



***EFFECTS OF HEALTH EDUCATION AND COUNSELLING  
INTERVENTION ON STRESS AMONG WOMEN DIAGNOSED WITH  
BREAST CANCER IN YEMEN***

**AHMED ALI AHMED ABDO**

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INTERVENTION ON STRESS AMONG WOMEN DIAGNOSED WITH  
BREAST CANCER IN YEMEN**

By

**AHMED ALI AHMED ABDO**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

**December 2019**

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## DEDICATION

### THIS IS DEDICATION TO

**Associate Professor Dr Muhamad Hanafiah Juni**

For his advice, his patience, and his faith, and for his extraordinary support in my research

*"May Allah bless him with endless happiness, May Allah fulfil all his dreams, aspirations, bless him long life with good health, prosperity, and May Allah reward him with Jannah"*



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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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By

**AHMED ALI AHMED ABDO**

**December 2019**

**Chairman : Aidalina Mahmud, MBChB (Community Health)**  
**Faculty : Medicine and Health Sciences**

The breast cancer is the most common type of cancer, accounting for 32.3% of all reported cancers in Yemen. It is the most frequently diagnosed life-threatening illnesses in women; it is greatly affect all spheres of women's life. Being diagnosed and living with cancer is a very stressful experience and having a serious impact on many aspects of women' daily life. Which make them prone to psychological and emotional disturbances, low quality of life, and leaves dramatic and adverse effects on their life. However, no cancer center in Yemen provide psychosocial support to the cancer patients. Moreover, there is high illiteracy particularly among women, and limited knowledge and understanding of breast cancer and its psychosocial implications.

The aim of this study is to develop, implement and evaluate the effect of the educational and counseling intervention on the stress, mental adjustment and quality of life in Yemeni breast cancer.

The study design is a quasi-experimental repeated measure with a comparison group. The study had been conducted in Yemen, in which 56 participants were placed in each of the two groups, a control and intervention group. The participants in intervention group had been selected randomly from the National Oncology Center in Sana'a, while the participants of control group were selected from the National Oncology Centers in Aden and Hadhramaut by using purposive sampling method. To evaluate the effects of the intervention, data were collected at baseline, 2 months and six months after intervention in both intervention and control groups. The outcomes were measured by using the PSS-10 item scale, Mini-MAC scale, QLQ-C30 questionnaires and QLQ-BR23 questionnaires.

The analysis had been conducted on 102 out of 112 participants (91%); 50 (89%) control group, and 52 (93%) intervention group. The results showed that the education and counseling intervention reduced the perceived stress score ( $p$  value  $< 0.05$ ), improved the mental adjustment score ( $p$  value  $< 0.05$ ) of all domains except for the fatalism ( $p = 0.54$ ). As well as, the intervention has affected on the QoL in three domains; global health status, emotional functioning and future perspective ( $p$  value  $< 0.05$ ), but the intervention did not show any effect on three QoL domains; the physical functioning, role functioning and body image domains were statistically non-significant.

The findings showed that the intervention reduced the level of stress, improved the mental adjustment with breast cancer and the most of the quality of life domains, with less non-significant effect on the body image, role functioning and physical functioning domains of quality of life, in particular, in the first three months of breast cancer diagnosis.

**Keywords:** Breast cancer, education, counseling, perceived stress, mental adjustment and quality of life

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN PENDIDIKAN KESIHATAN DAN INTERVENSI KAUNSELING  
TERHADAP TEKANAN YANG DIALAMI OLEH WANITA YANG  
MENGHIDAP BARAH PAYUDARA DI YEMEN**

Oleh

**AHMED ALI AHMED ABDO**

**Disember 2019**

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Barah payudara adalah di antara barah paling lazim, menyumbang kepada 32.3% semua kes barah yang dilaporkan di Yemen. Ia adalah penyakit yang seringkali dikesan sebagai pembawa maut dalam kalangan wanita; ia memberi kesan yang besar kepada semua aspek hidup mereka. Dikesan sebagai pengidap barah adalah satu pengalaman yang sangat memberi tekanan dan memberi impak yang serius kepada banyak aspek hidup wanita. Ini menjadikan mereka cenderung untuk terganggu secara psikologi dan emosi, mempunyai mutu hidup yang rendah, dan ia meninggalkan kesan negatif yang dramatik ke atas diri dan hidup mereka. Namun demikian, tidak ada pusat barah di Yemen yang menyediakan sokongan psikososial kepada pesakit-pesakit barah ini. Namun demikian, terdapat banyak ketidaktahuan, malahan pengetahuan dan kefahaman yang terhad ke atas barah payudara dan kesan-kesan psikososialnya.

Tujuan kajian ini ialah membangunkan, melaksanakan dan menilai kesan strategi intervensi pendidikan dan kaunseling ke atas tekanan, pengubahsuaian minda dan mutu hidup terhadap barah payudara penduduk Yemen.

Rekabentuk kajian adalah kuasi-eksperimen, dengan pengukuran berulang dengan kumpulan yang dibandingkan. Kajian ini telah dijalankan di Yemen, dengan 56 orang peserta ditempatkan dalam dua buah kumpulan, satu kumpulan kawalan dan satu lagi kumpulan intervensi. Peserta-peserta dalam kumpulan intervensi telah dipilih secara rawak dari Pusat Onkologi Negara di Sana'a, sementara peserta-peserta kumpulan kawalan telah dipilih dari Pusat Onkologi Negara di Aden dan Hadramout menggunakan kaedah persampelan bertujuan. Untuk menilai kesan-kesan intervensi, data telah dikumpul pada garis asas, 2 bulan dan 6 bulan selepas intervensi, kepada

kedua-dua kumpulan, kawalan dan intervensi. Dapatan diukur menggunakan skala 10 item PSS, skala Mini-MAC, soal-selidik QLQ-C30 dan soal-selidik QLQ-BR23.

Analisis telah dijalankan ke atas 102 dari 112 peserta (91%); 50 (89%) kumpulan kawalan, dan 52 (93%) kumpulan intervensi. Keputusan menunjukkan bawa pendidikan dan intervensi menurunkan skor persepsi tekanan, meningkatkan skor pengubahsuaian minda kesemua domain kecuali fatalisme. Strategi intervensi juga menjejaskan QOL (kualiti hidup) dalam tiga domain; status kesihatan global, kefungsian emosi dan perspektif masa hadapan, tetapi intervensi tidak menunjukkan apa-apa kesan ke atas tiga domain QOL; kefungsian fizikal, kefungsian peranan dan imej tubuh.

Dapatan menunjukkan bahawa intervensi menurunkan aras tekanan, meningkatkan pengubahsuaian minda terhadap barah payudara, dan meningkatkan domain mutu atau kualiti hidup, dengan kesan tidak signifikan ke atas imej tubuh, kefungsian peranan dan kefungsian fizikal, khususnya dalam tiga bulan pertama diagnosis barah payudara.

**Kata kunci:** Barah payudara, pendidikan, kaunseling, persepsi tekanan, pengubahsuaian minda dan kualiti hidup



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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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## LIST OF ABBREVIATIONS

AP	Anxious Preoccupation
ASIR	Age-Standardised Incidence Rate
ASMR	Age-Standardised Mortality Rate
BCS	Breast Cancer Survivors
BMI	Body Mass Index
CBT	Cognitive Behavioural Therapy
CA	Cognitive Avoidanc
EDU	Psychoeducational Interventions
EF	Emotional Functioning
EORTC	The European Organisation for the Research and Treatment of Cancer
GHS	Global Health Status
HH	Helplessness / Hopelessness
FS	Fighting Spirit
IARC	International Agency for Research on Cancer
PF	Physical Functioning
PSS-10 item scale	Perceived Stress Scale 10 items
MBSR	Mindfulness-Based Stress Reduction
Mini-Mac Scale	Mini-Mental Adjustment to Cancer scale
MIND	Mindfulness-Based
MoPHP	Ministry of Public Health and Population
NCCF	National Cancer Control Foundation
NOC	National Oncology Centre
NOP	National Oncology Program
QOL	Quality of Life

QLQ-BR23	Quality Of Life Breast Cancer Questionnaire 24 Items
QLQ-C30	Quality Of Life Core Questionnaire 30 Items
RCT	Randomized Controlled Trial
RF	Role Functioning
SF	Social Functioning
SRS	Simple Random Sample
UNICEF	United Nations Children's Fund
WHO	World Health Organization



# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Indeed, cancer receives little attention despite leaves an immense health burden on the health system and has significantly impact on the global economy (Organization, 2017). Around of 8.8 million patients die annually due to cancer, one out of six deaths globally and far exceeding the number of death from the HIV, malaria and tuberculosis combined. The cancer burden is greatest in developing countries, where 75% of cancer deaths occur, and the number of cancer cases is rising most rapidly (Organization, 2017; Prager, Braga, Bystricky, Qvortrup, Criscitiello, Esin, Sonke, Martínez, et al., 2018). The cancer is causing 196.3 million disability-adjusted life years (DALYs) worldwide, the incidence of cancer is expected to increase continuously and strain the world's healthcare resources owing to population growth and aging (Fitzmaurice et al., 2017; Ock, Choi, & Jo, 2018).

Cancer diagnosis is an extremely traumatic event, and causing psychological disturbances for patients (Leano, Korman, Goldberg, & Ellis, 2019). As well as, creates a unique set of physical and psychological threats, whose impact may extend far beyond the period of diagnosis and treatment to many years in post-diagnosis (Gieseler, Gaertner, Thaden, & Theobald, 2018; Voigt et al., 2017). In addition, there is a lack of public information and awareness on how to recognise the sign that a person has cancer diagnosis and premature cancer mortality (Prager, Braga, Bystricky, Qvortrup, Criscitiello, Esin, Sonke, Martínez, et al., 2018).

The cancer constitutes an enormous burden on society in both economically developed and non-developed countries (Torre et al., 2015). Where the cancer expenditures have increased, and expected to rise faster than any other related area of healthcare (Prager, Braga, Bystricky, Qvortrup, Criscitiello, Esin, Sonke, Martinez, et al., 2018). The economic burden of cancer also includes indirect costs, namely the value of time spent with the disease and loss of productivity for the survivor and society. The indirect costs and costs associated with support programs further increases the total economic cost caused by cancer (Guy et al., 2013).

The consequence has been significant physical, financial and emotional strain on individuals and families suffering from cancer around the world. Prolonged disability and premature mortality have a substantial economic impact. The high direct and indirect economic costs of cancer need particular considerations and a substantial portion of cancer patients are not accessing or receiving adequate care mainly because of weak health system, inadequate national services, disparities in access to cancer care and high financial costs (Prager, Braga, Bystricky, Qvortrup, Criscitiello, Esin, Sonke, Martinez, et al., 2018). Also concerning, is that the patients with cancer also

face some challenges in maintaining their employment if they are employees to pay for these costs (Jagsi et al., 2014).

Breast cancer is one of the most commonly diagnosed cancer 11.6 %, and the second leading cause of death 6.6% (Bray et al., 2018). It is the most commonly occurring cancer in women (Ferlay et al., 2015). It is the leading cause of death and disability among women, especially young women, in low- and middle-income countries (Peters, Woodward, Jha, Kennedy, & Norton, 2016). The incidence of breast cancer has been noticeably increasing (IARC, 2014), it is increasing by about 5% annually (Özmen, 2011).

Furthermore, the burden afforded by cancer is increasing in developing countries as a result of population ageing and growth as well as, through the adoption of cancer-associated lifestyle choices, such as; smoking, physical inactivity, and westernised diets (Jemal et al., 2011). The cancer costs nearly 20% higher than the other chronic-non communicable diseases. The breast cancer is considered one of the top three cancers that has significantly impact on the global economy (Dolgin, 2018; Gross, 2014). Undoubtedly, in this case, the high cost of cancer care and treatment will affect the patient's ability to meet their financial obligations or to continue their treatment (Carrera, Kantarjian, & Blinder, 2018) .

Also concerning, is the fact that many patients living in countries do not have the opportunity or right to obtain access to health care services or in many cases do not have the ability to pay the exuberant costs afforded with medical care and cancer treatment (Gross, 2014). Furthermore, the psychosocial costs refer to the loss of quality of life (QOL) associated with having cancer. Women with breast cancer incur such costs in the psychosocial domain related to the QOL such as suffering from anxiety, depression, cancer burden, marital discord, negative changes in social and family relationships, and uncertainty of the future (Li et al., 2018; Tsai, Kuo, & Chung, 2017) .

Once women affected by breast cancer, they are asked to recall the very moment of their diagnosis and cancer experience, a series of symptoms may appear including hyperarousal, emotional numbness. The sensation of the situation happening to a person other than self, and intrusive thinking together with nightmares and flashbacks that guide the clinician to understand how traumatic the cancer diagnosis was across the life span (Arnaboldi, Riva, Crico, & Pravettoni, 2017).

## **1.2 Problem Statement**

As mentioned earlier, breast cancer is reported to be one of the significant public health problems worldwide. It is the most commonly diagnosed cancer, contributing 11.6 % of the total number of new cases diagnosis (Bray et al., 2018; Ferlay et al., 2015). In Yemen, it is the most common type of cancer in women, accounting for 32.3% of all diagnosed cancers (Bawazir;, 2018; Bawazir;, Bashateh, Jradi, & Breik, 2019). Breast



cancer is considered as a chronic, life-threatening illness that greatly impacts all spheres of women's life and well-being (Aydiner, İgci, & Soran, 2016). Sadly, the cancer attacks the most valuable thing in women's life; where, the breast constitutes a part of their aesthetic appearance, identity and symbol of motherhood, their femininity and affects their loved ones (Galjchen, 1999; Kunkel, Chen, & Okunlola, 2002; Lewis, Sheng, Rhodes, Jackson, & Schover, 2012; Ohaeri, Ofi, & Campbell, 2012). In addition, in Yemen, women who are diagnosed with breast cancer at a younger age, between 30 to 50 years (Alwabr, 2016; Bawazir, 2017).

Consequently, once a woman knows she has breast cancer, she often feels terrified, scared, worried, experience immense sadness (Al-Azri et al., 2014; J. Holland, Herdman, & Hewitt, 2004), the hopelessness and fear of dying (Fu, Xu, Liu, & Haber, 2008). Furthermore, the changes in her body structure, such as, hair loss, removal of one or both breasts, are terribly stressful issues for women suffering from this illness. This may be equivalent to the loss of their femininity and feeling of disfigured appearance, resulting in developing an inferiority complex (Enache, 2012). Moreover, the side-effects due to cancer treatment lead to a myriad of physical and mental disturbances (A Jassim & Whitford, 2014; Miller, Bowen, Croyle, & Rowland, 2009).

Therefore, the breast cancer remains an extraordinarily stressful experience for majority of women (Compas & Luecken, 2002), where 80% of the patients with breast cancer reported a high level of stress, in particular, immediately after diagnosis (Nordin et al., 2012). Being diagnosed with breast cancer is often equivalent to facing death (Cozaru, Papari, & Sandu, 2014). One of the most causes of stress in the breast cancer due to lack of information (Barre, Padmaja, Rana, & Tiamongla, 2018; Nordin et al., 2012). The breast cancer patients are keenly interested in receiving information about their illness, and its management and progression (Halbach et al., 2016; Shea-Budgell, Kostaras, Myhill, & Hagen, 2014). Provision of information will aid patients in their decision-making, thus reducing their stress and better their quality of life (Shea-Budgell, Kostaras, Myhill, & Hagen, 2014). As well as, the patients express the great need for counseling, and to confer with someone who has experienced the same disease and who has successfully overcome this crisis (Giese-Davis et al., 2006).

However, in Yemen, the psychosocial support cancer centers are often neglected, the patients do not receive any kind of the health education or counseling (Al-Naggar, Nagi, Ali, & Almuasli, 2011; Ba-Khubaira & Al-Kahiry, 2012). Moreover, there is a high illiteracy particularly among Yemeni women (MoPHP & CSO, 2013; Vandenberg et al., 2009), and limited knowledge and understanding of breast cancer (Ahmed, 2010; Al-Maweri et al., 2014; Bawazir, Bashateh, Jradi, & Breik, 2019). Furthermore, a number of previous studies had highlighted that the most medical care providers might be unaware of the patients' concerns (Parker, Aaron, & Baile, 2009).

### 1.3 Significance and Benefits of the Study

The Arab world has an overall population around 380 million (5% of the world's population) and has enough financial resources (Sweileh, Zyoud, Al-Jabi, & Sawalha, 2015). However, their contribution in the research activities is still limited and less than the regional countries such as in Israel, Turkey or Iran, and far less than the developed countries (Sweileh, Zyoud, Al-Jabi, & Sawalha, 2015). As well as, there are a deficiency in the cancer research in the Arab countries (Hamadeh, Borgan, & Sibai, 2017). Moreover, there is inadequate research infrastructure and poor cooperation between industries institutions, governmental agencies and academic institutions (Hamadeh, Borgan, & Sibai, 2017; Sweileh, Zyoud, Al-Jabi, & Sawalha, 2015).

In Yemen, the situation much worse, where the health literature is still very limited (Bawazir, 2017), and has received very little attention (Qirbi & Ismail, 2017). Furthermore, there is a high illiteracy (Vandenberg et al., 2009) and limited knowledge and understanding of breast cancer and its psychosocial implications among women in Yemen (Ahmed, 2010; Bawazir, Bashateh, Jradi, & Breik, 2019).

As can be seen from the meta-analysis study in the second chapter, there are only five (5) studies had been undertaken in Arab countries out of 5,464 (0.09%), and none of those studies had been conducted in Yemen. To the best of our knowledge, the education and psychosocial support was not found in the breast cancer treatment protocol in cancer center in Yemen.

Therefore, this study sought to address that deficit, and in so doing, enrichment the paucity of studies in this particular field. The study will be as an additional value to the existing body of Arabic literature, in particular, the Yemeni research library. Moreover, the findings of the study will help to determine the significant predictors of the sociodemographic characteristics that are associated with the coping with the cancer and QOL in breast cancer patients. To this end, predictive modelling was constructed to determine which of the sociodemographic characteristics predict of perceived stress, mental adjustment and QOL scores in the breast cancer patients. Moreover, it is hoped that this research will encourage the researchers in Yemen to conduct more studies in this field, thus enrichment the research process in breast cancer field.

Furthermore, the results of the study will give an evidence base for the stakeholders of decision makers and donors in the Yemeni health system to integrate the health education and counseling support into the patient medical provided care. The results will be useful for the physicians to ensure that their patients receive a comprehensive health care. The cancer centers who will implement this intervention will improve their patients' adaptation to cancer.

## **1.4 Research Questions**

This study attempted to answer the following questions:

- a) What are the socio-demographic and clinical characteristics in women who was diagnosed with breast cancer?
- b) What are the level of perceived stress, mental adjustment and quality of life in women who was diagnosed with breast cancer?
- c) What are the differences in participants' characteristics between intervention and control groups at the baseline survey?
- d) What are the potential predictors that influence perceived stress, mental adjustment and quality of life in women who was diagnosed with breast cancer?
- e) What are the differences in the perceived stress, mental adjustment and quality of life between and within intervention and control groups at baseline, two months and six months after intervention?

## **1.5 The Objectives**

### **1.5.1 General Objective**

The study aimed to develop, implement and evaluate the effect of education and counselling intervention on the stress, mental adjustment and quality of life in Yemeni women who was diagnosed with breast cancer.

### **1.5.2 Specific Objectives**

- a) To assess the participant's socio-demographic and clinical characteristics in the study sample.
- b) To assess the baseline level of perceived stress, mental adjustment and quality of life in the study sample.
- c) To determine the differences in participants' characteristics between intervention and control groups at the baseline survey.
- d) To identify the potential predictors that influence perceived stress, mental adjustment and quality of life in women who are diagnosed with breast cancer.
- e) To develop and implement the educational and counseling intervention based on the Stress and Appraisal Coping Theory for the breast cancer patients in Yemen.
- f) To determine the differences in the perceived stress, mental adjustment and quality of life between and within intervention and control groups at baeline, two months and six months after intervention.

## **1.6 The Research Hypothesis**

- a) There are higher levels of stress, and low in adjustment to cancer and quality of life in breast cancer patients in Yemen.
- b) There are no statistically significant differences in the participants' characteristics between intervention and control groups at the baseline survey in Yemeni breast cancer patients.
- c) The patients' socio-demographic and clinical characteristics significantly predict changes the scores of perceived stress, mental adjustment, and quality of life in breast cancer patients based on the baseline survey outcomes.
- d) There are significant differences in the perceived stress, mental adjustment and quality of life between and within intervention and control groups at baseline, two months and six months after intervention.

## **1.7 Definition of Terms**

### **1.7.1 Women diagnosed with breast cancer**

All women who have been diagnosed with breast cancer for the first time, and have been pathological confirmed.

### **1.7.2 Breast Cancer Survivors (BCS)**

The National Coalition for Cancer Survivorship (NCCS) pioneered the definition of survivor as being any person diagnosed with cancer, from the time of initial diagnosis until his or her death (Stovall, Greenfield, & Hewitt, 2005), including those who have recovered from the disease (Norat, Aune, Navarro, & Abar, 2014).

### **1.7.3 Perceived Stress**

Stress is the mental and physical condition that occurs when a person must adjust or adapt to the environment (Coon & Mitterer, 2014). In this study, stress was measured using the Perceived Stress Scale (PSS-10), developed by Cohen, Kamarck, and Mermelstein (1983). It assesses the degree to which participants evaluate their lives as being stressful during the past month.

### **1.7.4 Mental Adjustment to cancer**

Adjustment to cancer may be defined as cognitive and behavioural responses the patient makes to the diagnosis of cancer. (Watson et al., 1988). In this study, mental adjustment refers to strategies such as feeling helpless/hopeless, anxious preoccupation, fighting spirit, cognitive avoidance and fatalism that cancer patients

use to adapt to the stress associated with having a cancer diagnosis (Watson et al., 1994).

### **1.7.5 Quality of life (QOL)**

It is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life. A related concept of QOL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction" (Philpott, 2015).



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