

Deanship of Graduate studies

Al-Quds University



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

Dalia T. Wehedi

MPH Thesis

Jerusalem-Palestine

1440-2019

Evaluation of Colorectal Cancer Management in the Gaza Strip

Prepared by

Dalia Talaat Wehedi

BSc. of Medicine and Surgery, Al-Quds Abu Dis
University, Palestine

Supervisor: Prof. Dr. Yahia Abed

Co-Supervisor: Dr. Khaled Thabet

A Thesis Submitted in Partial Fulfillment of the
Requirement of the Master Degree of Public Health/ Health
Management – Al- Quds University

1440/2019



Thesis Approval

Evaluation of Colorectal Cancer Management in the Gaza Strip

Prepared By: Dalia Talaat Wehedi

Registration No: 21610999

Supervisor: Prof. Dr. Yehia Abed

Co-Supervisor: Dr. Khaled Thabet

Master thesis submitted and accepted, Date: 11.5.2019

The names and signatures of 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. Ahmed El-Shurafa

Signature.....

Signature.....

Signature.....

Jerusalem – Palestine

1440/2019

Dedication

Every challenging work needs self-efforts as well as guidance of those who were very close to our heart. My humble effort I dedicate to my sweet and loving father and mother who always give me an endless source of power and encouragement.

To my wonderful lovely husband Mohammed for his endless support, he is a continuous source of support, hope and motivation.

To my brothers and sisters, Abdallah, Siraj, Diana, Nermeen and Areej; thanks for always being there for me.

To my lovely daughters Aseel and Daliah who are the bright of my today and future. To the family of my husband.

Never forgotten my uncle Fathi and my mother in law Fatima, who died from the cruel colorectal cancer disease.

To every teacher taught me in the school, in the faculty of medicine and in the public health college for their efforts.

To all my friends especially Mai, Asmaa, Haifa and Esraa for their endless support and my colleagues in the work.

To everyone who helped me to finish this study.

Dalia T. El-Wehedi

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not be submitted for a higher degree to any other university or institution.

Signed:

Dalia Talaat El-Wehedi

Date:

Acknowledgement

First, I would like to express my gratitude to Allah-glorified and exalted be He-

I would like to express my special thanks to my supervisor Prof. Dr. Yahia Abed who helped, advised and added his treasured valued touches in each study step.

I am grateful to my second supervisor Dr. Khaled Thabet who contributed in the completion of the study despite his heavy workloads; he found time to give his advises to complete the study.

My special thanks to Dr. Bassam Abu Hamad, Dr. Khitam Abu Hamad, all the academic staff and the employees at the School of Public Health for their assistance and patience during my study years.

I would like to thank the World Health Organization who funds my research and give me the continual support to complete my study, especially to Dr. Mahmoud Daher, Dr. Huda Anan and Dr. Khalid Abu Saman

Special thanks to Moa'men Eid, Mohammed Shatat and Mostafa along with all the data collectors for their kind help along the way of doing my thesis.

I would like to thank the employees in the central archives at the ministry of health for their kindly help in data collection process. In addition, I would to thank the wonderful staff at El-Rantisi Specialized Hospital, European Gaza Hospital and Al-Shifa Hospital for their kindly help.

I also would like to thank the work management at the Faculty of Medicine in Al-Azhar University, especially to the dean of our faculty Dr. Suhail Al-Madbak, Dr. Elias Arteen, Dr. Subhi Skaik, Dr. Mohammed Zughbur, Dr. Haifa Al-Shawwa, Dr. Israa Saleh, Mrs. Taghreed Ammar, Mr. Bassem Khalaf for their encouragement and support throughout my study.

Dalia T. El-Wehedi

Abstract

Colorectal cancer (CRC) is the leading cancer among men in Gaza Strip (GS) and it is considered the second common cancer after breast cancer for both sexes combined. The evaluation of the services and facilities used for the management of colorectal cancer is essential for monitoring the health care system effectiveness in managing and preventing CRC. This is a triangulated study was conducted to evaluate the services that are provided to CRC patients who were diagnosed in the period 2016-2017. The study is a triangulated study, which is composed of both quantitative and qualitative components. The quantitative data was represented by cross sectional study by using four checklists that identified the number of the available beds and rooms for patients, available health care human resources, diagnostic equipment and exploring the completeness of cancer patients' medical files. For the qualitative data, it included interviews with key informants as well focus groups with colorectal cancer patients.

The results of the study showed that there are shortages in the health care staff and weakness of training, inappropriate infrastructure of oncology buildings, rooms and beds and deficiencies in necessary equipment and supplies. Moreover, the prevention and screening services for colorectal cancer are totally absent in MOH strategies. In addition, colorectal cancer diagnostic services are facing many barriers that lead to the delay in the diagnosis of the disease. There are obvious shortages in some facilities, which are necessary for diagnosis as fecal occult blood tests, colonoscopies, tumor marker test, Gamma Camera, Linear accelerator, MRI and CT scanners, augmented by poor awareness of patients, physician and health system role. Treatment of colorectal cancer disease faces many obstacles that decrease the quality of care such as frequent unpredictable shortage in the essential chemotherapy medications, lack of oncology specialized surgical human resources and the absence of radiotherapy treatment. This is joined by the absence of palliative care and poor psychological support to the colorectal cancer patients and their families.

The information system, which is represented by cancer registry, research and colorectal cancer patients' medical files show a lot of gaps and serious defects that affect the quality of the provided services to colorectal cancer patients. All the gaps and weaknesses in the provided care are accompanied by the deep dissatisfaction of the colorectal cancer patients.

The weaknesses and gaps in the strategy and services used for colorectal cancer management in Gaza Strip include the administrative planning to implementation issues. The gaps are related to political, financial and administrative issues that are reflected on the quality of the service provided to the CRC patients.

The study recommends the enhancement of prevention and screening programs for colorectal cancer disease, improving the contact between the variable sectors providing the management care of colorectal cancer disease, providing all the needed infrastructures and essential medications used in the management of the colorectal cancer patients. Also starting a comprehensive psychological care for the colorectal cancer patients and improving the contact between the health care provider and the colorectal cancer patients and finally starting a deep provision of the information system that represented by establishing auditing system for the medical files, improving the cancer registry system and enhancing the research.

Table of Contents

Declaration	I
Acknowledgement	II
Abstract	iii
List of tables	vii
List of Annexes	viii
List of Abbreviation	ix
Chapter One: Introduction	1
1.1 Overview:	1
1.2 Research problem:	2
1.3. Justification of research:	2
1.4 Aim of study:	3
1.5 Study objectives	3
1.5.1. General objective:	3
1.5.2. Specific objectives:	3
1.6 Study Context	4
1.6.1 Gaza Strip:	4
1.6.2 Health and Health care system:	4
1.6.3 Al-Shifa Hospital Complex:	5
1.6.4 European Gaza Hospital:	6
1.6.5 El-Rantisi Specialized Hospital:	6
1.6.6 Palestinian cancer registry:	6
1.7 Definition of items	7
Chapter Two: Literature Review	8
2.1 Conceptual framework	8
2.2 Literature review	10
2.2.1 Overview about cancer:	10
2.2.2 Colorectal cancer	10
2.2.3 Colorectal cancer epidemiology	11
2.2.4 Colorectal cancer survival	12
2.2.5 Risk factors for CRC	13
2.2.6. Colorectal cancer management strategy	14
2.2.7 Evaluation	25

2.2.8 Effect of the WHO building blocks of the health system on the disease control programs	25
Chapter Three: Methodology	29
3.1 Study design	29
3.2 Study setting	30
3.3 Study period	30
3.4 Study population	30
3.5 Sampling process	31
3.6 Eligibility criteria	33
3.7 Study tools	34
3.8 Data collection	35
3.9 Data Analysis	37
3.10 Scientific rigor	38
3.11 Piloting	40
3.12 Response rate	40
3.13 Ethical and administrative considerations	41
3.14 Limitation of the study	41
Chapter Four: Result and findings	43
4.1 Health workforce	44
4.2 Service delivery	50
4.2.1 Building	50
4.2.2 Diagnostic facilities	56
4.3 Access to essential medicine	62
4.4. Health information system	66
4.4.1 Research	66
4.4.2 Cancer registry	67
4.4.3 Medical files	69
4.5 Health financing system	79
4.6 Governance and leadership	80
4.7 Patient factors	81
4.8. Evaluation of the quality of care	86
4.8.1 Colorectal cancer management strategies	88
4.8.2 Evaluation of colorectal cancer prevention	90
4.8.3 Evaluation of colorectal cancer screening	92

4.8.4 Evaluation of colorectal cancer diagnosis	95
4.8.5 Evaluation of colorectal cancer treatment	101
4.8.6 Referral system abroad	111
4.8.7 Evaluation of the follow-up	114
4.9 Evaluation of patient perspectives and satisfaction	116
Chapter Five: Conclusion and recommendation	120
5.1 Conclusion	120
5.2 Recommendation	124
Annexes	149
Summary in Arabic	164

List of Tables

Table (3.1) Number of involved key informants	33
Table (4.1) Distribution of human resources serving cancer services in the three governmental hospitals (El shifa, European Gaza and El-Rantisi hospital)	46
Table (4.2) Distribution of oncology rooms and beds	52
Table (4.3) Distribution of imaging techniques through GS hospitals and centers	57
Table (4.4) Distribution of laboratory techniques through governmental, private, semi-governmental and non-governmental hospitals and centers	57
Table (4.5) Percentage of completeness of demographic characteristics in the medical files in the oncology services in Gaza Governorates	70
Table (4.6) Completeness medical record domain for the medical files in the oncology services in Gaza Governorates	71
Table (4.7) Completeness of history and physical examination domain in the oncology services in Gaza Governorates	72
Table (4.8) Completeness of cancer related factors in the oncology services in Gaza	73
Table (4.9) Completeness of medication record in the oncology services in Gaza.	74
Table (4.10) Completeness of chemotherapy request form in the oncology services in Gaza Governorate	75
Table (4.11) Score of completeness of medical files in the oncology services in Gaza Governorates	76
Table (4.12) Percentage of missed ICD-O3 in the medical files in hospitals providing CRC services	77

List of Annexes

Annex (1):	Palestine& Gaza Strip (PCSB, 2011)	149
Annex (2):	Health workforce, diagnostic facilities & building checklists	150
Annex (3):	CRC patients' medical records evaluation checklist	153
Annex (4):	Key informants interview questions	158
Annex (5):	Focus group interview questions:	159
Annex (6):	Helsinki committee approval	160
Annex (7):	Approval letter from hospital management	161

List of Abbreviation

AC	Adjuvant chemotherapy
ACS	American Cancer Society
ASGE	American Society for Gastrointestinal Endoscopy
BMI	Body Mass Index
CA 19-9	Carbohydrate Antigen 19-9
CEA	Carcinoma Embryonic Antigen
CI	Confidence Interval
CRC	Colorectal cancer
CT	Computed tomography
EPAGE I/II	American Society for Gastrointestinal Endoscopy I/II
ERUS	Endo-rectal Ultrasound
FC	Flexible Colonoscopy
FOBt	Fecal Occult Blood test
FS	Flexible Sigmoidoscopy
GPs	General Practitioners
GS	Gaza Strip
HIS	Health Information System
IAEA	International Atomic Energy Agency
ICD	International Classification of Disease
MOH	Ministry Of Health
MRI	Magnetic Resonance Imaging
NCCP	National Cancer Control Program
NCD	Non- Communicable Diseases
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Cooperation and Development
OR	Odd's Ratio
PA	Physical activity

PCO	Patient Centered Outcome
PCRF	Palestine Children’s Relief Fund
PCSB	Palestinian Central Bureau of Statistics
PET scan	Positron Emission Tomography scan
RCR	Royal College of Radiologists
SPSS	Statistical Package for Social Science
UNRWA	United Nations Relief and Work Agency for Palestine Refugees
US	Ultrasound
USAID	United States Agency of International Development
WHO	World Health Organization

Chapter One

Introduction

1.1 Overview

Cancer is a terrifying generic name that can affect anyone in any time in any part of the body, which is unfortunately considered nowadays the major cause of morbidity and mortality worldwide. There are 8.8 million deaths yearly from all types of cancer worldwide, which represents one of each six deaths (WHO, 2015). Colorectal Cancer (CRC) is considered the third most common cancer and the fourth leading cause of cancer related deaths worldwide (Favoriti et al., 2016). The CRC incidence and mortality rates vary according the country developmental index, as in low income countries the incidence and mortality rates increasing rapidly and decreasing or stabilizing rates in high income countries, in 2030 the CRC cases worldwide will increased by 60% to more than 2.2 million new cases and 1.1 million deaths (Arnold et al., 2016). The early diagnosis and treatment of CRC will increase the chances for survival, as being late in diagnosing or controlling the CRC will result in the progression of cancer and finally to disability and death (WHO, 2017^a).

In Palestine, the burden of cancer in the mortality rate is large, as it constitutes the second major cause of death after the cardiovascular diseases. Colorectal cancer is considered the second cause of cancer related deaths after breast cancer in both sexes, which shows that there is an observed increment in the incidence of CRC as the second most common cancer after the lung cancer in males is the CRC (Ministry of Health, 2015). As recently, Ministry of Health (MOH) reported the CRC as the leading cancer in males, which represents 15.5% of all male cancers.

Worldwide variation in colorectal cancer incidence and outcomes may be due in part to the disparities in access to health care and services. Any defect in the health care system can prevent the optimal care at any point on the patient's pathway has the potential to have an adverse impact on patient outcomes (New Zealand Ministry of Health, 2011). For that, the management of colorectal cancer should be a multidisciplinary approach involving all the health system components, and should be guided by a precise staging and histopathology. For this reason, all CRC patients should be effectively treated by a team consisting of pathologists, radiologists, surgeons, oncologists, and colorectal nurse specialists (Leslie & Steele, 2002).