

SOCIAL SUPPORT, DEPRESSION, ANXIETY AND STRESS AMONG
BREAST CANCER PATIENTS RECEIVING CHEMOTHERAPY IN
HOSPITAL UNIVERSITI SAINS MALAYSIA

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by

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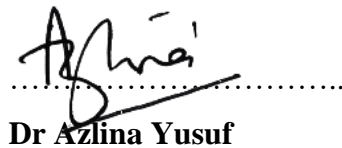
Dissertation submitted in partial fulfillment of
the requirements for the degree of
Bachelor in Nursing with Honours

AUGUST 2024

CERTIFICATE

This is to certify that the dissertation entitled “Social Support, Depression, Anxiety And Stress Among Breast Cancer Patients Receiving Chemotherapy in Hospital Universiti Sains Malaysia” is the bona fide record of research work done by Ms Nik Nor Izwana Binti Rokhman during the period from September 2023 to July 2024 under our supervision. I have read this dissertation and that that is my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Nursing (Honors).

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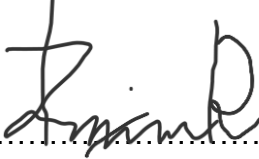
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DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated and duly acknowledged. I certify that this dissertation has not been previously submitted for a degree or diploma in any university or other institutions and does not contain any material previously published or written by another person except where due reference is made in the text. I grant Universiti Sains Malaysia the right to use this dissertation for teaching, research and promotion purposes.



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LIST OF ABBREVIATIONS

DASS-21	– Depression, Anxiety and Stress Scale
Hospital USM	– Hospital Universiti Sains Malaysia
HBM	– Health Belief Model
HREC	– Human Research Ethics Committee
MSPSS	– Multidimensional Scale of Perceived Social Support
WHO	– World Health Organization

SOKONGAN SOSIAL, KEMURUNGAN, KEBIMBANGAN DAN TEKANAN DALAM KALANGAN PESAKIT KANSER PAYUDARA YANG MENERIMA KIMOTERAPI DI HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRAK

Gangguan kemurungan atau kemurungan ialah gangguan mental biasa yang melibatkan perasaan tertekan atau kehilangan keseronokan atau minat dalam aktiviti untuk jangka masa yang panjang. Sokongan sosial adalah penting dan berubah-ubah dalam menampakan kesan kemurungan, kebimbangan dan tekanan. Kajian ini bertujuan untuk menilai tahap sokongan sosial, kemurungan, kebimbangan dan tekanan dalam kalangan pesakit kanser payudara yang menerima kimoterapi. Kajian keratan rentas telah dijalankan di Unit Onkologi Jagaan Harian Hospital Universiti Sains Malaysia daripada Januari hingga Mac 2024. Seramai 124 responden telah dipilih melalui kaedah persampelan bertujuan dan data dikumpul menggunakan boring soal selidik. Purata umur responden ialah 53 tahun ($SD=10.62$), dengan umur antara 28 hingga 76 tahun. Korelasi Pearson digunakan untuk menentukan korelasi antara sokongan social, kemurungan, kebimbangan dan tekanan. Keputusan menunjukkan tahap kemurungan, kebimbangan dan tekanan masing-masing adalah 9.7% dan 1.6% dan majoriti daripada mereka mempunyai tahap sokongan sosial yang tinggi. Kajian ini menunjukkan terdapat korelasi songsang yang signifikan antara sokongan sosial dengan kebimbangan ($r = -0.181, p = 0.004$) dan tekanan ($r = -0.215, p = 0.017$). Kesimpulannya, sokongan sosial berkorelasi negatif dengan kemurungan, kebimbangan, dan tekanan. Oleh itu, pendidikan yang memberikan maklumat tentang keadaan psikologi ini serta menekankan kepentingan sokongan sosial adalah perlu untuk mengurangkan kesannya.

**SOCIAL SUPPORT, DEPRESSION, ANXIETY, AND STRESS
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MALAYSIA**

ABSTRACT

Depressive disorder or depression is a common mental disorder that involves a depressed mood or loss of pleasure or interest in activities for long periods of time. Social support is an important variable in buffering the effects of depression, anxiety and stress. This study aims to assess the level of social support, depression, anxiety and stress among breast cancer patients receiving chemotherapy. A cross-sectional study was conducted in a Day-Care Oncology Unit Hospital Universiti Sains Malaysia from January to March 2024. A total of 124 respondents were conveniently selected and data was collected using a self-administered questionnaire. The mean age of the respondents was 53 years old (SD=10.62), with ages ranging between 28 to 76 years old. Pearson Correlation was used to determine the correlation between social support, depression, anxiety and stress. The result shows that levels of depression, anxiety and stress were 7.3%, 9.7% and 1.6% respectively and the majority of them have high levels of social support. The study revealed a significant inverse correlation between social support and both anxiety ($r = -0.181$, $p = 0.004$) and stress ($r = -0.215$, $p = 0.017$). In conclusion, social support is negatively correlated with depression, anxiety, and stress. Therefore, education that provides information about these psychological conditions and emphasizes the importance of social support is necessary to reduce their impact.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This research proposal aims to determine the social support and depression, anxiety, and stress among breast cancer patients receiving chemotherapy in Hospital Universiti Sains Malaysia (HUSM). This chapter will discuss the background of the study, followed by the problem statement, research questions and objectives, the hypothesis of the study, the conceptual and operational definition of the key terms used in the study and lastly, the significance of the study.

1.2 Background of the Study

Breast cancer is a disease in which cells in the breast grow out of control (CDC, 2023). Breast cancer comes in various forms. Which breast cells develop into cancer determines the type of breast cancer. Breast cancer is the most prevalent type of cancer in Malaysian women by 32.9% (Tan et al., 2023). Besides, the global prevalence of depression among breast cancer patients is 32.2%. In fact, based on the results of various studies, the prevalence rate has been reported to be between 9.3 to 56 percent (Biparva et al., 2023).

A few treatments that can be offered to treat the breast cancer are surgery, hormonal therapy, chemotherapy and more (CDC, 2023). Neoadjuvant therapy in breast cancer refers to the administration of treatment with the intent of downstaging the tumour and, improve operability and surgical outcomes. For most patients with early breast cancer, chemotherapy is given following surgery. Adjuvant radiotherapy following breast-conserving surgery reduces risk of local recurrence in the affected breast by half

and risk of death by a sixth (Clinical Practice Guidelines, 2019).

Depressive disorder or depression is a common mental disorder that involves a depressed mood or loss of pleasure or interest in activities for long periods of time (WHO, 2023). According to the World Health Organization (2023), an estimated 3.8% of the population experience depression. Including 5% of adults and 5.7% of adults older than 60 years. The symptoms that are present in people with depression include poor concentration, low self-worth, disrupted sleep, and hopelessness about the future.

Meanwhile, anxiety is an emotion characterized by feelings of tension, worried thoughts, and physical changes like increased blood pressure (APA, 2022). They may have physical symptoms such as sweating, trembling, dizziness, or a rapid heartbeat. Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives (WHO, 2023). The two most common psychiatric manifestations among breast cancer patients are anxiety and depression.

Social support is defined as any type of communication, in the form of physical or psychological assistance, for someone to feel to have more self-control during difficult times (Ng et al., 2015). Support may arise from any interpersonal relationship in an individual's social network, involving family members, friends, neighbors, religious institutions, colleagues, caregivers, or support groups (APA, 2023). The critical need for social support in combatting stress, depression, anxiety, and improving the quality of life of breast cancer patients has been firmly established by the results of many other studies. Lack of social support for chronic disease patients including breast cancer has been linked to poor emotional wellbeing, increased depressive symptoms, and poor quality of life (Adam & Koranteng, 2020).

Thus, this study aims to assess the level of depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital Universiti Sains Malaysia (USM). The purpose of this study will enable us to identify the patients at higher risk of depression, stress, and anxiety. Therefore, the patients who are more likely to experience psychological issues can receive medical and mental health help to better manage their coping mechanisms and control their problems.

1.3 Problem Statement

Both anxiety and depression have tremendous impact on breast cancer patients. Untreated, both psychological symptoms significantly impact on the patients' treatment regime, quality of life and may increase their suicide risk. A study of depression and anxiety among Malaysian breast cancer patients found that the rate of anxiety was 31.7 % and depression was 22.0 %. Younger age, financial burden, and being single were the factors associated with anxiety or depression among the Malaysian breast cancer patients (Ng et al., 2015).

Anxiety is one of the most common psychological symptoms in breast cancer patients, with the rates ranging from 10 to 30%. Diagnosis of depression can be challenging in cancer patients due to the overlapping of depressive symptoms with physical symptoms as a consequence of the illness or treatment (Ng et al., 2017).

Previous studies suggested that patients perceived social support (PSS) influences the cancer treatment process and its prognosis. The higher PSS in patients with breast cancer, the better their adjustment to the disease (Oh et al., 2020). In breast cancer survival, the maintenance of the high quality of social support has been reported to be important for the maintenance of emotional wellbeing (Oh et al., 2020).

In a review done by Biparva et al., (2023), total of 71 studies were selected in English and the results of the analysis showed that the prevalence of depression in women with breast cancer is 30.2%, with Pakistan having the highest (83%) prevalence of depression and Taiwan having the lowest (8.3%). Also, with increasing age, the prevalence of depression among women with breast cancer increases.

1.4 Research Questions

Guiding the research study and to inform the researcher, the following research questions were formulated:

- i) What is the level of social support among breast cancer patients receiving chemotherapy in Hospital USM?
- ii) What is the level of depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM?
- iii) Is there any correlation between social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM?

1.5 Research Objectives

Research objectives were divided into general and specific objectives.

1.5.1 General Objective

The general objective of this study is to determine the social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM.

1.5.2 Specific Objectives

The specific objectives for this study are as follows:

- i) To determine the level of social support among breast cancer patients receiving chemotherapy in Hospital USM.
- ii) To determine the level of depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM.
- iii) To study the correlation between social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM.

1.6 Research Hypothesis

Hypothesis 1 **(H₀):** There is no significant correlation between social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM.

(H₁): There is a significant correlation between social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM.

1.7 Definitions of Operational Terms

There operational terms used in this research proposal are shown below:

TERM	CONCEPTUAL	OPERATIONAL
Social support	The provision of assistance or comfort to others, typically to help them cope with biological, psychological, and social stressors. (APA, 2023).	This study will assess the level of social support among breast cancer patients using a self-administered questionnaire of MSPSS.
Depression	Depressive disorder or depression is a common mental disorder that involves a depressed mood or loss of pleasure or interest in activities for long periods of time (WHO, 2023).	This study will assess the level of depression among breast cancer patients using a self-administered questionnaire of DASS-21.
Anxiety	Anxiety disorders are characterized by excessive fear and worry and related behavioral disturbances (World, 2022).	This study will assess the level of anxiety among breast cancer patients using a self-administered questionnaire of DASS-21.

Stress	Psychological response to internal or external stressors. Stress involves changes affecting nearly every system of the body, influencing how people feel and behave (APA, 2023).	This study will assess the level of stress among breast cancer patients using a self-administered questionnaire of DASS-21.
Breast Cancer	Breast cancer is a disease in which cells in the breast grow out of control. The kind of breast cancer depends on which cells in the breast turn into cancer (CDC Breast Cancer, 2023).	In this study, breast cancer refers to the patients who came to the Hospital USM.
Chemotherapy	Chemotherapy is a drug treatment that uses powerful chemicals to kill fast-growing cells in the body (Mayo Clinic, 2022).	In this study, chemotherapy refers to the breast cancer treatment and to the patients who are still in the cycle of treatment.

1.8 Significance of the Study

This study was conducted to determine the social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM. The findings were highlighting the significance to comprehend these individuals' psycho-oncological health. This is because the finding can add a new knowledge among outpatients of breast cancer about depression, anxiety, and stress while they are receiving chemotherapy treatment. Besides that, it will also assist in raising awareness on social support and psychological well-being.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed related literature on the issue of social support and depression, anxiety, and stress among breast cancer patients. This is to help clarify and determine the research design and tools that are required to achieve the researcher's objectives. This chapter also will provide a detailed description of conceptual framework chosen for the proposed study.

2.2 Breast Cancer

Breast cancer is the most common cancer of adolescents and young adult women aged 15 to 39 years (Johnson et al., 2018). It is the second most common cause of death from cancer among women in the world (Alkabban & Ferguson, 2022). In this descriptive quantitative study in Korea, it stated that breast cancer accounts for 20% of cancer cases among the females and is the most prevalent disease among women in their 40s (Kim & Park, 2021). According to Saeedi et al., (2019), breast cancer makes up 22.9% of all women's cancers and in 2016, there are approximately 3.5 million women living with a history of breast cancer in the United States.

In the study of Alagizy et al., (2020), shown that prevalence of psychological distress among breast cancer patients is high and they are at higher risk of developing severe anxiety and depression. Young cancer patients tend to be different from older cancer patients, and experience a high degree of anxiety fear, and depression in response to their cancer, resulting in intense psychological distress (Kim & Park, 2021). According to Guilford et al., (2017), young women with breast cancer tend to experience more

aggressive forms of the disease and with more severe outcomes than older women who develop breast cancer. The depression (DASS-D) and anxiety (DASS-A) scales of Depression, Anxiety and Stress Scales (DASS-21) were used to measure the severity of experienced depressive and anxious symptoms (Zamanian et al., 2021).

2.3 Treatment of Breast Cancer

Advances in cancer prevention, early detection through screening and treatment options have resulted in substantial enhancements in the long-term survival rate for breast cancer (Lee et al., 2023). The choice of treatment for breast cancer ranges from surgery and radiotherapy to chemotherapy, immunotherapy, and hormone therapy. If diseases are detected early, these therapies will be very effective (Mu et al., 2023). Lumpectomy, also known as breast-conserving surgery, is a widely performed surgical procedure for the treatment of early-stage breast cancer (Pigg & Ward, 2023). In the study of Tsaras et al., (2018), 69.7% of the patients underwent mastectomy and 30.3% onnectomy. Chemotherapy was received by 46.1% of patients as adjuvant therapy, 15.8% radiotherapy and 38.2% received both chemotherapy and radiotherapy.

However, breast cancer and its treatment cause considerable harm to women in various life spheres including psychological well-being (Salakari et al., 2017). Patients undergoing chemotherapy entail numerous painful invasive sessions with vigorous side effects. These include hair loss, nausea and vomiting, diarrhea, loss of appetite, easy bruising and bleeding, fatigue and increased risk of infection (Elghazali Bakhiet et al., 2021). According to the Saeedi et al., (2019), the side effects of treatment in these patients increase emotional disorders and dramatically reduce the quality of life and lead to extensive psychological consequences. Many women face body image anguish because oftentimes breast cancer treatment alters appearance, including breast and chest deformity,

hair loss, skin-related issues, and weight gain or loss (Guilford et al., 2017).

2.4 Depression, Anxiety, Stress and Breast Cancer

Many breast cancer patients experience fatigue, depression, and/or anxiety months to years after their breast cancer diagnosis with these symptoms being associated with greater disability and a poorer quality of life (Rogers et al., 2017). Having breast cancer or receiving treatment has been seen as a traumatic experience to women due to its impacts on their self-image and sexual relationship, so most of the breast cancer patients have psychological reactions such as denial, anger, or intense fear toward their disease and treatment process, and many of have psychiatric morbidities (Tsaras et al., 2018). According to Zamanian et al., (2021), women with an increased risk of developing hereditary breast cancer, passive coping responses were revealed to be associated with higher levels of depressive-anxiety symptoms. Cancer patients who used coping techniques such as self-blame had greater levels of depression and anxiety (Guo et al., 2023).

Psychological distress can be associated with the physical side-effects of treatment and often occurs in conjunction with depression and anxiety (McMullen et al., 2018). Common responses to cancer diagnosis include depression, anxiety, anger, and guilty feelings (Saeedi et al., 2019). The incidence of mental disorders in cancer patients is estimated to be between 30% and 40%. About 80% of cancer patients suffer from significant concern and anxiety in the early stages of their treatment (Saeedi et al., 2019).

2.5 Social Support and Breast Cancer

Social support has been found to be correlated with positive treatment outcomes for many chronic conditions including breast cancer, and it significantly reduces the stress emanating from cancer diagnosis as well as improves emotional wellbeing (Adam & Koranteng, 2020). Besides, for those who received support, the prognosis and general quality of life appeared promising and well-adjusted than those who reported not having received any form of support (Adam & Koranteng, 2020). In the study of Yu et al., (2022), also highlighted that successful psychological adjustment of cancer patients receiving chemotherapy may be facilitated by improved social support.

According to Salakari et al., (2017), among breast cancer survivors, inadequate social support is associated with a substantial increase in cancer-related mortality. Family environment as a source of social support plays a central role in breast cancer patients' coping strategies and plays a significant role in increasing cancer patients' abilities to cope with the disease (Salakari et al., 2017). In the study of Sørensen et al., (2020), the lack of association between social support and physical fatigue suggests that social support is more closely related to mental fatigue than to physical fatigue. It is important that the women receive social support which may help them to follow simple directions and retain the educational information that they need to care for themselves during treatment (Sørensen et al., 2020).

2.6 Social Support and Depression, Anxiety and Stress

High levels of social support may relieve depressive and anxious symptoms of breast cancer patients through functional coping. At the community level though, individuals have ever since sought support and relied on the social resources which enable them to better cope with adversities (Zamanian et al., 2021). Other studies indicated that social support was lower among breast cancer patients with depression and family support was reported to be negatively associated with depression among breast cancer patients in China and Qatar (Wondimagegnehu et al., 2019). The social support score declined as the severity of depression increased. Age, occupation, type of health facility treated, severity of pain, hormonal therapy and having problem with employer or family were identified factors that were associated with depression (Wondimagegnehu et al., 2019).

In the previous study (Zhu et al., 2023), a survey of young breast cancer patients has demonstrated a negative correlation between anxiety, depression, and social support. Social support as a protective factor can alleviate anxiety and depression, enhance hope, and promote patients' health (Zhu et al., 2023). According to Adam & Koranteng (2020), lack of social support for chronic disease patients including breast cancer has been linked to poor emotional wellbeing, increased depressive symptoms, and poor quality of life. Higher levels of social support perceived by breast cancer patients empower them to use more adaptive coping styles, which in succession ameliorate the experienced depressive and anxiety symptoms (Zamanian et al., 2021). Therefore, plays a critical role in the healing and treatment process of the disease condition.

2.7 Conceptual Framework of the Study

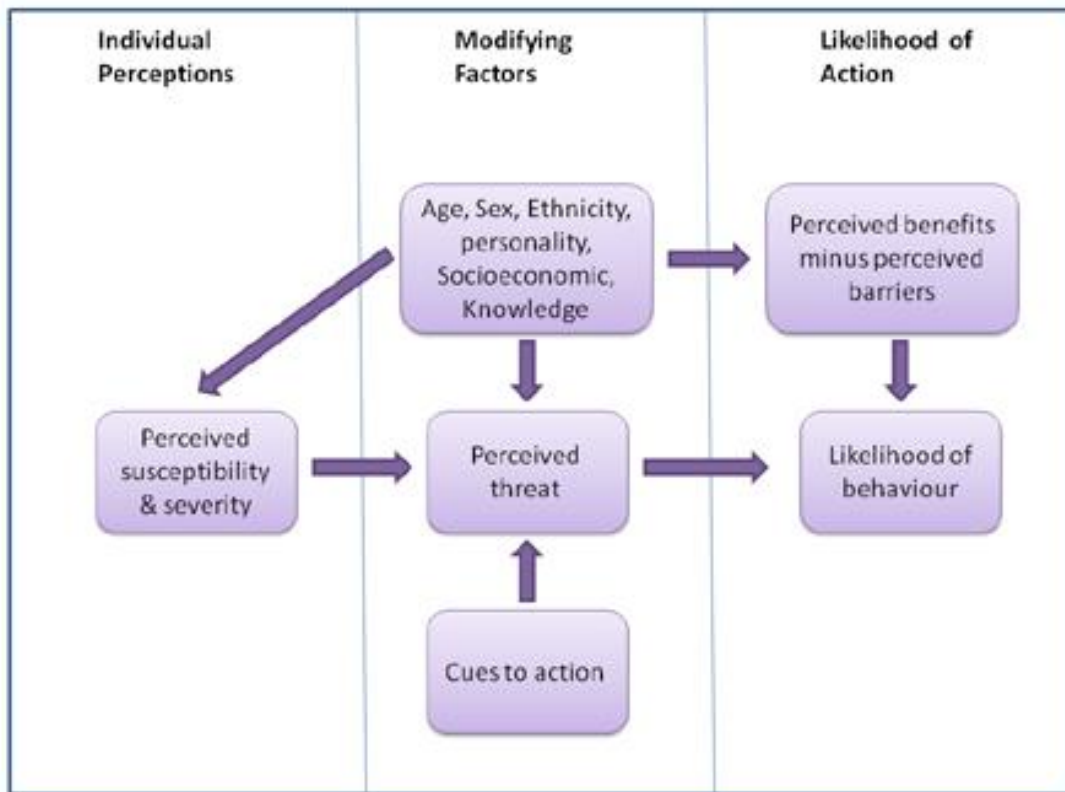


Figure 2.1: The Health Belief Model adopted from Glanz, Rimer & Lewis (2002)

One theoretical approach to understanding health promoting behaviors is the Health Belief Model (HBM). This model has been deemed appropriate for and has been selected as the theoretical framework for this study. The HBM was originally postulated in the 1950s by social psychologists in the US Public Health Service. The HBM examines the mechanisms by which individuals choose to engage in treatment-related actions in response to symptoms of depression (Lilly et al., 2020).

The model identifies the critical factors influencing health behaviors as an individual's perceived threat of illness or disease (perceived susceptibility), belief in the severity of the consequences (perceived severity), perceived benefits of action, perceived barriers to action, exposure to elements that prompt action (cues to action), and

confidence in one's ability to succeed self-efficacy (Shubayr et al., 2022). It suggests that if people believe they are very susceptible, they will take precautions to lower their risk and stay healthy.

In perceived severity, people would believe the condition could cause potentially serious of contracting an illness or condition or leaving it untreated. Other than that, people will adopt behavior changes if they believe that a particular course of action would reduce the susceptibility or severity or lead to other positive outcomes or advantages which we call perceived benefits. For the perceived barriers, a possible obstacle to taking action, which can include negative consequences resulting from an action.

The current study will be conducted to identify the relation of social support and depression, anxiety and stress among adult breast cancer patients using this HBM. The research procedure will be guided by a conceptual framework that was adopted from the theory of health belief model. Overall, depression, anxiety and stress are the dependent variables in this study that are affected by the social support which is an independent variable.

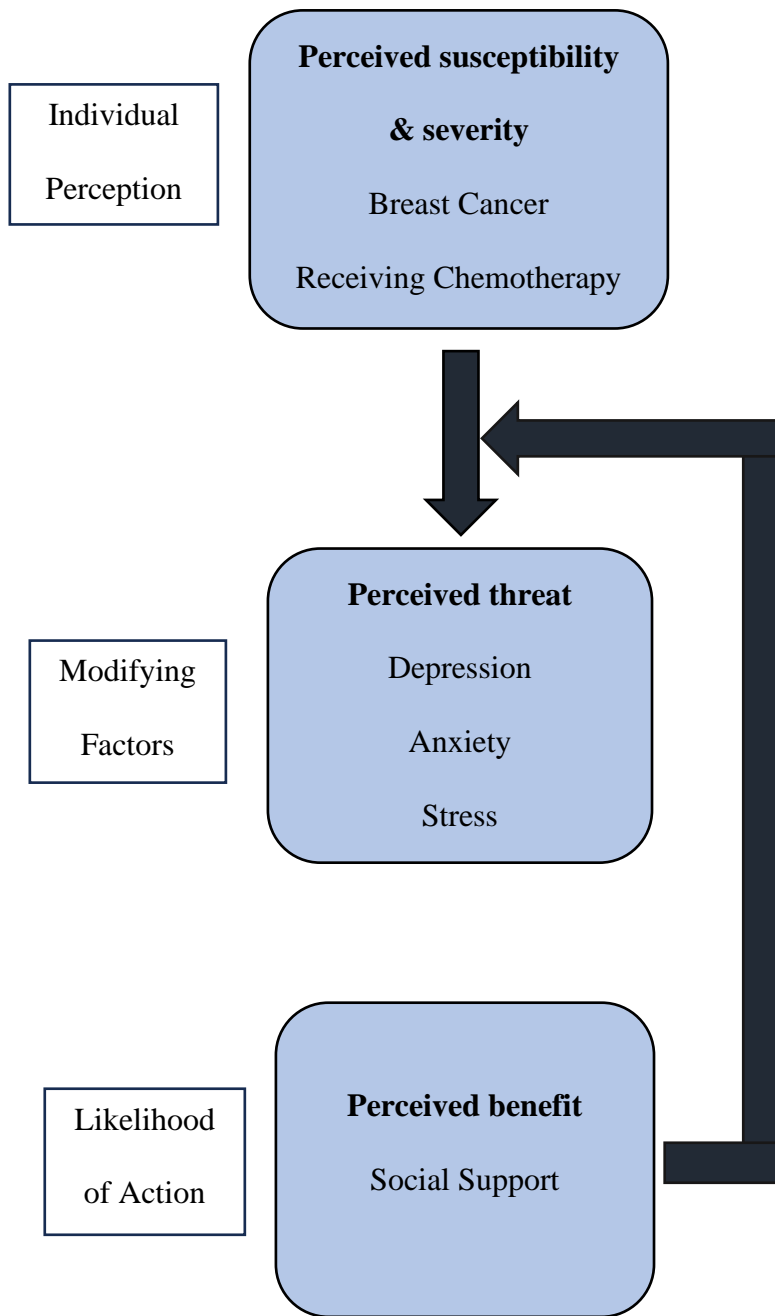


Figure 2.2: The Health Belief Model adapted from Glanz, Rimer & Lewis (2002)

CHAPTER 3

METHODOLOGY AND METHODS

3.1 Introduction

This chapter explains the approach and rationale used to support the chosen research methodology. Determining and understanding a suitable research design is necessary for attaining the purpose of the study. The chapter begins with an explanation of a cross-sectional design and justification for choosing to apply this approach. This is followed by a description of the study setting, population, participant selection criteria, sampling plan, sample size determination, and instrumentation, including ethical consideration right through data collection methods. The final section explains the analytical processes used with the quantitative data.

3.2 Research Design

A cross-sectional study design was utilized in this study. A cross-sectional study is an observational study that analyzes data from a population at one point in time. It is often used to measure the prevalence of health outcomes, understand the determinants of health, and describe population characteristics (Wang & Cheng, 2020).

3.3 Setting and Population

The target population of this cross-sectional study is the day-care oncology breast cancer patients in Hospital USM. Hospital USM is known as teaching and referral hospital with 950 bed capacity. The study setting was conducted at the day-care oncology unit in Hospital Universiti Sains Malaysia in Kubang Kerian, Kelantan.

3.4 Sampling Plan

Sampling is the process used in statistical analysis to select respondents as representatives of the population. The sampling plan was developed in such a way that the results accurately represent the representative sample of interest and allow all questions to be answered.

Several criteria were specified and set to ensure that the subject's data were suitable for research purposes and can attain the targeted goals at the end of the study to meet the research's objective.

3.4.1 Inclusion Criteria

The specific eligibility requirements for inclusion in this study stipulated that each participant must be:

- Age 18 years old and above
- Patients who attended follow-up treatment at the day-care oncology unit in Hospital USM
- Currently receiving chemotherapy
- Able to read and understand Bahasa Malaysia
- Karnofsky score above 80

3.4.2 Exclusion Criteria

Subjects are excluded from this study if they are:

- Medically diagnosed with any psychiatric illness.
- Diagnosed with other types of cancer other than breast.

3.4.3 Sample Size Estimation

Sample size for this study was determined by calculating the sample size for each research objective. After that, the largest sample size was chosen as the finalized sample size for this study. The sample size for the first objective (to determine the level of social support among breast cancer patients receiving chemotherapy in Hospital USM) was determined using a single mean formula as follows:

$$n = \left[Z * \frac{\sigma}{\Delta} \right]^2$$

Whereby, n = required sample size

z = value representing the desired confidence level, $Z_{0.05} = 1.96$

Δ = desired level of precision, $\pm 4\%$

σ = population standard deviation (16.18) (Zhu et al., 2023)

Calculation: $n = \left(\frac{1.96 \times 16.18}{4}\right)^2$

$$n = 63 \text{ participants}$$

The calculated sample size was 63, and after considering a 20% drop out, the sample size is:

$$n = 63 + 20\%$$

$$n = 76 \text{ participants}$$

Hence, the sample size needed for the first objective is 76 participants.

The second objective (to determine the level of depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM) was also determined using single mean formula:

$$n = \left[\frac{Z * \sigma}{\Delta} \right]^2$$

Whereby, n = required sample size

z = value representing the desired confidence level, $Z_{0.05} = 1.96$

Δ = desired level of precision, $\pm 4\%$

σ = population standard deviation (10.69, 8.06, 9.97) (Guo et al., 2023)

Calculation i): $n = \left(\frac{1.96 \times 10.69}{4}\right)^2$

$$n = 27 \text{ participants (depression)}$$

Calculation ii):
$$n = \left(\frac{1.96 \times 8.06}{4}\right)^2$$

$$n = 16 \text{ participants (anxiety)}$$

Calculation iii):
$$n = \left(\frac{1.96 \times 9.97}{4}\right)^2$$

$$n = 24 \text{ participants (stress)}$$

The minimal sample size was 27, 16 and 24 and after considering a 20% drop out, the sample size calculated is:

- i) $n = 27 + 20\%$
 $n = 32 \text{ participants per group (depression)}$
- ii) $n = 16 + 20\%$
 $n = 19 \text{ participants per group (anxiety)}$
- iii) $n = 24 + 20\%$
 $n = 29 \text{ participants per group (stress)}$

Hence, the sample size required for the second objective in this study was 32, 19 and 29 participants who fulfilled the inclusion and exclusion criteria.

For the third (to examine the correlation between social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM), the sample size was calculate using two means formula from UCSF Clinical and

Translational Science Institute website. The correlation was 0.38 based on Zamanian et al., (2021) study.

Calculation:

The screenshot shows the 'Sample Size Calculators' website interface. The main heading is 'Sample Size Calculators for designing clinical research'. On the right, there is a UCSF Clinical & Translational Science Institute logo and a banner for 'Explore the Training in Clinical Research Program at UCSF'. The left sidebar contains a navigation menu with 'Calculators' selected, listing various calculator types like 'CI for proportion', 'Means - effect size', and 'Proportions - effect size'. The main content area is titled 'Correlation sample size' and explains that it calculates the total sample size required to determine if a correlation coefficient differs from zero. It includes instructions to enter parameters in green cells and shows the following values: α (two-tailed) = 0.05, β = 0.20, and r = 0.38. A 'Calculate' button is present. Below the button, the standard normal deviate for α is $Z_\alpha = 1.9600$, for β is $Z_\beta = 0.8416$, and the constant $C = 0.5 * \ln[(1+r)/(1-r)] = 0.4001$. The final calculation is shown in a blue box: $\text{Total sample size} = N = [(Z_\alpha + Z_\beta)/C]^2 + 3 = 52$.

The minimal sample size was 52, and after considering a 20% drop out, the sample size calculated is:

$$n = 52 + 20\%$$

$$n = 62 \text{ participants per group} \times 2$$

$$n = 124 \text{ participants}$$

Hence, the sample size needed for the third objective in this study was 124 participants who fulfilled the inclusion and exclusion criteria.

Based on the calculations, the greatest sample size was selected in this study to ensure all the objectives can be achieved and had been 124 participants who fulfilled the inclusion and exclusion criteria for research.

3.4.4 Sampling Method

Sampling was guided by the designed sampling criteria and a sampling frame. In this research, a convenience sampling was used to recruit the respondents. Convenience sampling is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access (Simkus, 2023).

3.5 Instrumentation

In this study, the data from the respondents was collected via the aid of a structured, self-administered questionnaire which are Depression, Anxiety and Stress Scale Version 21 (DASS-21) and Multidimensional Scale of Perceived Social Support (MSPSS).

3.5.1 Instrument

The questionnaire utilized in this study assessed the level of social support and depression, anxiety and stress among breast cancer patients receiving chemotherapy in Hospital USM. The questionnaires were cited from open access as it is a public domain. The instrument is divided into three sections.

Section A: Socio-demographic Information

This section includes age, marital status, number of children, level of education, work status, household income, and stage of tumor.

Section B: Depression Anxiety Stress Scale (DASS-21)

This section has seven items in each of the three sub-scales: Depression (DASS21-D), Anxiety (DASS21-A), and Stress (DASS21-S) to assess the level of depression, anxiety, and stress among breast cancer patients. A four-point Likert Scale is used. (0=Never, 1=Sometimes, 2=Often, 3=Almost Always).

Section C: Multidimensional Scale of Perceived Social Support (MSPSS)

This section had 12 items in the scales to determine the level of social support among breast cancer patients. A seven-point Likert Scale is used. (1=Very Strongly Disagree, 2=Strongly Disagree, 3=Mildly Disagree, 4=Neutral, 5=Mildly Agree, 6=Strongly Agree, and 7=Very Strongly Agree).

3.5.2 Translation of Instrument

The original version of the questionnaires used for DASS-21 and MSPSS in this study were established in Malay. As the study population is majority from Kelantan, it will be easier for the respondent to speak and write in their native language. Thus, the questionnaires were kept into the Malay version.

3.5.3 Validity and Reliability of Instrument

Validity refers to how well the information gathered is relevant to the actual area of investigation. An accuracy instrument is important to establish validity and reliability of the research. The Cronbach's alpha internal consistency coefficient of the scale was found to be 0.956 for social support (Gülden Küçükakça Çelik et al., 2021).