta: (U.S.).
- Anan, H. (2011). Clients centredness of the Governemental Primary Health Care services: Gaza governorates. Al Quds University, Palestine. (Unpublished master thesis).
- Arndt, V. (2016). Population-based cancer registration and research in Switzerland: examples, limitations and perspectives. *Bulletin Suisse du cancer*, (2), 142-144.
- ASCO (2018). *Breast Cancer - Types of Treatment*. Retrieved from. [www.cancer.net/cancer-types/breast-cancer/types-treatment](http://www.cancer.net/cancer-types/breast-cancer/types-treatment). Accessed on 15<sup>th</sup>/Feb/2019.
- Ashour, S. (2011). *Environmental Risk Factors Associated with Breast Cancer-Gaza Governorates*. Palestine: Palestine: School of Public Health. Al-Quds University.
- Beange, H. P. (1996). Caring for a vulnerable population. *The Medical Journal of Australia*, 164(3), 159-160.
- Berry D, Cronin K, Plevritis S, Fryback D, Clarke L, Zelen M, Feuer E. (2005). Effect of screening and adjuvant therapy on mortality from breast cancer. *N Engl J Med*; 353(17):1784–1792. doi: 10.1056/NEJMoa050518.
- Berwick, D. (2002):" A User's Manual for the IOM's „Quality Chasm“ Report ", Health Affairs, 21, 3. 80-90
- Blazeby, J., Wilson, L., Metcalfe, C., Nicklin, J. and Donovan, J. (2006): “Analysis of clinical decision-making in multi-disciplinary cancer teams”. *Annals of Oncology*, 17. 457–460.
- Bordage, G. (2009). Conceptual frameworks to illuminate and magnify. *Medical Education*, 43(4), 312-319.
- Bowling, A. and Ebrahim, S. (2005); *Handbook of Health Research Method, Investigation Measurement and Analysis*, Open University press, England, pp. 226-228.
- Breast Cancer. Org (2019). *Being a Woman*. Retrieved from <https://www.breastcancer.org/risk/factors/woman> accessed on 10/2/2018
- Breast cancer.org. *Managing Your Medical Records*. Retrieved from

www.breastcancer.org/tips/managing\_records. Accessed on 10th/March/2019

Brinkerhoff, W., & Bossert, J. (2008). *Health governance: concepts, experience, and programming options*. Bethesda: Health Systems.

Burn, S., Grove, K. (1997): *The Practice of Nursing Research Conduct Critique and Utilization*, 2nd ed. W.B. Saunders Company.

Cancer. Net (2016). *Breast Cancer - Diagnosis*. Retrieved from <https://www.cancer.net/cancer-types/breast-cancer/diagnosis>. Accessed on 5<sup>th</sup>/March/2019.

Cancer. Net (2018). *Breast Cancer - Diagnosis*. Retrieved from <https://www.cancer.net/cancer-types/breast-cancer/diagnosis> Accessed on 22/3/2018

Centers for Disease Control and Prevention. (2016). *What Is Breast Cancer Screening? Division of Cancer Prevention and Control, CDC, 1–19*. Retrieved from [http://www.cdc.gov/cancer/breast/basic\\_info/screening.html](http://www.cdc.gov/cancer/breast/basic_info/screening.html). Accessed on 10<sup>th</sup> / Jan/2019.

Colditz, G. A., Willett, W. C., Hunter, D. J., Stampfer, M. J., Manson, J. E., Hennekens, C. H., ... & Speizer, F. E. (1993). Family history, age, and risk of breast cancer: prospective data. *The Nurses' Health Study*. *Jama*, 270(3), 338-343.

Coleman, M.P., et al., EURO CARE-3 summary: cancer survival in Europe at the end of the 20th century. *Ann Oncol*, 2003. 14 Suppl 5: p. v128-49.

Cooper, G. & Hausman, R. (2000). BRAND NEW FOR THIS EDITION ! *The Cell : A Molecular Approach*, Seventh Edition.

De Angelis, R., et al., The EURO CARE-4 database on cancer survival in Europe: data standardisation, quality control and methods of statistical analysis. *Eur J Cancer*, 2009. 45(6): p.909-30.

Dolan, A. & Ayland, C. (2001). Analysis on trial, *International Journal of Market Research* 43, 4. 9- 389.

- El Batrokh D. (2013). *Nutritional factors associated with breast cancer in the Gaza Strip: a hospital based study*, Master Thesis, Al Azhar University, Gaza: Palestine.
- El Saghir N., Khalil M., Eid, T., El Kinge R. (2009). Trends in epidemiology and management of breast cancer in developing Arab countries. *Epub*. 5(4): 225-233.
- Elmore JG, Armstrong K, Lehman CD, Fletcher SW. Screening for breast cancer. *JAMA J Am Med Assoc*. 2005; 293(10):1245–1256. doi: 10.1001/jama.293.10.1245.
- El-Sakka B. (2006). *Cancer Registry Center*. Ministry of Health. Palestine.
- European Gaza hospital records (2012): Ministry of Health, Palestine.
- Eze, A. A. (2007). *Management Practice in an Organization*.
- Federal Ministry of Health Ethiopia. (2015). *Clean and Safe Health Facilities (CASH) Audit Tool*, (October).
- Ferlay, J., Shin, H. R., Bray, F., Forman, D., Mathers, C., & Parkin, D. M. (2010). Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *International journal of cancer*, 127(12), 2893-2917.
- Guide, W. H. O., & Programmes, E. (2008). *Knowledge into Action Diagnosis and Treatment*.
- GE Healthcare Partners. (2018). *Workforce Review : Radiology*, (July).
- Gommami, N., Juni, M. H., Salmiah, M. S., Hassan, S. T. S., Marikar, K., & Egbali, K. (2016). Quality improvement intervention for completeness of patient medical records in private teaching hospitals mashhad, IRAN. *International Journal of Public Health and Clinical Sciences*, 3(2), 77-91.
- Grunfeld, E., Dhesy-Thind, S., & Levine, M. (2005). Clinical practice guidelines for the care and treatment of breast cancer: follow-up after treatment for breast cancer (summary of the 2005 update). *Cmaj*, 172(10), 1319-1320.
- Harford, J., Edwards, B., Nandakumar, A., Ndom, P., Capocaccia, R. and Coleman, M. (2009): Cancer control-planning and monitoring population-based systems. *Tumori*. 95. 568-578.
- Health, J., & Assessment, S. (2014). *Gaza Strip Joint Health Sector Assessment Report*, (September).

- Hong Kong Breast Cancer Foundation. *Funding Organisations* Retrieved from [www.hkbcf.org/en/](http://www.hkbcf.org/en/). Accessed on 1/3/2019.
- Hong Kong Breast Cancer Registry. (2019.). Retrieved from [https://www.hkbcf.org/en/our\\_research/main/32/](https://www.hkbcf.org/en/our_research/main/32/). Accessed on 25<sup>th</sup>/ Feb/2019.
- Huisman, E. R., Morales, E., van Hoof, J., & Kort, H. S. M. (2012). Healing environment: A review of the impact of physical environmental factors on users. *Building and environment*, 58, 70-80.
- ICHSM (2019). [www.ichsm.org](http://www.ichsm.org). Accessed on 5th/March/2018
- International Confederation of Dietetic Associations. (2016). *Dietitians-nutritionists around the World–Their Education and their Work*. Retrieved from <https://www.internationaldietetics.org/Downloads/2016-ICDA-Education---Work-report.aspx> Accessed on 15/3/2018
- Kennedy, N. Byrne, C. Gerin-Lajoie, E. Green, M. R. Katz, H. Keshavarz, S. M. Sellick (2015). The Management of Depression in Patients with Cancer. *Cancer Care Ontario*: 4-19.
- Lamyian, M., Ahmadi, F., Faghihzadeh, S., & Aguilar Vafaie, M. E. (2007). *Barriers to and factors facilitating breast cancer screening among Iranian women: a qualitative study*.
- Lyman, G. H., Giuliano, A. E., Somerfield, M. R., Benson III, A. B., Bodurka, D. C., Burstein, H. J., ... & Hayman, J. A. (2005). American Society of Clinical Oncology guideline recommendations for sentinel lymph node biopsy in early-stage breast cancer. *Journal of clinical oncology*, 23(30), 7703-7720.
- Malone, K. E., Daling, J. R., Doody, D. R., O'Brien, C., Resler, A., Ostrander, E. A., & Porter, P. L. (2011). Family history of breast cancer in relation to tumor characteristics and mortality in a population-based study of young women with invasive breast cancer. *Cancer Epidemiology and Prevention Biomarkers*, 20(12), 2560-2571.
- Massoud, R., Askov, K., Reinke, J., Franco, L., Bornstein, T., Knebel, E., MacAulay, C. (2001): A Modern Paradigm for Improving Healthcare Quality. QA Monograph

- Series 1. USA: Quality Assurance Project U.S. Agency for International Development (USAID).
- Medical students at Al Azhar University (2016): *Risk factors associated with mortality and survival from breast cancer in Gaza*. Palestine.
- Mishra, A., & Meherotra, R. (2014). Head and neck cancer: global burden and regional trends in India. *Asian Pac J Cancer Prev*, 15(2), 537-550.
- Ministry of Health (2012). *World cancer day report*, Palestine, PHIC, Ramallah.
- Ministry of Health, General directorate of Health Policies and Planning (2016). National Health Strategy 2017-2022. State of Palestine, Ramallah: MOH.
- Moran, J., Bekker, H., Latchford, G. (2008): “Everyday use of patient centered, motivational techniques in routine consultants between doctors and patients with diabetes. *Patient Education and Counseling*, Vol.73, pp. 224-231
- National Cancer Institute (2016). Dictionary of Cancer Terms: Survival Rate. Retrieved from <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/five-year-survival-rate> Accessed in 8/3/2019
- National Cancer Institute (2017): *Palliative Care in Cancer*.US.
- National cancer institute (2018): *Cancer Treatment: Nutrition in Cancer Care*.US.
- National Clinical Effectiveness Committee. (2015). Diagnosis, staging and treatment of patients with prostate cancer: national clinical guideline no. 8.
- Ng, Z., Ong, M., Jegadeesan, T., Deng, S., & Yap, C. (2017, June). Breast cancer: exploring the facts and holistic needs during and beyond treatment. In *Healthcare* (Vol. 5, No. 2, p. 26). Multidisciplinary Digital Publishing Institute.
- Odeh, M. Y. (2011). Epidemiological indicators in Palestinian cohort women affected with Breast Cancer.
- OECD (2019), *Mammography machines (indicator)*. Retrieved from <https://data.oecd.org/healthqt/mammography-machines.html>. Accessed on 7 March 2019).



- Ohman, A. (2005). Qualitative methodology for rehabilitation research. *Journal of rehabilitation medicine*, 37(5), 273-280.
- Okpala, P. (2013). The Electronic Medical Record (EMR). *Journal of Applied Medical Sciences*, 2(2), 79-85.
- Palestinian Central Bureau of statistics (PCBS) (2018). *Preliminary Results of the Population, Housing and Establishments Census, 2017*. State of Palestine: Palestinian Central Bureau of statistics (PCBS).
- Palestinian Health Information Center (2015). *Cancer in Gaza strip (2009-2014)*. Palestine, Gaza Strip: MOH.
- Palestinian national institute of public health (2014): *Producing evidence to advance mammography screening in Palestine*.
- Partners, G. E. H. (2018). *Workforce Review : Radiology*.
- Paul, C. L., Fradgley, E. A., Roach, D., & Baird, H. (2017). Impact of financial costs of cancer on patients-the Australian experience. In *Cancer Forum* (Vol. 41, No. 2, p. 4). The Cancer Council Australia.
- Pediatric specialist hospital records (2012): Ministry of Health, Palestine.
- Pharoah, P., Day, N., Duffy, S., Easton, D., & Ponder, B. (1997). Family history and the risk of breast cancer: a systematic review and meta-analysis. *International journal of cancer*, 71(5), 800-809.
- Pharoah, P., Day, N., Duffy, S., Easton, D., & Ponder, B. (1997). Family history and the risk of breast cancer: a systematic review and meta-analysis. *International journal of cancer*, 71(5), 800-809.
- Phellas, C. N. (2006, March). Keith F. Punch (2005). Introduction to Social Research—Quantitative & Qualitative Approaches. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 7, No. 2).
- Pope, C., Ziebland, S. and Mays, N. (2000). Qualitative research in health care, Analyzing Dualitative Data, *BMJ*, 320, 114-116

- Regional Health Systems Observatory, & Emro. (2006). *Health Service Delivery*. Health System Profile - Palestine, 29–39.
- Robertson, J., Barr, R., Shulman, L., Forte, G., & Magrini, N. (2016). Essential medicines for cancer: WHO recommendations and national priorities. *Bulletin of the World Health Organization*, 94(10), 735.
- Rosen, P. P. (Ed.). (2001). *Rosen's breast pathology*. Lippincott Williams & Wilkins.
- Sepulveda, C., Marlin, A., Yoshida, T., & Ullrich, A. (2002). Palliative care: the World Health Organization's global perspective. *Journal of pain and symptom management*, 24(2), 91-96.
- Shamim, I., Teodorescu, C., Guzdar, P. N., Hassam, A. B., Clary, R., Ellis, R., & Lunsford, R. (2008). Bifurcated equilibria in centrifugally confined plasma. *Physics of Plasmas*, 15(12).
- Society and college of radiographers (2014). The role of the radiography workforce in the management and treatment of cancer patients, 1–2.
- Spinks, T., Ganz, P., Sledge Jr, G., Levit, L., Hayman, J., Eberlein, T., & Feeley, T. (2014). Delivering high-quality cancer care: The critical role of quality measurement. In *Healthcare* (Vol. 2, No. 1, pp. 53-62). Elsevier.
- standardisation, quality control and methods of statistical analysis. *Eur J Cancer*, 2009. 45(6): p.909-30.
- Stastica (2018). *Computer tomography scanners density by country 2017*. Retrieved from <https://www.statista.com/statistics/266539/distribution-of-equipment-for-computer-tomography/>. Accessed on 5<sup>th</sup>/ March/2019.
- Stopper, Melissa Conrad (2014). *Breast Cancer Symptoms and Signs*. *EMedicineHealth Health and Medical Information Produced by Doctors*, 2014, Retrieved from [www.emedicinehealth.com/breast\\_cancer/symptom.htm#definitive\\_breast\\_cancer\\_diagnosis](http://www.emedicinehealth.com/breast_cancer/symptom.htm#definitive_breast_cancer_diagnosis). Accessed on 20/9/2018
- Stufflebeam, D. (2000). *Guidelines for Development Evaluation Checklists, the checklists development checklist* (CDC).

- The Association of Oncology Social Work (2009). *Association of Oncology Social Work Survey Shows More Than Half of Cancer Patients Say Cancer Costs Negatively Impact Their Focus on Recover*. Retrieved from <https://www.businesswire.com/news/home/20091202006074/en/Association-Oncology-Social-Work-Survey-Shows-Cancer>. Accessed on 2<sup>nd</sup>/March/2019.
- The Palestinian National Institute of Public Health, & WHO. (2014). Performance of Mammography Screening in The National Breast Cancer Screening Program: A Retrospective Cohort Study, 1–28.
- UNFPA (2018). Pathway to Survival: The Story of Breast Cancer in Palestine. Palestine
- USAID (2009). *Leadership, Management, and Governance Evidence Compendium*.
- USAID Center for Development and Information (2011a). Monitoring, P. Evaluation TIPS: *Conducting Focus Group Interviews*.
- USAID Center for Development and Information (2011b). Monitoring, P. Evaluation TIPS: *Conducting Key Informants Interviews*.
- Verdecchia, A., et al., Recent cancer survival in Europe: a 2000-02 period analysis of EURO-CARE-4 data. *Lancet Oncol*, 2007. 8(9): p. 784-96
- Wang, L. (2017). Early diagnosis of breast cancer. *Sensors*, 17(7), 1572.
- Weis, J., Bartsch, H. H., Nagel, G. A., & Unger, C. (1996). Psychosocial care for cancer patients: a new holistic psychosomatic approach in acute care and rehabilitation. *Psycho-Oncology*, 5(1), 51-54
- Wheelen, T. and Hunger, D. (2006): Chapter 1, Basic Concepts of Strategic Management, concepts in strategic management and business policy, pp17-18, tenth edition. Pearson Education Hall. USA
- Wolff, A., Hammond, M., Hicks, D., Dowsett, M., McShane, L., Allison, K. & Hanna, W. (2013). Recommendations for human epidermal growth factor receptor 2 testing in breast cancer: *American Society of Clinical Oncology/College of American Pathologists clinical practice guideline update*. *Archives of Pathology and Laboratory Medicine*, 138(2), 241-256.

- World Health Organization (1998): *Health Promotion Evaluation: Recommendation to policy makers*. Geneva
- World Health Organization (2006a): *Health systems profile-Palestine*, Regional health systems observatory-EMRO.
- World Health Organization (2006b). *The world health report 2006: working together for health*. World Health Organization. Geneva: WHO.
- World Health Organization (2006c). *Medical records manual: a guide for developing countries*. Manila: WHO Regional Office for the Western /Pacific.
- World Health Organization (2006d). *Guidelines for the early detection and screening of breast cancer*. Geneva: WHO.
- World Health Organization (2006e): *Quality of care*. Geneva: WHO.
- World Health Organization (2007). *Cancer control: knowledge into action*. WHO guide for effective programmes: prevention. World Health Organization. . Geneva.
- World Health Organization (2009). Cancer. Retrieved from <https://www.who.int/cancer/en/>. Geneva. Accessed on 11/3/2019
- World Health Organization (2010). *Referral of Patients from Gaza*. Palestine.
- World Health Organization (2011). *Mental Health Atlas 2011 - Department of Mental Health and Substance Abuse*. Geneva: WHO.
- World Health Organization (2012). *Health workforce training and education*. Geneva: WHO.
- World Health Organization (2013). *Global Health Estimates Report. Breast cancer: prevention and control*. Geneva: WHO.
- World Health Organization (2014). *WHO position paper on mammography screening*. World Health Organization. Geneva: WHO.
- World Health Organization (2015). *GUIDE TO CANCER Guide to cancer early diagnosis*. Geneva: WHO.

World Health Organization (2016). *Breast cancer: Prevention and control*. Retrieved from <https://www.who.int/cancer/detection/breastcancer/en/index1.html>. Accessed on 15<sup>th</sup> / Jan/2019.

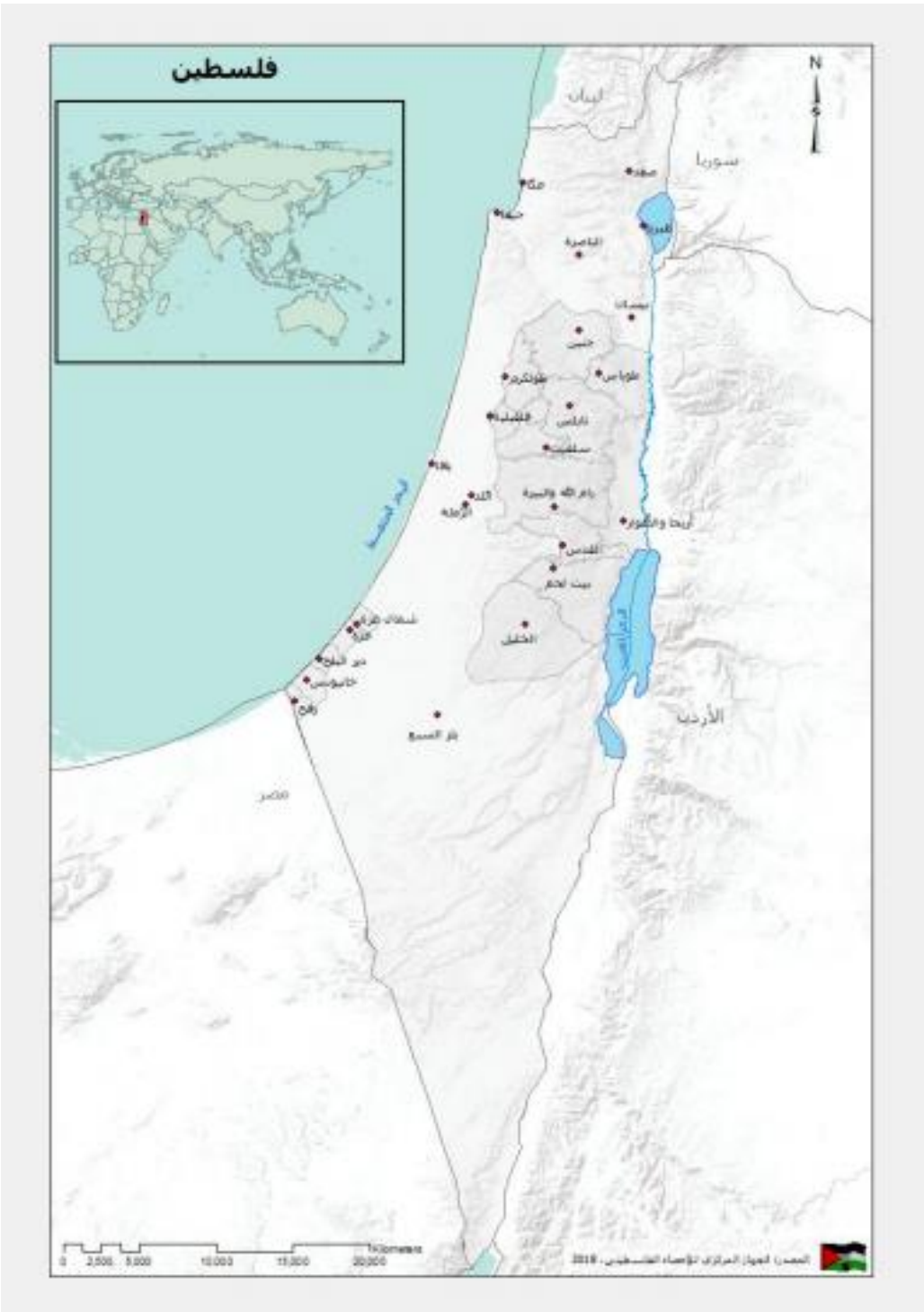
World Health Organization (2016). *Breast cancer: prevention and control*. Geneva: WHO.

Younes, D. Z. (2015). *Breast Cancer Screening Barriers among Women in Nablus Governorate* (Doctoral dissertation).

Zujewski, J. A., Dvaladze, A. L., Ilbawi, A., Anderson, B. O., Luciani, S., Stevens, L., & Torode, J. (2017). Knowledge summaries for comprehensive breast cancer control. *Journal of global oncology*, 4, 1-7.

Annexes

Annex (1): Palestine Map



Source: (PCBS, 2017)

## Annex (2): Distribution of Gaza Strip Governorates



Source: (PCBS, 2010)

**Annex (3): Distribution of available rooms and beds**

| Hospital Name          | Inpatient Ward |             | Daily Care Ward |             |
|------------------------|----------------|-------------|-----------------|-------------|
|                        | No. of Rooms   | No. of Beds | No. of Rooms    | No. of Beds |
| Al-Rantisi Hospital *  |                |             |                 |             |
| European Gaza Hospital |                |             |                 |             |
| Other hospitals        |                |             |                 |             |
| Total                  |                |             |                 |             |

**\*Temporary place**



**Annex (4): Distribution of human resources**

| Hospital name : |                 |   |                 |   |                       |   |                  |   |
|-----------------|-----------------|---|-----------------|---|-----------------------|---|------------------|---|
| Categories      | No of Full time |   | No of Part time |   | No of scholars abroad |   | No of volunteers |   |
|                 | M               | F | M               | F | M                     | F | M                | F |
| Oncologist      |                 |   |                 |   |                       |   |                  |   |
| Nurses          |                 |   |                 |   |                       |   |                  |   |
| Surgeons        |                 |   |                 |   |                       |   |                  |   |
| Radiologists    |                 |   |                 |   |                       |   |                  |   |
| Pathologists    |                 |   |                 |   |                       |   |                  |   |
| Nutritionist    |                 |   |                 |   |                       |   |                  |   |
| Others          |                 |   |                 |   |                       |   |                  |   |

# Annex (5): Distribution of diagnostic equipment and facilities

| Hospital name                          |                  |                          |                  |                          |                  |                          |                     |
|--|------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|---------------------|
| Facilities status                      | No of facilities | No of Working facilities | No of facilities | No of Working facilities | No of facilities | No of Working facilities | Total cases / month |
| <b>Imaging</b>                         |                  |                          |                  |                          |                  |                          |                     |
| X-ray                                  |                  |                          |                  |                          |                  |                          |                     |
| Ultrasound                             |                  |                          |                  |                          |                  |                          |                     |
| MRI                                    |                  |                          |                  |                          |                  |                          |                     |
| CT scan                                |                  |                          |                  |                          |                  |                          |                     |
| PET scan                               |                  |                          |                  |                          |                  |                          |                     |
| Gamma Camera                           |                  |                          |                  |                          |                  |                          |                     |
| Linear accelerator                     |                  |                          |                  |                          |                  |                          |                     |
| <b>Basic lab tests</b>                 |                  |                          |                  |                          |                  |                          |                     |
| CBC                                    |                  |                          |                  |                          |                  |                          |                     |
| Chemistry                              |                  |                          |                  |                          |                  |                          |                     |
| Tumor markers                          |                  |                          |                  |                          |                  |                          |                     |
| <b>Diagnostic and Preventive tools</b> |                  |                          |                  |                          |                  |                          |                     |
| Mammogram                              |                  |                          |                  |                          |                  |                          |                     |
| Fluoroscopy                            |                  |                          |                  |                          |                  |                          |                     |

## Annex (6): Completeness of breast cancer patients medical files

### Breast cancer patients medical records evaluation questionnaire

|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
|--|------|------------|---|---|---|--|--|--|---|---|---|---|---|---|
| Serial Number:   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| Member name:   | DOB: | Member ID: |   |   |   |  |  |  |   |   |   |   |   |   |
| Provider name:   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| Reviewer:  |      | Date:      |   |   |   |  |  |  |   |   |   |   |   |   |
| <b>The Medical Record :</b>  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <b>1. Demographic characteristics:</b>   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the patient's name  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's ID number   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's age   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's DOB   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's Gender  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's address   |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |
| Each page within the Medical Record contains the Patient's home telephone number(s)  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> |      |            |   |   |   |  |  |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |      |            |   |   |   |  |  |  |   |   |   |   |   |   |
| 0  | 1    | 2          | 3 | 4 | 5 |  |  |  |   |   |   |   |   |   |

Each page within the Medical Record contains the Patient's marital status

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

## 2. Medical record characteristic:

Patient's chief complaint or purpose for visit is clearly documented.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Appropriated professional diagnoses are recorded.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Plan of diagnosis: diagnostic tests : laboratory, radiology and pathology are listed for each visit

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

All entries in the medical record contain the author's identification.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

All entries in the medical record are dated.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Is the record an Electronic Medical Record (EMR)?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Relevant hospital discharge summaries are included with the medical record.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

If a consultation is requested, there is a note from the consultant in the record. Consult reports reflects practitioner's review with initials or signature.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

### 3. Medications Record :

Plan of treatment: medications are listed for each visit

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Plan of action and treatment are consistent with diagnosis.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

A medication record includes dosages, routes of intake and dates for initial and refill prescriptions.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Discussion of medication side effects and symptoms are reviewed with the member and documented.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Allergies and Adverse Reactions are prominently noted in the record. Prominently noted on the front of the chart or inside the front cover of the chart or on a designated problem list or medication page or at the time of each office visit.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

### 4. The history and physical exam

Family history - including medical history of parents and/or sibling(s)

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Psychosocial history

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Surgical history - including serious accidents, injuries, operations.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Significant illnesses and medical conditions are indicated on the problem list

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

A comprehensive review of systems with an assessment of presenting complaints (as applicable).

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

## 5. Breast cancer related characteristics

Does the morphology (histopathology) of the cancer mentioned?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Does the behavior (aggressive- metastasis) mentioned?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Does the file contain a clear grading system for the cancer?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Does laterality mentioned?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Does the staging of the cancer mentioned clearly?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

## 6. Chemotherapy record

Chemotherapy treatment plan request model has a clear diagnosis

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Chemotherapy treatment plan model has a clear weight and height for the patient

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Chemotherapy treatment plan model has a clear body surface area

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Chemotherapy plan regimen table in the request is filled

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

Chemotherapy regimen plan has a clear author's identification

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 0 | 1 | 2 | 3 | 4 | 5 |

## Annex (7): Focus group questions

|                 |                  |
|-----------------|------------------|
| Focus group No. | Target hospital  |
| Date            | Duration         |
| Reporter name   | Facilitator name |

1. What do you know about your disease, and what are the sources of your knowledge about it?  
*(Prompt: educational sessions, family history, other female experience, breast self-examination, clinical examination, and screening)*
2. Please explain your journey to reach breast cancer services in Gaza strip?  
*(Prompt: accessibility, affordability, obstacles, governmental hospitals, private clinics, primary health care, NGO's)*
3. How was your process of diagnosis?  
*(Prompt: screening, place of diagnosis, availability of diagnostic facilities)*
4. What is your impressions about the staff who are providing breast cancer care for you?  
*(Prompt: Doctors, Nurses, Pharmacists, lab technicians and administrators)*
5. Please, discuss your type of treatment after you diagnosed of breast cancer *(Prompt: surgical, hormonal, chemotherapy, radiation)?* Discuss your feelings after obtaining treatment in your health? *(Prompt : Physical ,Emotional , Psychological, Social)*
6. Explain your feedback about your treatment and procedures were performed?
7. Explain your experience of referral internally (between hospitals and clinics) or abroad?
8. Please explain to me your opinion about hospital building design (outpatient, inpatient) departments?  
*(Prompt: Privacy, Comfortability, Cleanliness, Ventilation)*
9. Finally, please describe your impression about the provided services during the journey of diagnosis and treatment?



## Annex (8): Key informants questions

|                  |                    |
|------------------|--------------------|
| KII No.          | Key informant name |
| Duration         | Position           |
| Date             | Reporter name      |
| Facilitator name |                    |

1. Do you feel that the magnitude of breast cancer in Gaza strip is changing?  
(Prompt: Incidence, prevalence, morbidity, mortality)
2. Please, describe your organization roles for breast cancer patients care?  
(Prompt: Diagnosis, treatment, control)
3. Can you tell me about breast cancer screening programs in Gaza?  
(Prompt: education, detection, role of your organization)
4. What about treatment of breast cancer in Gaza strip?(Prompt: Surgery, chemotherapy, availability of medications, number of available services)
5. Please, what is your opinion about the process of internal referrals (between the facilities)? And what about referral abroad?  
(Prompt: obstacles, causes of referral, waiting time)
6. What do you think about the quality of care that breast cancer patients received in Gaza strip? (Prompt: good vs bad and why?)
7. Please give me your impressions about the current buildings where breast cancer patients care are provided? (Prompt: Suitable, Privacy, Comfortability, Cleanliness, Ventilation)
8. Please, tell me about the availability of information and research about breast cancer in Gaza strip? (Prompt: health information system, sources of data, up to date information ...)
9. Please describe breast cancer diagnosis and treatment process obstacles in Gaza strip?  
(Prompt: accessibility, affordability, financial, lack of resources, medications deficiency, protocols referral process)

## Annex (9): Helsinki committee approval



### المجلس الفلسطيني للبحوث الصحية Palestinian Health Research Council

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

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

#### Helsinki Committee For Ethical Approval

Date: 04/06/2018

Number: PHRC/HC/400/18

Name: Mo'min Khalil Eid

الاسم:

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم  
حول:

#### Evaluation of Breast Cancer Management in Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/400/18 in its meeting on 04/06/2018

و قد قررت الموافقة على البحث المذكور عاليه  
بالرقم والتاريخ المذكوران عاليه

#### Signature

Member

4-06-2018

Chairman

2018

Member

4/6/2018

#### General Conditions:-

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

#### Specific Conditions:-

E-Mail: pal.phrc@gmail.com

Gaza - Palestine

غزة - فلسطين  
شارع النصر - مفترق العيون

## Annex (10): An agreement letter from MOH hospital general administration

|  |   |                                    |
|--|---|------------------------------------|
| <p>REPUBLIC OF JORDANIA<br/>Ministry of health</p>   |  | <p>دولة Jordan<br/>وزارة الصحة</p> |
| <p>السيد : رامي عيد سليمان العبداله المحترم</p>  |   |                                    |
| <p>مدير عام بالوزارة / الإدارة العامة لتنمية القوى البشرية - /وزارة الصحة</p>  |   |                                    |
| <p>السلام عليكم</p>  |   |                                    |
| <p><u>الموضوع/ تسهيل مهمة الباحث//مؤمن عيد</u></p>   |   |                                    |
| <p>التاريخ: 05/08/2018<br/>رقم المراسلة 234149</p>   |   |                                    |
| <p>التفاصيل //<br/>بخصوص الموضوع أعلاه، يرجى تسهيل مهمة الباحث/ مؤمن خليل عيد<br/>الملحق ببرنامح ماجستير الصحة العامة - تخصص علم الأوبئة - كلية الصحة العامة - جامعة القدس أبوديس في إجراء بحث<br/>بعنوان:-<br/>“Evaluation of Breast Cancer Management in the Gaza Strip”<br/>حيث الباحث بحاجة للاطلاع على الملف الطبي واجراء مقابلات مع عدد من مقدمي الخدمات الصحي لمريضات سرطان الثدي<br/>وكذلك عدد من المريضات وتعبئة نموذج ملاحظة من أماكن تقديم الخدمات الصحية لذات المريضات في مستشفى غزة الأوروبي<br/>ومجمع الشفاء الطبي ومستشفى الرئيسي التخصصي، وكذلك الاطلاع على الاحصائيات الخاصة بهم في مركز المعلومات الصحية.<br/>نأمل توجيهاتكم لذوي الاختصاص بضرورة الحصول على الموافقة المستنيرة من المريضات اللاتي هن على استعداد للمشاركة في<br/>الدراسة ومن ثم تمكين الباحث من التواصل معهن، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون<br/>تحيل الوزارة أي أعباء أو مسؤولية.<br/>وتفضلوا بقبول التحية والتقدير،،،<br/>ملاحظة/ البحث حصل على موافقة لجنة أخلاقيات البحث الصحي<br/>ملاحظة / تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 6 شهر من تاريخه.</p> |   |                                    |
| <p>محمد إبراهيم محمد السرساوي<br/>مدير دائرة/الإدارة العامة لتنمية القوى البشرية -</p>   |   |                                    |
|   |   |                                    |

# Annex (11): Distribution of human resources

| Categories          | Shifa hospital |   | European Gaza Hospital |      | Rantisi hospital |    | Total |       | Al- Hayat hospital <sup>1</sup> |      |
|---------------------|----------------|---|------------------------|------|------------------|----|-------|-------|---------------------------------|------|
|                     | M              | F | M                      | F    | M                | F  | M     | F     | M                               | F    |
| <b>Oncologists</b>  | -              | - | 2                      | 1    | 4                | -  | 6     | 1     | 4 (3)*                          | -    |
| <b>Surgeons</b>     | 42             | 1 | 19                     | -    | -                | -  | 61    | 1     | (6)*                            | -    |
| <b>GPs</b>          | -              | - | -                      | (1)* | -                | 1  | -     | 1(1)* | (6)*                            | -    |
| <b>Nurses</b>       | -              | - | 16                     | 14   | 14               | 14 | 30    | 28    | (6)*                            | (6)* |
| <b>Radiologists</b> | 5              | 3 | 5                      | 1    | 3                | -  | 13    | 4     | (1)*                            | -    |
| <b>Pathologists</b> | 3              | 1 | -                      | 1    | -                | -  | 4     | 1     | (2)*                            | -    |
| <b>Psychosocial</b> | -              | - | -                      | -    | -                | 1  | -     | 1     | (2)*                            | -    |
| <b>Nutritionist</b> | -              | - | -                      | -    | -                | -  | -     | -     | (1)*                            | (1)* |

\* Part time

1: Not opened yet

**Annex (12): Distribution of diagnostic facilities (Radiology techniques):**

| Hospital                                      | Radiology techniques   |         |         |         |          |              |                    |
|---|------------------------|---------|---------|---------|----------|--------------|--------------------|
|   | X-ray                  | US      | MRI     | CT scan | PET scan | Gamma camera | Linear accelerator |
|   | Governmental hospitals |         |         |         |          |              |                    |
| Abu Youssef Al-Najjar hospital                | 3                      | 1       | 0       | 0       | 0        | 0            | 0                  |
| Al-Aqsa hospital                              | 2                      | 4 (2) 1 | 0       | 1       | 0        | 0            | 0                  |
| Shifa hospital                                | 1                      | 6 (5) 1 | 2 (1) 1 | 3 (1) 1 | 2 (1) 1  | 1 (0) 1      | 1 (0) 1            |
| European Gaza hospital                        | 2                      | 2       | 1       | 1       | 0        | 0            | 0                  |
| Indonesian hospital                           | 1 (0) 1                | 2       | 0       | 1       | 0        | 1            | 0                  |
| Nasser hospital                               | 2                      | 2       | 0       | 1 (0) 1 | 0        | 0            | 0                  |
| Rantisi specialized hospital                  | 1                      | 1       | 0       | 1       | 0        | 0            | 0                  |
| Private hospitals and centers                 |                        |         |         |         |          |              |                    |
| Ajjour center                                 | 0                      | 2       | 0       | 0       | 0        | 0            | 0                  |
| Al-Hayat hospital                             | 1                      | 2       | 0       | 1       | 0        | 0            | 0                  |
| El-Helou hospital                             | 1                      | 3       | 0       | 1       | 0        | 0            | 0                  |
| Gaza scan center                              | 1                      | 1       | 0       | 1       | 0        | 0            | 0                  |
| Palestinian German center                     | 1                      | 0       | 0       | 0       | 0        | 1            | 0                  |
| Semi & Non-governmental hospitals and centers |                        |         |         |         |          |              |                    |
| Al-Ahli hospital                              | 1                      | 3       | 0       | 0       | 0        | 0            | 0                  |
| Al-Awda hospital                              | 4                      | 4       | 0       | 0       | 0        | 0            | 0                  |
| Al-Quds hospital                              | 2                      | 4       | 1       | 1       | 0        | 0            | 0                  |
| Patient's friend society                      | 1                      | 3       | 0       | 0       | 0        | 0            | 0                  |
| Public aid hospital                           | 1                      | 2       | 0       | 1       | 0        | 0            | 0                  |
| Red Crescent society                          | 1                      | 1       | 1       | 1       | 0        | 0            | 0                  |
| Total   | 26                     | 43      | 5       | 14      | 0        | 1            | 1                  |

(-)<sup>1</sup>: No of working devices

**Annex (13): Distribution of diagnostic facilities (laboratory techniques):**

| Hospitals                                     | Laboratory techniques  |           |              |
|---|------------------------|-----------|--------------|
|   | CBC                    | Chemistry | Tumor marker |
|   | Governmental hospitals |           |              |
| Abu Yousef Al-Najjar hospital                 | 2                      | 2 (1)1    | 0            |
| Al-Aqsa hospital                              | 4 (3)1                 | 3         | 1            |
| Shifa hospital                                | 9                      | 2         | 0            |
| European Gaza hospital                        | 4                      | 2         | 0            |
| Indonesian hospital                           | 4                      | 5         | 0            |
| Nasser hospital                               | 3                      | 3         | 0            |
| Rantisi specialized hospital                  | 3                      | 2         | 0            |
| Private hospitals and centers                 |                        |           |              |
| Ajjour center                                 | 0                      | 0         | 0            |
| Al-Hayat hospital                             | 1                      | 1         | 1            |
| El-Helou hospital                             | 2                      | 2         | 1            |
| Gaza scan center                              | 0                      | 0         | 0            |
| Palestinian German center                     | 0                      | 0         | 0            |
| Semi & Non-governmental hospitals and centers |                        |           |              |
| Al-Ahli hospital                              | 2                      | 2         | 0            |
| Al-Awda hospital                              | 2                      | 1         | 1            |
| Al-Quds hospital                              | 2                      | 3         | 1            |
| Patient's friend society                      | 2                      | 2         | 1            |
| Public aid hospital                           | 2                      | 4         | 1            |
| Red Crescent society                          | 3                      | 2         | 1            |
| <b>Total</b>                                  | <b>45</b>              | <b>36</b> | <b>8</b>     |

(-)1: No of working devices

**Annex (14): Distribution of rooms and beds in oncology departments in Gaza Strip**

| <b>Hospital</b>               | <b>Inpatient care ward</b> |                    | <b>Day care ward</b> |                                 | <b>Comments</b>    |
|-------------------------------|----------------------------|--------------------|----------------------|---------------------------------|--------------------|
|                               | <b>No. of rooms</b>        | <b>No. of beds</b> | <b>No. of rooms</b>  | <b>No. of beds &amp; chairs</b> |                    |
| <b>Shifa hospital</b>         | 0                          | 0                  | 0                    | 0                               | Under construction |
| <b>Rantisi hospital</b>       | 12                         | 30                 | 2                    | 20                              | Temporary place    |
| <b>European Gaza hospital</b> | 7                          | 30                 | 4                    | 29                              |                    |
| <b>Total</b>                  | 19                         | 60                 | 6                    | 49                              |                    |
| <b>Al- Hayat Hospital</b>     | 9                          | 19                 | 1                    | 14                              | Not opened yet     |

**Annex (15): Variations of completeness ICD-O3 between hospitals:**

| <b>Hospital name</b>                | <b>Missed ICD-O3</b> |
|-------------------------------------|----------------------|
| <b>Shifa Hospital</b>               | 40 %                 |
| <b>Rantisi Specialized Hospital</b> | 46 %                 |
| <b>European Gaza hospital</b>       | 35 %                 |
| <b>All Hospitals</b>                | 40 %                 |

## إشعار للمريضات بالموافقة على المشاركة في الدراسة

السيدة الفاضلة

تحية طيبة وبعد ..

يقوم الباحث بإجراء دراسة عنوانها :

### " تقييم الخدمات الصحية المقدمة لعلاج لمريضات سرطان الثدي في قطاع غزة "

لقد تم اختيارك بصورة عشوائية للمشاركة في هذا البحث الذي أقوم به للحصول على درجة الماجستير في الصحة العامة – جامعة القدس أبو ديس ، اشتراكك سيكون من خلال المشاركة في مجموعة بؤرية علما بأن :

- الاشتراك في الدراسة تطوعي ، يحق لك القبول أو الرفض.
- لا يوجد إجابات صحيحة وأخرى خاطئة
- إجاباتك ستكون في موضع سرية تامة ولن تؤثر على الخدمات الصحية التي تتلقينها.
- السرية مكفولة لا داعي للتعريف باسمك.
- أغراض الدراسة للبحث العلمي فقط.
- ستستغرق المجموعة البؤرية ما يقارب من ساعة إلى ساعة ونصف.
- المواصلات مكفولة لمن يرغب بالمشاركة

الباحث: مؤمن خليل عيد

كلية الصحة العامة

جامعة القدس – أبو ديس



## إشعار للخبراء بالموافقة على المشاركة في الدراسة

السيدة/الفاضل/ة

تحية طيبة وبعد ..

يقوم الباحث بإجراء دراسة عنوانها :

### " تقييم الخدمات الصحية المقدمة لعلاج لمرضى سرطان الثدي في قطاع غزة "

لقد تم اختيارك للمشاركة في هذا البحث الذي أقوم به للحصول على درجة الماجستير في الصحة العامة – جامعة القدس أبو ديس بعد المشاورة مع اثنين من الخبراء ، اشتراكك سيكون من خلال المشاركة في مجموعة بؤرية علما بأن :

- الاشتراك في الدراسة تطوعي ، يحق لك القبول أو الرفض.
- لا يوجد إجابات صحيحة وأخرى خاطئة
- إجاباتك ستكون في موضع سرية تامة ولن تؤثر على الخدمات الصحية التي تتلقونها.
- السرية مكفولة .
- أغراض الدراسة للبحث العلمي فقط.
- ستستغرق المقابلة ما يقارب من ساعة إلي ساعة ونصف.

الباحث: مؤمن خليل عيد

كلية الصحة العامة

جامعة القدس – أبو ديس

## Abstract in Arabic

إعداد الباحث : مؤمن خليل عيد

إشراف : أ.د. يحيى عابد

د . خالد ثابت

### ملخص الدراسة:

يعتبر سرطان الثدي أكثر أنواع السرطان شيوعاً في فلسطين وفي كل العالم أيضاً حيث أنه لا زال يهدد حياة مئات الآلاف من السيدات في كل عام من كل دول العالم. حيث يأتي سرطان الثدي في مقدمة أنواع السرطان التي تصيب النساء في جميع دول العالم. تفيد تقارير وزارة الصحة في قطاع غزة بأن سرطان الثدي لا يزال يحتل المرتبة الأولى بين السيدات لذلك فإن تقييم الخدمات الصحية المقدمة لعلاج مريضات سرطان الثدي في قطاع غزة تلعب دوراً مهماً وأساسياً في منع وكشف وعلاج ومتابعة سرطان الثدي.

تعتبر هذه الدراسة الأولى من نوعها لتقييم الخدمات الصحية المقدمة لعلاج مريضات سرطان الثدي في قطاع غزة حيث تظهر أهمية نتائج هذه الدراسة في تسليط الضوء على تحسين فعالية النظام الصحي في منع ومواجهة وعلاج سرطان الثدي من خلال تقديم معلومات و بيانات عن الخدمات الصحية المقدمة للمريضات ومدى كفاءتها في تشخيص وعلاج المرض.

### الهدف من الدراسة:

الهدف العام من الدراسة هو تقييم الاستراتيجيات المتاحة والخدمات الصحية التي تخدم مريضات سرطان الثدي بالإضافة الي تحديد الفجوات والمعوقات التي تؤثر على تقديم الخدمات الصحية المقدمة لعلاج مريضات سرطان الثدي في قطاع غزة.

### منهجية الدراسة:

الدراسة كمية نوعية، حيث أن الجزء الكمي اشتمل على تقييم 120 ملف طبي لمريضات سرطان الثدي في قطاع غزة من مستشفى الشفاء والرنيتسي والأوربي تم تشخيصهم خلال الفترة (2016-2017) والمسجلين في المركز الوطني لرصد حالات الأورام وعيادات الأورام في قطاع غزة واشتمل أيضاً على ثلاثة قوائم فحص تشمل ( الطواقم الطبية المقدمة للخدمات الصحية لمريضات سرطان الثدي في قطاع غزة، عدد الأسرة والغرف الموجودة في عيادات وأقسام مرضى الأورام، بالإضافة إلي عدد الأجهزة التشخيصية الموجودة في قطاع غزة التي تستخدم في التشخيص المبكر والكشف عن سرطان الثدي، أما الجزء النوعي فقد اشتمل على عمل مجموعتين بؤريتين لمريضات سرطان الثدي في قطاع غزة، بالإضافة إلي عمل مقابلات مع خبراء ومختصين مشاركين في رعاية وتقديم الخدمات الصحية لمريضات سرطان الثدي.

## أهم النتائج :

كشفت هذه الدراسة عن عدد من الفجوات والتحديات التي تعيق عملية معالجة سرطان الثدي في قطاع غزة ابتداءً من شكاوى المريض، مرحلة التشخيص، وصولاً إلى طرق العلاج المتاحة. معظم الفجوات والمعوقات تتمثل في وجود نقص في عدد الكوادر البشرية خاصة (أخصائيو الأورام، أخصائيو علم الأمراض، أخصائيو نفسيون، وأخصائيو التغذية)، بالإضافة لعدم وجود مبانٍ مناسبة لمريضات سرطان الثدي والتي تفتقر إلى الخصوصية والراحة التي تتعلق بالمريضات، وإضافة لذلك وجود نقص في المعدات والأدوات التي تستخدم في تشخيص سرطان الثدي. أيضاً يعاني المرضى من الانتظار لوقت طويل لتلقى الخدمة.

وجدت الدراسة أيضاً عن وجود بعض الفجوات في نظام تحويل المرضى بين المراكز والمستشفيات الصحية سواءً داخل أو خارج قطاع غزة، أما بالنسبة ما يخص خدمات منع سرطان الثدي، تبين عن عدم وجود أي برنامج دائم ومنتظم عدا خدمات الكشف المبكر. خدمات تشخيص سرطان الثدي تواجه العديد من التحديات التي تعيق عن الكشف المبكر لسرطان الثدي. بعض الأدوات التشخيصية الضرورية توجد بشكل محدود جداً أو غير متاحة على الإطلاق مثل أجهزة الرنين المغناطيسي وأجهزة المسح المقطعي وغيرها من الأجهزة، بالإضافة لذلك يوجد عوامل أخرى تؤثر على عملية تشخيص المرض كنسبة وعي المرضى، عوامل ثقافية ودور الطبيب والنظام الصحي أيضاً. أما بالنسبة لخيارات العلاج لمريضات سرطان الثدي في قطاع غزة فهي تواجه أيضاً العديد من الفجوات التي تؤثر سلباً على جودة وكمال الرعاية الصحية كنقص العلاج المتكرر ووجود انقطاع في العلاجات الكيميائية الضرورية وأيضاً عدم وجود العلاج الإشعاعي في قطاع غزة. أما بالنسبة لنظام المعلومات، نظام رصد الأورام بالإضافة إلى السجلات الطبية الخاصة بالمريضات فهي أيضاً تواجه أيضاً العديد من التحديات، كل العوامل السابقة تؤثر سلباً على عملية علاج مرض سرطان الثدي وأيضاً على جودة الخدمات الصحية المقدمة لمريضات سرطان الثدي.

## أهم التوصيات:

توصي هذه الدراسة على التالي :

- عمل خطة وسياسات لمنع حدوث سرطان الثدي والكشف المبكر عنه وعن آلية علاجه بالشكل الصحيح.
- توظيف أطباء في قسم الأورام وتدريبهم جيداً لتقليل العبء على أطباء الأورام بالإضافة إلى أخصائيين نفسيين وأخصائيين في علم الأمراض وأخصائيين في علم التغذية.
- عمل خطة لبناء مركز أورام خاص للتعامل مع مرضى السرطان مع الأخذ بعين الاعتبار الخصوصية والراحة للمرضى أو العمل على تحسين المباني الحالية من خلال تحسين التهوية وتوفير الراحة والنظافة في المباني
- عمل تدريب للطواقم الطبية على العلاج التصبيري وكيفية استخدامه مع المرضى وعمل خطة لوجود مركز خاص للعلاج التصبيري للمرضى في قطاع غزة.
- تدريب الطواقم الطبية ومركز الأورام على التصنيف العالمي للأورام.
- عمل بحوثات مستقبلية إضافية عن عملية علاج مرض سرطان الثدي وكيفية الحد منه.