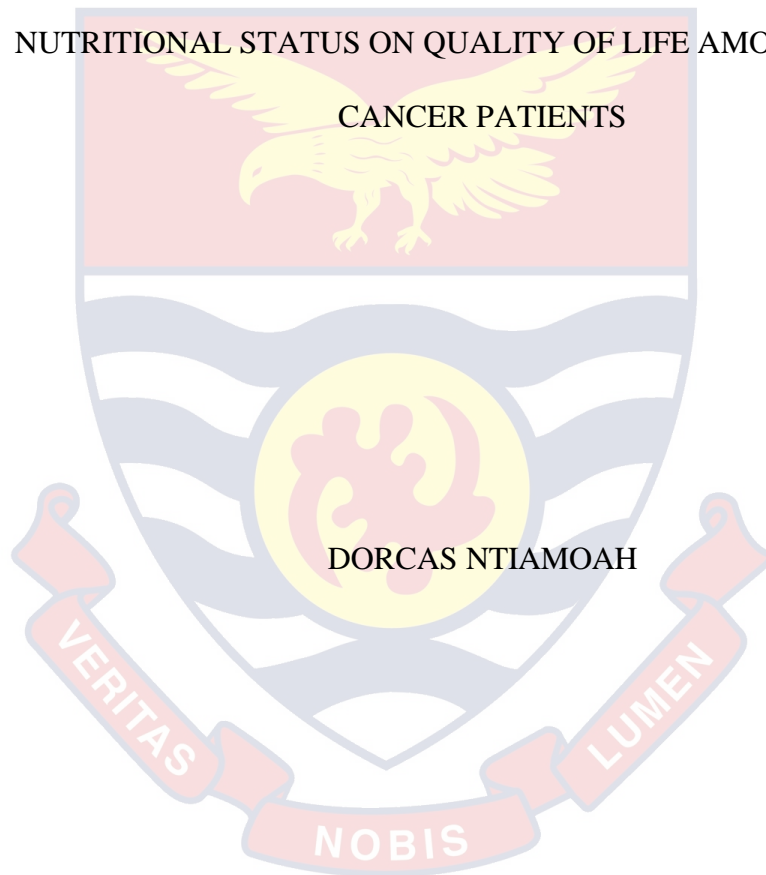UNIVERSITY OF CAPE COAST

EFFECT OF PSYCHOLOGICAL DISTRESS, SPIRITUALITY AND

NUTRITIONAL STATUS ON QUALITY OF LIFE AMONG BREAST

CANCER PATIENTS

DORCAS NTIAMOAH

2020

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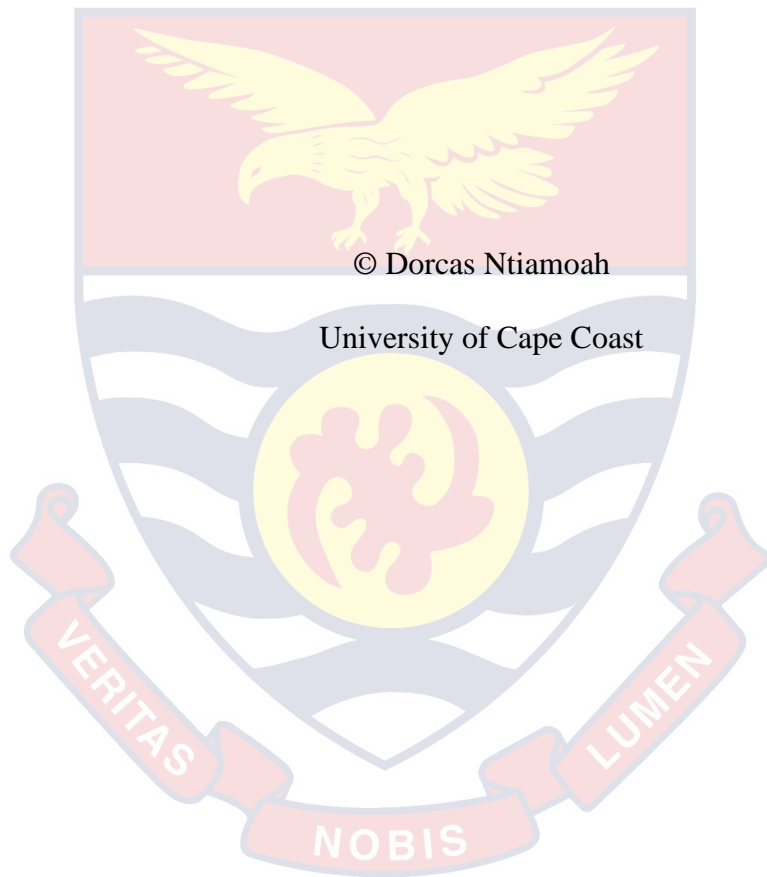
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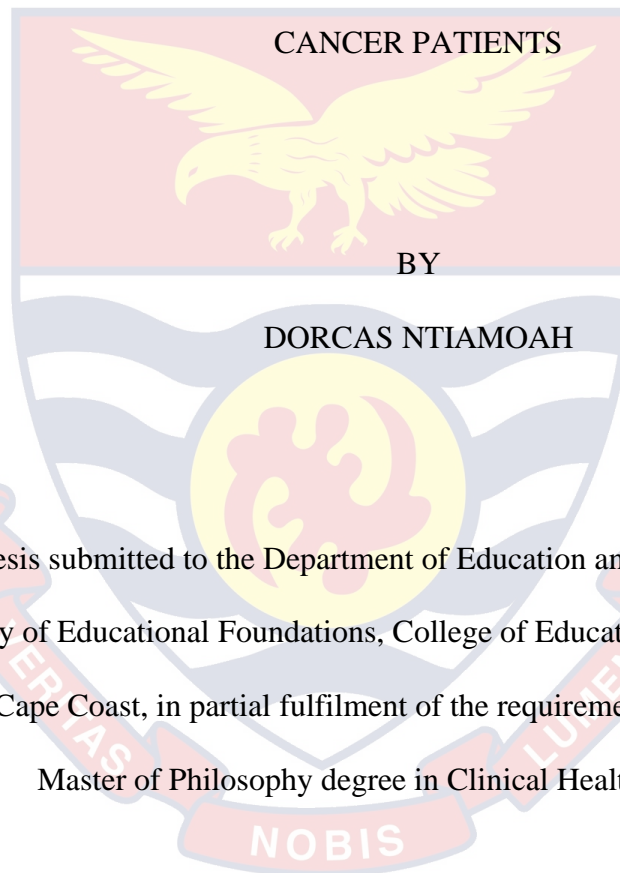
CANCER PATIENTS

BY

DORCAS NTIAMOAH

Thesis submitted to the Department of Education and Psychology of the

Faculty of Educational Foundations, College of Education Studies, University

of Cape Coast, in partial fulfilment of the requirements for the award of

Master of Philosophy degree in Clinical Health Psychology

OCTOBER 2020

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature……………………………Date………………

Name: ………………………………………………………………………

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision laid down by the University of Cape Coast.

Principal Supervisor's Signature…………..………Date………………

Name: …………………………………………………………………

Co-Supervisor's Signature…………..…………...…Date………………

Name: …………………………………………………………………

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ABSTRACT

Breast cancer burden may contribute to increased psychological distress and its impact on quality of life not overlooked. This study aimed to examine the effect of psychological distress, spirituality and nutritional status on quality of life among women with breast cancer. The descriptive survey research design was employed for the study. One hundred and one breast cancer patients were recruited using the simple random sampling technique from Peace and Love Hospital, Kumasi and Sweden Ghana Medical Centre, Accra to complete the Kessler Psychological Distress Scale, FACIT-Sp-12, Patient-Generated Subjective Global Assessment (PG-SGA) and World Health Organization Quality of life- BREF scale. The data were analysed using descriptive and inferential statistical approaches. The findings revealed that psychological distress is a significant predictor of quality of life among breast cancer patients, spirituality is a significant predictor of quality of life among breast cancer patients, nutritional status has a significant effect on quality of life among breast cancer patients, also psychological distress, spirituality, and nutritional status mutually affect quality of life among breast cancer patients' and finally spirituality does not significantly moderate the relationship between psychological distress and quality of life. The study recommends that, patient centered care approach could ease the psychological distress of breast cancer patients, also screening for nutritional status and spirituality at the time of diagnosis should be considered to help health professionals provide holistic healthcare delivery.

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KEYWORDS

Breast cancer Nutritional status

Psychological distress

Quality of Life Spirituality

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DEDICATION

To my family

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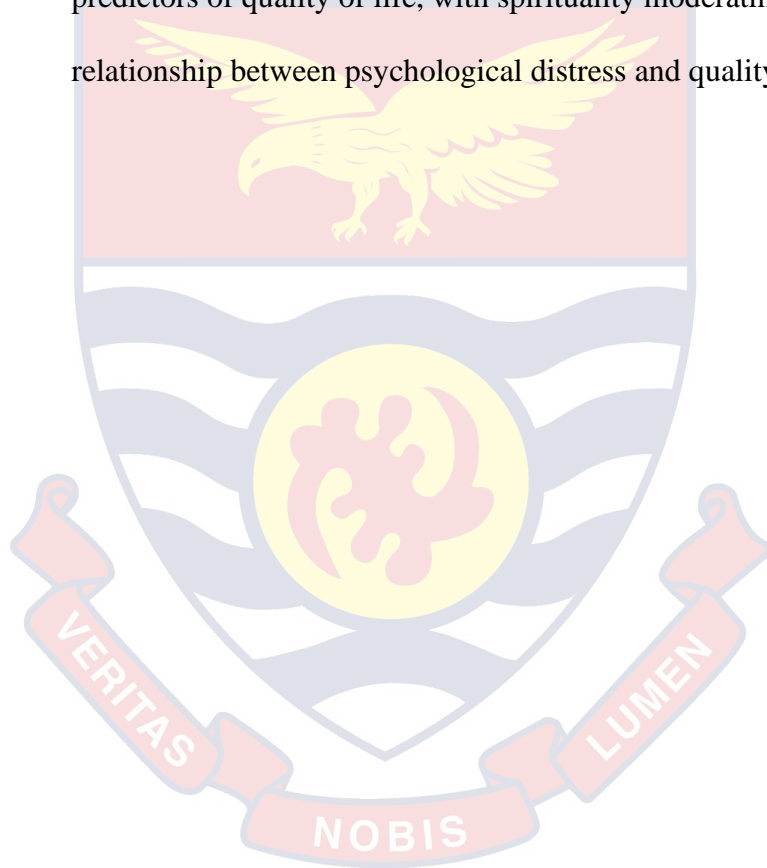
LIST OF ACRONYMS

BREF K-10   :   Kessler Psychological Distress Scale

CBE   :   Clinical Breast Examination

DCIS   :   Ductal Carcinoma in Situ

FACIT-Sp-12 :   Functional Assessment of Chronic Illness Therapy-

Spiritual Well-Being

HRQoL   :   Health Related Quality of Life

LMICs   :   Low- and Middle-Income Countries

MRI   :   Magnetic Resonance Imaging

PG-SGA   :   Patient-Generated Subjective Global Assessment

QoL   :   Quality of life

REBT   :   Rational Emotive Behavioral Therapy

SGMC   :   Sweden Ghana Medical Centre

UNICEF   :   United Nations Children's Fund

WHO   :   World Health Organization

WHOQOL-Bref: World Health Organization Quality of Life

CHAPTER ONE

INTRODUCTION

This chapter provides detailed background information of breast cancer and prevalence of breast cancer from a global perspective down to the Ghanaian context. The background information primarily throws light on variables such as psychological distress, Spirituality and Nutritional Status and how they affect quality of life of breast cancer patients. This is followed by the statement of the research problem, the purpose of study, objectives of study, the statement of hypotheses, the significance of the study, delimitation and limitations of the study, definition of terms and the organization of the study.

Background to the Study

Cancer is a leading cause of mortality globally (Shahmoradi, Kandiah, & Peng, 2009). Researchers have projected that within the next twenty years, two-thirds of cancer patients will be in low- and middle-income countries (LMICs) (Pillay, 2002). In 2007, there were 7.9 million deaths from cancer accounting for 13% of all deaths worldwide (World Health Organization, 2009). Among these, about 70% of deaths occurred in low and middle-income countries. Cancer deaths are projected to increase to 12 million in 2030. One of the main health dilemmas afflicting Malaysia today is cancer. Cancer is ranked third among the most frequent causes of medically certified deaths in Malaysia (Health Facts, Ministry of Health, 2004). The incidence of cancer has been estimated to be 30,000 yearly and the 10 most common cancers in Peninsular Malaysia are cancers of the breast, large bowel, lung, cervix uteri, leukaemia, nasopharynx, lymphoma, stomach, prostate gland, and other skin

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cancers (National Cancer Registry, 2008). Each year, more than a quarter of a million people are diagnosed with cancer in the UK, and 1 in 3 people will develop cancer during their lifetime (Cancer Research Website:). Recent UK statistics from the Office for National Statistics (2017) show that for women the most common cancer is breast cancer (32%), followed by colorectal (11%), and lung cancer (11%) and for men the figures are prostate cancer (24%), lung cancer (15%), and colorectal (14%). Cancer can affect people of all ages, but the risk for most types increases with age. Two-thirds of all newly diagnosed cancers occur in people aged 65 years or older however less than 1% of cancers are diagnosed in children aged 0-14 years (World Health Organization, 2012)

Breast cancer in Africa

Cancer is the basis of death for approximately one million Africans each year (Morhason-Bello, Odedina, Rebbeck, Hardford, Dangou, Denny & Adewole, 2013; Sylla & Wild, 2012). With the incidence of cancer anticipated to rise by more than 85% by 2030 on the African continent, cancer is an increasing health burden that needs to be addressed (Morhason-Bello et al., 2013). Currently, breast cancer is the most common cancer in Africa (Parkin, Bray, Ferlay, & Jemal, 2014). Moreover, it is conveyed to be the leading cause of cancer death in Africa (Parkin et al., 2014). Globally, breast cancer is the most common form of cancer among women (World Health Organization, 2012). In Sub-Saharan Africa (SSA), breast cancer is the second most common form of cancer and a leading cause of death among women in this region, accounting for 16% of cancer-related deaths (Morhason-Bello et al.,

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2013). Reports have exposed that breast cancer incidence peaks between 35 and 45 years in West African women, 10-15 years earlier than for western countries (Brakohiapa, Armah, Clegg-Lamptey & Brakohiapa, 2013). Therefore, the disease is largely affecting premenopausal women who are still within the workforce. Additionally, the majority of cancer patients are diagnosed in late stages of the cancer which decreases likelihood of survival (Ameade, Amalba, Kudjo, Kumah & Mohammed, 2014). The incidence of breast cancer is increasing in many LMICs due to other factors such as exogenous hormones, changes to menstrual and reproductive life, obesity, high alcohol consumption, adoption of Western lifestyles and other extraneous factors (Antoni, Sasco, dos Santos Silva, & McCormack, 2013; Sitas, Parkin, Chirenje, Stein, Abratt & Wabinga, 2008).

Quality of Life (QOL)

Quality of life is a concept that came into focus after World War II and there have been many attempts at the definition of the concept (Poradzisz & Florczak 2013).The concept quality of life refers to "the degree to which a person enjoy in the areas of being (who one is: physical being, psychological being, spiritual being), belonging (connections with one's environments: physical belonging, social belonging, community belonging) and becoming (achieving personal goals, hopes, and aspirations: practical becoming, leisure becoming, growth becoming) the important possibilities of his or her life" (Centre for Health Promotion, 2004). One of the central components in the areas of 'being', 'belonging' and 'becoming', is the person's perception of his/her own health. In accordance with the widely adopted view of the World

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Health Organisation (WHO), health can be considered as 'a state of complete physical, mental, and social well-being, not merely the absence of disease and infirmity (Kendall 2002; Tweedell 2002). In congruence with the World Health Organisation's definition of health, health-related quality of life refers to the overall conditions of the quality of life of ill or healthy individuals in accordance with the following eight domains: (a) limitations in physical activities because of health problems, (b) limitations in social activities because of physical or emotional problems, (c) limitations in role activities because of physical health problems, (d) bodily pain, (e) general mental health, (f) limitations in role activities because of emotional problems, (g) vitality, and (h) general health perceptions of an individual or a group measured in terms of feelings of satisfaction or dissatisfaction (Ware & Sherbourne 1992). Quality of Life is a subjective multidimensional construct that is increasingly being used as a clinical endpoint in oncology (Lee & Chi, 2000). Recently, clinicians are attempting to evaluate QoL during daily practice, and to utilize these evaluations when making decisions about individual patient care (Morita, Ohashi, Kobayashi, Matsumoto, Eguchi & Shibuya 2003). Studies conducted on the quality of life in breast cancer patients have made a huge contribution to improving breast cancer care (Montazeri, 2009).

Psychological Distress

Psychological distress is defined by the National Comprehensive Cancer Network as: 'A multifactor unpleasant emotional experience of a psychological, social, and/or spiritual nature that may interfere with the ability

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to cope effectively with cancer, its physical symptoms and its treatment' (Zabora, Brintzenhofe, Zoc, Curbow, Hooker & Piantadosi, 2001). Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness, and fears to problems that can become disabling, such as depression, anxiety, panic, social isolation, and existential and spiritual crisis". According to National Comprehensive Cancer Network, the prevalence of such distress varies according to the type of cancer with rates of 43% among patients with lung cancer; 33% among patients with breast cancer; and 31% in patients with colorectal cancer. Distress is associated with poorer prognosis, younger age, lower income and less social support. It is more common at key points in the cancer journey such as diagnosis, finishing treatment and at recurrence (Holland & Bultz 2007). Depression is found to be highly associated with cancers such as oropharyngeal (22%– 57%), pancreatic (33%–50%), breast (1.5%–46%), and lung (11%–44%) and also prevalent in patients with cancers such as colon (13%–25%), gynaecological (12%–23%), and lymphoma (8%–19%). Rates of distress among patients with cancer are as high as 35% (Massie, 2004). Breast cancer has emotional implications characterized by deep feelings and fears. The combination of psychological and physical symptoms experienced by breast cancer patients is described as "dual experience trajectory" (Lackey, Gates & Brown, 2001). Anxiety and depression are the most frequent mental disorders for breast cancer patients and "psychosocial issues associated with breast cancer include concerns about social stigma, body image, or changes in social roles" (Distelhorst, Cleary, Ganz, Bese, Camacho-Rodriguez, Anderson, 2015; Akin-Odanye et al., 2015). Psychological distress can worsen a patient's outcome (Greif & Dodoo, 2015;

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Fann et al, 2008; Badger, Braden & Mishel, 2001; Groenvold et al., 2007; Pasacreta, 1997). In Ghana, Clegg-Lamptey, Dakubo & Attobra (2009) evaluated the psychosocial and emotional impact of being diagnosed with breast cancer in Ghanaian women. Fear, shock, devastation, weeping and depression were the most common reactions to hearing the diagnosis. The primary concerns of the 10 patients were fear of death and "mastectomy/deformity, cost of treatment, uncertain future, job security and marriage security" (Clegg-Lamptey, Dakubo & Attobra, 2009).

Spirituality

Spirituality is interdependent with the biological, psychological, and interpersonal aspects of life (Kuhn, 1988; Koenig, 1995), and deserves greater attention in health-related matters. A possible mechanism through which spirituality may exert its effect is by providing a way in which patients draw meaning from the disease. Being diagnosed with a serious illness can initiate spiritual discontent (Fitchett, Murphy, Kim, Gibbons, Cameron, & Davis, 2004). The mental health aspects of religious struggle may be particularly important, as several investigators have found high associations with depression, emotional distress, and suicidal ideation (Exline et al., 2000; Fitchett et al., 2004). Spirituality functions as a coping mechanism in breast cancer survivors enabling them to reframe their illness in a more positive light (Johnson, 2002; Levine & Targ, 2002; Gibson & Parker, 2003; Sehlen et al., 2003). In all likelihood, a similar process of reframing the illness is occurring in men with prostate cancer when the diagnosis is reframed from death sentence to 'good cancer' (Maliski et al., 2002).

Nutritional Status

A deteriorating nutritional status in patients with cancer most certainly compromises their physical functional status although a substantial number of patients with minor or moderate weight loss do maintain a normal or near-normal performance status which affects their quality of life. If this can be demonstrated, it will provide us with a dimension for measuring the effects of nutrition intervention. But nutrition is often ignored in treatments and follow-up care (Leuenberger et al., 2010). With the growth of cancer cases, the management and care problems of these diseases are expected to be minimized; also, through diagnosis and early treatment, better quality of life is expected for the patients (Khoshnevis et al., 2012). Previous studies indicate that malnutrition and weight loss are prevalent among 20 to 80% of oncologic patients (Bauer et al., 2002; Kubrak & Jansen, 2007). Nutrition as an important factor in treatment affects patient's mortality and morbidity so that about 20% of these patients die of the symptoms caused by malnutrition (Leuenberger et al., 2010). Cancer and cancer therapy affects nutritional status through alterations on the metabolic system and reduction in food intake (Delano & Moldawer, 2006). It is therefore necessary to use appropriate, standard and localized tools to gather detailed information about the patient nutritional status, identify the cases, estimate the prevalence rate, classify them and ultimately provide suitable treatment plans (Dewys et al 1980; Dervenis, 2003).

In sum, cancer is a terminal illness which has a debilitating mortality rate. Breast cancer is one of the types that is typically seen in women. Women with breast cancer become worried about almost everything the moment they are

diagnosed with the condition. This ends up affecting their quality of life however literature reviewed indicate that there is a relationship between psychological distress and quality of life, spirituality and quality of life as well as nutritional status and quality of life among cancer patients. It is also inferred from the background to the study that breast cancer patient's quality of life may be compromised by psychological distress, spirituality and nutritional status among many other variables.

Statement of the Problem

Breast cancer is the second most predominant cancer in African women next to cervical cancer (Obrist et al. 2014). In Ghana, it has been identified as a leading malignancy and one of the most causes of hospital admissions among women. In fact, estimates from the World health Organization peg new breast cancer cases in Ghana in 2012 at over 2,200 and deaths from the disease at over 1,000. The undying nature of breast cancer along with its reoccurrence mostly causes psychological distress to clients than the diagnosis of primary breast cancer that in turn affects the quality of life of these patients (Perry, Kowalski, & Chang 2007; Grabsch et al. 2006).

Furthermore, literature reviewed indicate that quiet a number of studies have been conducted in both the Eastern and Western part of the world on quality of life among breast cancer patients (Shahmoradi, Kandiah & Peng, 2009; Antoni, Sasco, dos Santos Silva, & McCormack, 2013; Sitas, Parkin, Chirenje, Stein, Abratt & Wabinga, 2008; Pillay, 2002). Variables explored include quality of life, psychological distress, spirituality and nutritional status. However, only few studies have been done in Africa. An example is a

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study by Akin-Odanye, Chioma and Abiodun (2011) who found fluctuating degrees of depressive symptoms from minimal to severe depression in Nigerian female breast cancer patients getting chemotherapy. The results demonstrated that women with breast cancer knowledge and higher education had lower levels of depression. Concurrently, those with advanced cancer stage had higher risk for developing depression. Average monthly income was projected to be a significant predictor for depression as those with higher income will be at a reduced likelihood of developing a mental disorder (Akin-Odanye, Chioma & Abiodun, 2011).

In Ghana, Boateng (2017) studied psychological distress and quality of life of breast cancer patients with the goal of determining if breast cancer patients were more vulnerable to higher psychological distress and lower quality of life than healthy women and how their lived experiences affect their mental health. This study was conducted at Kumasi with patients from Peace and love Hospital. Boateng (2017) revealed that breast cancer patients had higher psychological distress than the healthy women and also scored lower on the quality of life domains of physical health, psychological well-being and environment. The lived experiences of the breast cancer patients followed a similar journey from suspicion of ill-health to difficulty circumnavigating the health system, feeling the effects of breast cancer and lastly, regaining confidence. However, no known research has been found on spirituality and nutritional status on quality of life among breast cancer patients in Ghana.

Extant studies have been done on psychological distress and quality of life among breast cancer patients (Boateng 2017; Akin-Odanye, Chioma & Abiodun, 2011), spirituality and quality of life among breast cancer patients

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(Brady, Peterman, Fitchett, Mo, & Cella, 1999; Krupski et al.,2006**;** Peterman, Fitchett, Brady, Hernandez, & Cella, 2002**;** Mcclain, Rosenfeld, & Breitbart, 2003) and nutritional status and quality of life among breast cancer patients (Khoshnevis et la., 2010; Bering et al., 2015; Montoya et al.,2010). These aforementioned studies have found that psychological distress negatively affect the quality of life and the overall health status of breast cancer patients(Greif & Dodoo, 2015; Fann et al., 2008; Badger et al., 2001; Perry, Kowalski & Chang 2007), again spirituality was found to have a positive relationship with quality of life among breast cancer patients (Burnette, Duci, & Dhembo, 2017; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002; Krupski et al., 2006). Nutritional status was also found out to have either positive or negative effect on quality of life among breast cancer patients (Bozzetti et al., 2002; Crogan & Pasvogel, 2003; Sperling, 2004; Hutton, Baracos, & Wismer, 2007). However, little is known about the combined effect of psychological distress, spirituality and nutritional status on quality of life among breast cancer patients (Boateng, 2017; Akin-Odanye, Chioma & Abiodun, 2011).

It is in view of these stated problems that the researcher seeks to find out the predictive effects of these variables on quality of life among breast cancer patients. Also, the researcher explored moderative effect of spirituality on psychological distress and the dependent variable (quality of life among breast cancer patients).

Purpose of the Study

The main purpose of the study was to examine the effect of psychological distress, spirituality and nutritional status on quality of life among women with breast cancer.

Research Objectives

The specific objectives were to;

1. Assess if psychological distress has an influence on quality of life among breast cancer patients.

2. Determine if spirituality is a predictor of quality of life among breast cancer patients.

3. Ascertain whether nutritional status has an effect on quality of life among breast cancer patients.

4. Determine the combined effect of psychological distress, spirituality, and nutritional status on quality of life among breast cancer patients.

5. Ascertain whether spirituality moderate the relationship between psychological distress and quality of life among breast cancer patients.

Research Hypothesis

The hypotheses were;

1. **H0**: Psychological distress is not a significant predictor of quality of life among breast cancer patient

   H1: Psychological distress is a significant predictor of quality of life among breast cancer patient

2. **H0**: Spirituality is not a significant predictor of quality of life among breast cancer patient

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H1: Spirituality is a significant predictor of quality of life among breast cancer patient

3. **H0**: Nutritional status does not have significant effect on quality of life among breast cancer patient

   H1: Nutritional status have a significant effect on quality of life among breast cancer patient.

4. **H0**: Psychological distress, spirituality and nutritional status do not mutually affect quality of life among breast cancer patients.

   H1: Psychological distress, spirituality and nutritional status mutually affect quality of life among breast cancer patients

   H0: Spirituality do not significantly moderate the relationship between psychological distress and quality of life.

   H1: Spirituality significantly moderate the relationship between psychological distress and quality of life.

Significance of the Study

Studies suggest that QoL assessment is important to detect and treat physical or psychological manifestations. A study suggests that studies that assess QoL provide crucial information about the impact of a disease and its treatment on physical, functional, social and emotional well-being to the patients and health care providers (Fallowfield, 2002). The quality of life measurements has become increasingly significant in different studies. Mainly, the measurements are becoming significant in various disciplines such as medicine, nursing, sociology and psychology (Salonen et al. 2011). There has long been an agreement among clinicians and social scientists to use

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quality of life assessment to measure the outcome of medical intervention (Bowling 1995).

It is evident that breast cancer patients experience physical symptoms and psychological distress which can negatively affect their quality of life (Perry, Kowalski & Chang 2007). In determining the effect that psychological distress, spirituality and nutritional status has on quality of life among breast cancer patients, results from the findings will inform patients of the influence of these variables on their quality of life and in turn help them to take appropriate steps. Findings would be shared among professional bodies like clinical health psychologist, nutritionist, nurses, physicians and counsellors to help educate and inform their interventions for breast cancer patients anytime the need arises.

Results from this study can be shared with Ghana Health Service (GHS), Ministry of Health, appropriate Governmental agencies, Non-Governmental Organizations and Advocacy groups to help in education and inform the direction of policy formulation regarding the quality of life among breast cancer patients. Conducting this research also adds to the already existing literatures in Ghana and Africa especially in areas of spirituality and nutritional status. The novelty of this research is to explore psychological distress, spirituality and effects of nutritional status on quality of life among breast cancer patients.

Delimitations

The study was conducted in Ashanti and Greater Accra region. The outcome of the study would be generalized to the whole of breast cancer

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patients within regions of study. Another delimitation that was foreseen is reactivity of study participants.

Limitation

The study encountered the following challenges which affected the outcome of the study:

1. Trauma the breast cancer patients was going through at the time of conducting the research could not allow the person to fully participate in the research.

2. The study being a cross-sectional study and not a longitudinal study could not help to measure or follow up for a number of years to determine the extent to which psychological distress, spirituality and nutritional status impacts on the quality of life of breast cancer patients.

3. The study was conducted on breast cancer patients in Peace and Love Hospital and Sweden Ghana Medical Center only. It therefore placed some restrictions on the generalization of the findings.

4. Illiteracy level of respondents led to the researcher spending more time on each client in reading out questions to respondents thus, taking a long time in trying to complete questionnaire during the data gathering.

Definition of Terms

The following terms have been defined

Psychological distress: an unpleasant emotional experience of a psychological, social, and/or spiritual.

Spirituality: a sense of connection to something bigger than oneself.

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Nutritional status: physiological condition of an individual that results from the balance between nutrient requirements.

Quality of life: extent to which an individual is satisfied with his or her life

Breast cancer: a type of cancer that develops in breast tissues.

Patient: a woman diagnosed with breast cancer

Organization of the Study

Chapter one provides a general picture of a detailed background of the study, the research problem, purpose of the study, objectives of the study, research hypotheses, significance of the study, delimitation of the study, limitation of the study as well as definition of terms. Chapter two reviews literature related to the study. Chapter three focuses on methodology, which involves research design, population, sample and sampling procedure, instrument for data collection, data collection procedure and data analysis. Chapter four presents and discusses the results and finally Chapter five presents a summary, draws conclusions and makes recommendations on the basis of the results.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter captures theoretical review, conceptual review and empirical review of related studies. These reviews bring to light and impact knowledge about the similarities and differences between this current study and other existing studies, relevant to this topic (Burns & Groove, 2007). The chapter ends with summary, critique and implications of the review for the current study. Reviews of the empirical literature on the various variables follows. The review covers:

1. **Theoretical Review**

   a. Cognitive Theories (Beck, 1976: Ellis 1962)

   b. Determinants of nutritional status framework

   c. Conceptual model for health-related quality of life (Ferrans, Zerwic, Wilbue & Larson, 2005).

2. **Conceptual review**

   a. Breast cancer

   b. Psychological Distress

   c. Spirituality

   d. Nutrition

   e. Quality of Life

   f. Conceptual framework

3. Empirical review Theoretical Review

There are so many theories that explain how a person become psychologically distressed or develop depression and anxiety. The cognitive theory by Beck and Ellis will be employed to explain depression and anxiety. UNICEF conceptual framework of the determinants of nutritional status (Benson 2004; Smith & Haddad 2000; UNICEF 1990) will be employ in explaining nutritional status.

Cognitive theories (Beck, 1976: Ellis 1962)

The cognitive theory by Beck proposes that different psychopathological conditions are caused by specific cognitive schemata and distortions. For example, depression is associated with negative schemata of failure, loss and emptiness. It is also characterized by negative bias in viewing reality and anxiety is characterized by threat and danger. Beck referred to this bias as the negative triad. It is explained as the negative view of self, experience and the future. Thus, depressed patient's belief that they are failures and as the future looks bleak. In explaining further, Beck noted that patients would often verbalize their negativity with specific cognitive distortions which he labelled as "automatic thoughts". Automatic thoughts because they were conscious reports that came spontaneously and seemed reasonable and true to the patient. The original cognitive model of depression proposed that patients may not have been aware of the automatic thoughts, yet they could become acutely aware of the negative effect that such cognitions could have on them. These automatic thoughts were subject to specific types of logical errors or cognitive distortions which were labelled; (1) selective

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abstraction (2) Personalization (3) overgeneralization (4) minimization and magnification (5) arbitrary inferences (6) absolutistic or dichotomous thinking (Beck, 1967). These cognitive distortions were wrong thoughts or ideas that make negative thinking and negative emotions persist. Most studies establish a strong relationship between negative thinking and depression (Abela & D'Alessandro, 2002). Another major cognitive distortion is deterministic thinking. This type of thinking ignores any possibility in making a conclusion about events and as such it is able to create many cognitive distortions. Studies found a positive correlation between anxiety and deterministic thinking (Younesi, Manzary &Abdoli, 2012). It implies more determinism in thought, the more anxiety in life. Patients who tend to see things and events in certain conditions without any degree of probability/ possibility, always experience more anxiety because the hinder the balance between hope and fear. Automatic thoughts are the basis of the depressive style of thinking of patients. A study on cancerous pains in family, Ecclestone, Morley, Williams, Yoke and Mastroyannopouloua (2002), concluded that black and white cognitive distortions, overgeneralization, labelling and exaggeration can be found among parents and adolescents in families with a cancer patient. Depression and anxiety can be treated by removing these distortions and negative thoughts.

Also, Ellis (1962) attributed depression to be caused by irrational thinking or belief held by depressed individuals. According to Ellis (1962) depressed people focus mostly on negative information and discount positive information. Whilst Beck relates depression to be caused by distorted thinking, Ellis attributes it to irrational thinking or belief. The most basic bases of

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rational emotive behavioral therapy (REBT), which it shares with other cognitive-behavioural theories, is that almost all human emotions and behaviors are the result of what people think assume or belief about themselves, other people and the world in general. It is what people belief about the situation they face, not the situations themselves that determines how they feel and behave. Ellis developed the 'ABC' model to illustrate the role of cognition. In this framework or model 'A' represents an activating event, which is some type of stimulus such criticism from a superior?, 'B' represents the belief system, which is the persons interpretation of the activating experience, 'C' represents the consequencies (emotions and behaviors that follows from those beliefs). According to Ellis 'A' alone does not cause 'C', 'A' triggers off 'B' then causes C. Ellis propose that unless we stop thinking about events, we will automatically go from A (Activating event) to C (emotional consequencies). Here is a scenario of an emtotional episode experienced by women prone to depression who tends to misinterprete the diagnosis of breast cancer.

A1. Activating event (cause/ what happened) Diagnosed of breast cancer

A2. Deductions about what happened

This is my end, I am finish (gets worried)

B.   Beliefs about A

C.   Consequence

Emotions: Excessive worried (depressed) Behavior: Avoiding family and friends

Breast cancer is not curable and hence it will not go away (personal evaluation)

Determinants of Nutritional Status Framework

Nutritional status refers to the 'physiological condition of an individual that results from the balance between nutrient requirements and intake and the ability of the body to use these nutrients' (Benson, 2004; Smith & Haddad, 2000; UNACC/SCN, 2000; UNICEF, 1990). The UNICEF framework for the determinants of nutritional status of individuals in a given community mainly focuses on the interrelationships between the basic, underlying and immediate determinants (factors) and their resultant impact on the outcome factor that determines the nutritional status of individuals. In this framework, the basic determinants of nutritional status of individuals are primarily dependent on the availability of potential resources (human, agroecological, technical) that are mediated and constrained by the prevailing economic, political and institutional factors. At the national level, the achievement of good nutritional status requires strong political commitment, which ensures the provision of the required income needed to provide good nutrition, health and improved standard of living for the people at the individual and household levels so as to help foster greater spatial and economic development. The occurrence and the interaction between the basic determinants of nutritional status of women with breast cancer is largely constrained by poverty and lack of income that form the underlying determining factor at the household level, which largely limit the use of potential resources (basic determinants) to achieve better nutritional status and a better quality of life. Similarly, poverty at the household level

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serves as a constraint that limits household food security, quality of care, and

the provision of healthy environment and quality health care services (Benson,

2004).

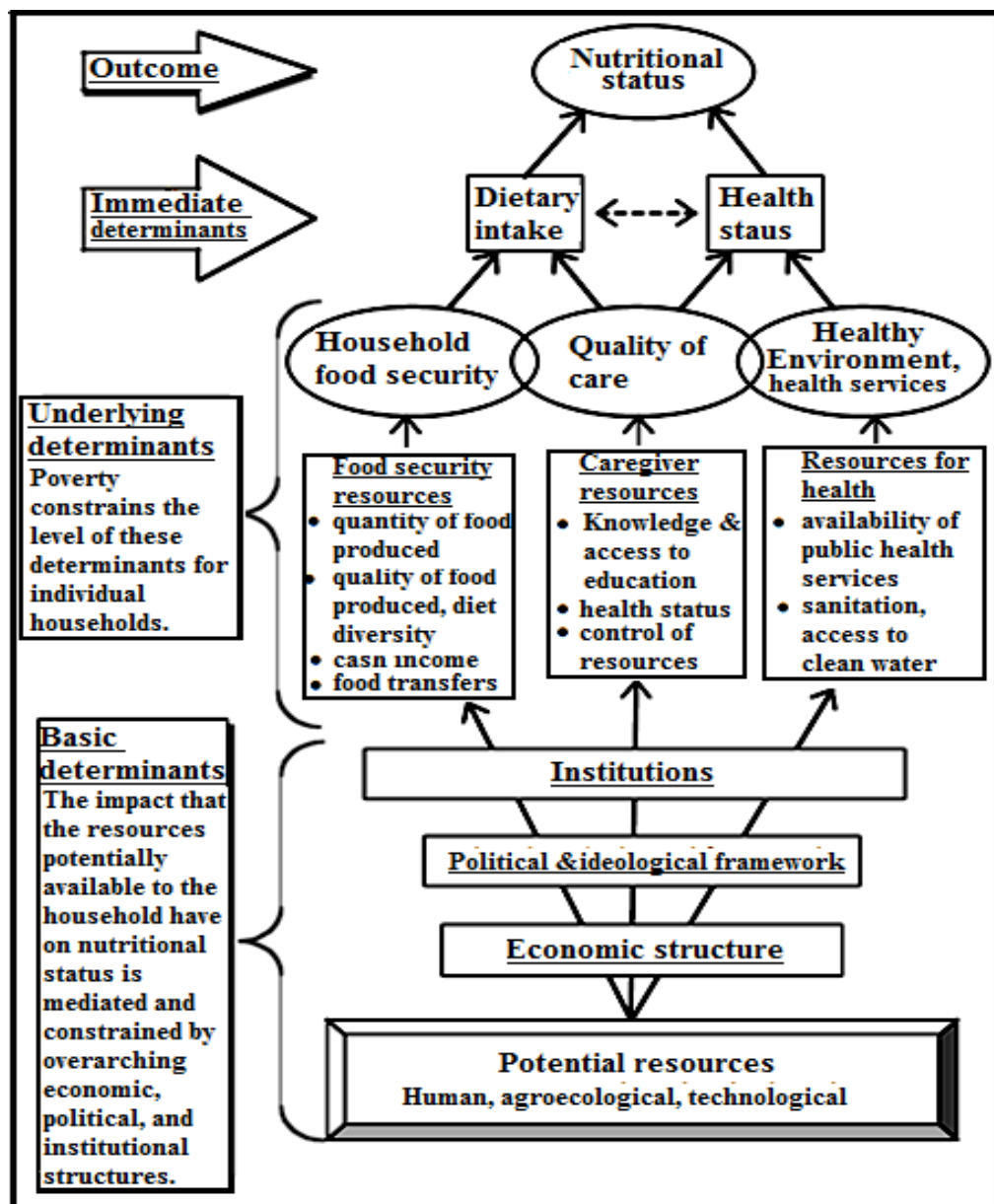**Nutritional Status Framework**

Figure 1: UNICEF conceptual framework of the determinants of nutritional
        status

Source: Benson (2004); Smith and Haddad (2000); UNICEF (1990).

The impact of poverty on household food security is made evident through limited availability of income to help the household access and utilize the required quantity and quality of food, diet diversity and the transfer of food where necessary (Benson, 2004; Smith & Haddad, 2000; UNICEF, 1990). Like-wise, resources available to breast cancer patients including the level of control that patients have over resources, the educational level and knowledge of patients as well as their health statuses usually limit the quality of care they provide at the household level. Relatedly, resources for health, mainly the availability of public health services, sanitation and access to clean water set limits for the availability of healthy environment and the provision of health care services.

The three underlying nutritional status determining factors (household food security, quality of care, and healthy environment and health care services) interact to produce two key factors; dietary intake and health status factors that constitute the immediate determinants of nutritional status of individuals (Benson, 2004; Smith & Haddad, 2000; UNICEF, 1990). As indicated in the framework, a forward and backward relationship exists between dietary intake and health status of individuals. Generally, limited intake of nutritious diet predisposes individuals to a higher risk of illness, particularly breast cancer patients. This occurs where the required balanced diets are not taken in their required proportions and frequency, which limit the ability of affected patients to obtain the necessary nutrients required for healthy growth and development, which mainly help the body fight against diseases (Benson, 2004; Smith & Haddad, 2000; UNICEF, 1990). In the absence of and as a result of limited dietary intake, the health of individuals

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largely suffers as these affected individuals tend to achieve relatively low health statuses. The outcome of the interaction between the basic, underlying, and immediate determinants is the achievement of nutritional status that reflects the attributes of these three determinants. Generally, positive and better attributes of the basic, underlying, and immediate determinants of nutritional status results in a better nutritional status and vice versa.

Conceptual Model for Health-Related Quality of Life

According to Ferrans, Zerwic, Wilbue and Larson (2005), quality-of-life research has increased in methodologic rigor and sophistication. Nevertheless, progress has been hindered by the fact that the term "quality of life" has been used to mean a variety of different things, such as health status, physical functioning, symptoms, psychosocial adjustment, well-being, life satisfaction, and happiness. As a consequence, comparing findings across studies to draw conclusions or make application in practice is difficult. To help solve the problem, the term "health-related quality of life" (HRQoL) was introduced. This term was intended to narrow the focus to the effects of health, illness, and treatment on quality of life. This term excludes aspects of quality of life that are not related to health, such as cultural, political, or societal attributes.

This model was developed in order to help explain the relationships of clinical variables that relate to quality of life. The authors of the model present it as taxonomy of patient outcomes that link the characteristics of the individual to the characteristics of the environment. The model proposes causal linkages between five different types of patient outcome measurements.

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The first variable, the biological and physiological variable is considered the most basic. It includes such measurements as laboratory tests, blood pressure and physical examination. The second variable is symptom status. It consists of physical, emotional and psychological symptoms that the patient may subjectively experience. The third variable in the model is functional status which refers to the patient's ability to perform certain tasks or functions. Functional status is usually subjectively reported by the patient but can also be assessed by others. The fourth variable, general health perceptions is the global perception of the individual of his general health state and takes into account the weights and values that the patient attaches to symptoms or functional abilities. Finally, QOL is the patient's overall satisfaction with life. The arrows represent dominant causal relationships. Reciprocal relationships between the variables are recognized to exist but are not represented. Ferrans, Zerwic, Wilbur, and Larson published a revision of Wilson and Cleary's HRQOL model. The five major domains of the original model were retained. According to Ferrans et al., (2005) the model depicts dominant causal associations; however, reciprocal relationships are implied. An explicit assumption is that understanding relationships among these components will lead to the design of optimally effective clinical interventions.

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Quality of Life Model
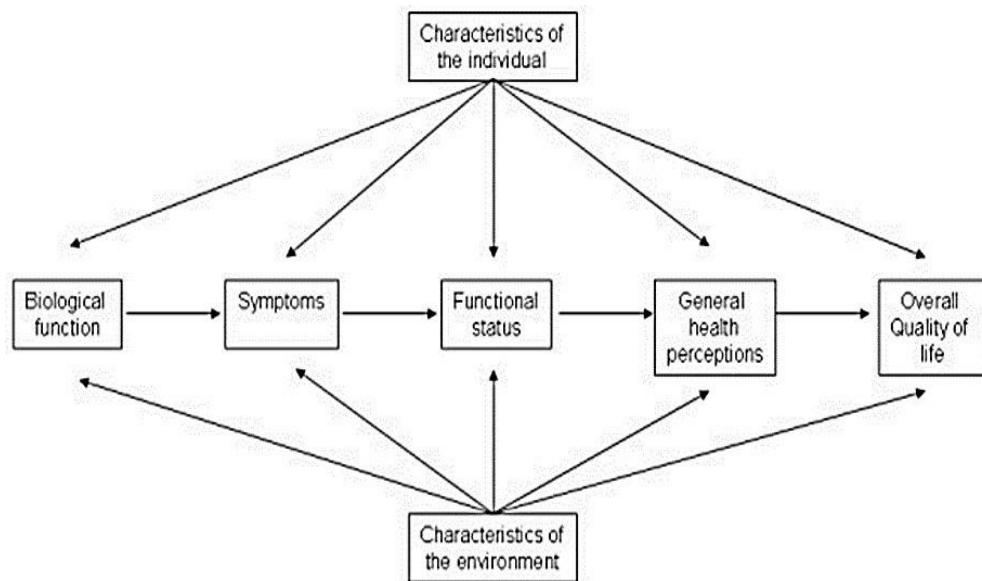
Figure 2: Revised Wilson and Cleary Model for Health-Related Quality of
Life

Source: Ferrans, Zerwic, Wilbur and Larson (2005).

The above major domains of the conceptual model of health- related quality of
life is explained below:

1. **Biological Function**

According to the model, biological function (biological and
physiological variables) includes the dynamic processes that support life.
Biological function encompasses of molecular, cellular, and whole organ level
processes (Ferrans, Zerwic, Wilbur & Larson, 2005). It can be described as a
continuum of ideal function on one end and serious life-threatening
pathological function at the other end. Alterations in biological function
directly or indirectly affect all components of health, including symptoms,
functional status, perceptions of health, and overall quality of life. Optimizing
biological function is an integral part of holistic care. The revised model
indicates the effects of individual and environmental

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characteristics on biological functioning, which was not in the original model. The interaction of individual and environmental characteristics also influences biological function (Ferrans, Zerwic, Wilbur & Larson, 2005).

Effect of individual characteristics on biological function

Individual characteristics influence a person's biological vulnerability and resilience. Individual genetic characteristics influence biological functioning in congenital and hereditary diseases such as cystic fibrosis and sickle cell anemia (Ferrans, Zerwic, Wilbur & Larson, 2005). Genetic composition predisposes people to the development of many diseases, including inflammatory, degenerative, metabolic, and neoplastic diseases such as breast cancer. Psychological characteristics, knowledge, and attitudes influence choices people make about lifestyle, ultimately affecting biological function. For instance, A breast cancer patient having quality nutrition will have positive influence on biological function.

Effects of environmental characteristics on biological function

Physical and social factors in the environment affect biologic function. For instance, dietary factors such as saturated fat, linolenic acid, red meat, dairy food (and/or calcium), Lycopene (tomato foods), legumes (including soy) can lead to the worsening of cancerous cells in the breast.

Effects of interactions between individual and environment

The emerging field of genomic science illustrates the effects of individual environment interactions on biologic function. Genomics is the study of the functions and interaction of all genes in the genome (Guttmacher & Collins, 2002), and the interaction of genes and environmental factors as it applies to the expression of common disorders, such as Alzheimer's disease,

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colorectal cancer, breast cancer, AIDS among others. Because genetic characteristics cannot be altered, clinical interventions are directed toward modifying behaviors to reduce the risk of disease.

2. **Symptoms**

Wilson and Cleary (1995) indicated that moving attention from the biological and physiological variables to symptom variables requires a shift focus from cellular and organism level to a person level. They define symptoms as "a patient's perception of an abnormal physical, emotional, or cognitive state," which can be categorized as physical, psychological, or psychophysical. Instruments to measure symptoms can be classified as global measures, condition-specific measures, and symptom specific measures. Global measures are broad and include many varied symptoms. The Symptom Impact Inventory is an example of a global measure (Miller, Wilbur, Montgomery, Chandler, & Bezruczko, 2001). Condition-specific measures are focused on the symptoms associated with a particular condition and include the Chronic Respiratory Disease Questionnaire (Guyatt, Berman, & Townsend, 1987) and the Unstable Angina Symptom Questionnaire (DeVon & Zerwic, 2003). Symptom-specific measures pertain to a particular symptom, such as fatigue as measured with the Piper Fatigue Scale (Piper et al., 1989) or anxiety and depression as measured with the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983).

The most common dimensions of symptoms that are measured include frequency, intensity, and distress. Other dimensions that have been incorporated in symptom measures include quality, cause, treatment, consequences, location, and timing. Instruments vary on which dimensions are

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included and several dimensions might be included in the same instrument. A variety of theories are focused primarily on symptoms. The Common Sense Model of Illness (Leventhal, Meyer, & Nerenz, 1980) is one theory focused on a person's somatic sensation and the process used to attribute the sensation to illness, external life stressors, or benign sensations. The person's cognitive representation of the symptom includes thoughts about its possible identity, cause, consequence, progression, and cure. The experience, evaluation, and interpretation of symptoms are part of the characteristics of the individual and the environment. For example, Cameron & Leventhal (1995) found in a longitudinal study of community-dwelling middle- aged adults that people who experienced symptoms combined with other stressful events reported more negative mood states, rated the symptoms as more serious, reported more distress about the symptoms, experienced more disruption of daily activities than did people who experienced symptoms without the presence of stressful events. Thus the experience, evaluation, and interpretation of symptoms are influenced by complex interactions with both individual factors (such as knowledge and personality characteristics) and environmental factors (such as interactions with healthcare providers).

3. **Functional Status**

Wilson and Cleary (1995) defined functional status broadly, as the ability to perform tasks in multiple domains such as physical function, social function, role function, and psychological function. Functional status can be viewed from various perspectives. Traditional models pertain to functional status from the perspective of disability or disablement, focused on the loss of function and its effects on daily life (Stineman et al., 2005). Alternatively, in

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the revised model functional status is viewed as focusing on optimization of the function that remains.

Leidy's (1994) framework for functional status is an example of this perspective and it is a useful guide for health care. According to Leidy's framework, functional status includes four dimensions: functional capacity, functional performance, functional capacity utilization, and functional reserve (Leidy, 1994). Functional capacity is defined as one's maximal capacity to perform a specific task in the physical, social, psychological or cognitive domains. For example, functional capacity might be one's maximal ability in strength and endurance or in aptitude or memory. The second dimension, functional performance, refers to activities that one performs on a day-to-day basis. Functional performance is an integrated response and is determined by multiple factors, including personal choice, values, and motivation. Functional performance could be assessed by the level of physical activity and energy expended or as self-reported activities across multiple categories (Leidy, 1994). Alternatively, functional performance could be measured by daily memory performance. Functional performance also could be influenced by functional capacity, as in cases when reduced capacity limits performance of day-to-day activities. The third dimension, capacity utilization, refers to the percentage of functional capacity that is used day to day. The fourth dimension, functional reserve, refers to the difference between capacity utilization and functional capacity. People generally do not function at 100% of their capacity on a day- to-day basis, and people with high capacity might actually use only a small percentage of their capacity daily. When functional capacity declines because of health problems, a person might be required to

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use a higher percentage of capacity or to cut back on daily activities. Capacity utilization is closely related to functional reserve and indicates the unused potential. People with low capacity and very low functional performance could have a fairly large functional reserve. One commonly used measure of functional performance is the Functional Performance Inventory (FPI). Leidy (1999) developed the FPI with people who had COPD; it has the potential to be appropriate for other groups of people with chronic illness, such as chronic congestive heart failure. In addition, two scales from the SF-36 Health Survey (Ware & Sherbourne, 1992) have been used widely to measure functioning: the physical functioning and social functioning scales. The SF-36 is a generic measure that can be used with both healthy people and people with chronic illness. Many investigators also have used the Sickness Impact Profile to measure functional performance, but it is an indirect measure of functional performance and a direct measure of functional impairment. No instruments are established for the measurement of capacity utilization and functional reserve. Although the concepts of capacity utilization and functional reserve are not readily measured objectively, they are clinically meaningful and could be measured subjectively. In the revised HRQoL model, multiple factors can affect functional status. For example, functional capacity can be directly affected by biological function and by symptoms, and functional performance can be affected by characteristics of the individual and the environment. Breast cancer patient's sexual functional capacity can be limited by desire for sex and by symptoms of pain and unsatisfaction during sexual intercourse. However, symptoms alone do not fully account for the decrease in functional capacity. If symptoms (pain during sex) are severe enough, they might

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interfere with day-to-day levels of activity, which might cause a patient to become sedentary and physically deconditioned (decline in functional status). But the extent of the decline in day-to-day activities also could be influenced by individual characteristics, such as self- efficacy and motivation for physical activity, or by social environmental factors, such as social support for physical activity and community safety.

4. **General Health Perceptions**

Wilson and Cleary (1995) pointed out two defining characteristics of general health perceptions: (a) they integrate all the components that come earlier in the model, and (b) they are subjective in nature. This component is a synthesis of all the various aspects of health in an overall evaluation. Supporting this idea is the finding that the strongest and most consistent predictors of general health perceptions are physiological processes, symptoms, and functional ability, based on a review of 39 studies of the general population (Bjorner et al., 1996). Although general health perceptions are influenced by the earlier components of the model, they nevertheless are different from the others. Thus, using measures of other components, such as functioning or symptoms, to assess general health perceptions is not appropriate. Instead, this component is most commonly measured with a single global question to ask people to rate their health on a Likert scale ranging from poor to excellent. Ratings of general health perceptions are used both as single-item measures and items in a battery, as in the SF-36 Health Survey (Ware & Sherbourne, 1992). When rating their health, people typically consider various aspects of their health, as well as the implicit importance of each. Further, men and women differed systematically when evaluating their

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health in general (Benyamini, Leventhal, & Leventhal, 2000). Men's health ratings pertained to serious, life-threatening diseases (such as cardiac disease), but women's health ratings included both life-threatening and nonlife-threatening disease (such as arthritis). In addition, gender differences were found in the effect of negative emotion on general health ratings. For men emotion was linked primarily to serious disease, and for women it was linked to a wider variety of life factors.

Conceptual Review

This section of the review examines the various concepts in the study. It provides a description of the health condition under study. The conceptual review also explains how the main variable in the study are related to each other.

Breast Cancer

According to National Breast Cancer Foundation, INC, Breast cancer is a disease in which malignant (cancer) cells form in the tissues of the breast. These cells can spread by breaking away from the original tumor and entering blood vessels or lymph vessels, which branch into tissues throughout the body. Breast cancer most often begins with cells in the milk-producing ducts (invasive ductal carcinoma) and glandular tissue called lobules (invasive lobular carcinoma) or in other cells or tissue within the breast. Annually, 1.3 million women are diagnosed with breast cancer worldwide which makes it the second most common form of cancer next to lung cancer worldwide (Michelle 2012). Different studies have shown that the number of patients with breast cancer is rising sharply in recent years. Breast cancer is the

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primary cause of death among women globally and it represents the most common female malignancy in both developing and developed countries (Benson and Jatoi 2012).

Screening and diagnosis of breast cancer

According to WHO (2015), Breast screening is performed in women without any signs or symptoms of breast cancer so that disease can be detected as early as possible. Various methods have been evaluated as breast cancer screening tools, including mammography, clinical breast exam and breast self-exam.

1. Mammography:

A mammogram is an x-ray picture of the breast. Mammography may find tumors that are too small to feel. It may also find ductal carcinoma in situ (DCIS). In DCIS, abnormal cells line the breast duct, and in some women may become invasive cancer. Mammography is less likely to find breast tumors in women with dense breast tissue. Because both tumors and dense breast tissue appear white on a mammogram, it can be harder to find a tumor when there is dense breast tissue. Younger women are more likely to have dense breast tissue. Many factors affect whether mammography is able to detect breast cancer. They include; age and weight of the patient, the size and type of tumor, where the tumor has formed in the breast, how sensitive the breast tissue is to hormones, how dense the breast tissue is, and the timing of the mammography within the woman's menstrual cycle, the quality of the mammogram picture, the skill of the radiologist in reading the mammogram, and women aged 50 to 69 years who have screening mammograms have a

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lower chance of dying from breast cancer than women who do not have screening mammograms (WHO, 2015).

Magnetic resonance imaging (MRI) may be used to screen women who have a high risk of breast cancer. MRI is a procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI). MRI does not use any x-rays and the woman is not exposed to radiation.

MRI may be used as a screening test for women who have a high risk of breast cancer. Factors that put women at high risk include the following; Certain gene changes, such as changes in the *BRCA1* or *BRCA2* genes, a family history (first degree relative, such as a mother, daughter or sister) with breast cancer, certain genetic syndromes, such as Li-Fraumeni or Cowden syndrome. An MRI is more likely than mammography to find a breast mass that is not cancer. Fewer women are dying of breast cancer in the United States, but it is not known whether the lower risk of dying is because the cancer was found early by screening or whether the treatments were better (World Health Organization, 2015).

2. Clinical Breast Exam (CBE)

It is an examination of both breasts performed by a trained health professional. CBE seems to be a promising approach for low resource settings and could be implemented depending on the evidence from ongoing studies.

Treatment of Breast Cancer

According to American Cancer Society (2015), the stage of breast cancer is an important factor in making decisions about treatment options. Most women with breast cancer in stages I, II, or III are treated with surgery, often followed by radiation therapy.

Treating stage, I breast cancer

These breast cancers are still relatively small and either have not spread to the lymph nodes or have spread to only a tiny area in the sentinel lymph node (the first lymph node to which cancer is likely to spread). Treatments may include;

1. Surgery

Surgery is the main treatment for stage I breast cancer. These cancers can be treated with either breast-conserving surgery (BCS; sometimes called lumpectomy or partial mastectomy) or mastectomy. The nearby lymph nodes will also need to be checked, either with a sentinel lymph node biopsy (SLNB) or an axillary lymph node dissection (ALND).

2. Radiation therapy

If BCS is done, radiation therapy is usually given after surgery to lower the chance of the cancer coming back in the breast and to also help people live longer. In a separate group, women who are at least 70 years old may consider BCS *without* radiation therapy. Radiation therapy in this set of women still lowers the chance of the cancer coming back, but it has not been shown to help them live longer.

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3. Adjuvant systemic therapy (chemo and other drugs)

For women who have a hormone receptor-positive (ER-positive or PR-positive) breast cancer, most doctors will recommend hormone therapy (tamoxifen or an aromatase inhibitor, or one followed by the other) as an adjuvant (additional) treatment, no matter how small the tumor is (American Cancer Society, 2015).

Treating stage II breast cancer

These breast cancers are larger than stage I cancers and/or have spread to a few nearby lymph nodes. Local therapy (surgery and radiation therapy). Stage II cancers are treated with either breast-conserving surgery (BCS; sometimes called lumpectomy or partial mastectomy) or mastectomy. The nearby lymph nodes will also need to be checked, either with a sentinel lymph node biopsy (SLNB) or an axillary lymph node dissection (ALND). If chemotherapy is also needed after surgery, the radiation is delayed until the chemo is done.

1. Neoadjuvant and adjuvant systemic therapy (chemo and other drugs) Systemic therapy is recommended for women with stage II breast cancer. Some systemic therapies are given before surgery (neoadjuvant therapy), and others are given after surgery (adjuvant therapy). Neoadjuvant treatments are often a good option for women with large tumors, because they can shrink the tumor before surgery, possibly enough to make BCS an option. But this doesn't improve survival more than getting these treatments after surgery. In some cases, systemic therapy will be started before surgery and then continued after surgery. The drugs used will depend on the woman's age, as well as tumor test results, including hormone-receptor status, HER2 status, and the score on a gene panel such as Oncotype DX). Treatment may include:

1. Chemotherapy: Chemotherapy can be given before or after surgery.

2. HER2 targeted drugs: If the cancer is HER2-positive, HER2 targeted drugs are started along with chemo. Both trastuzumab (Herceptin) and pertuzumab (Perjeta) may be used as a part of neoadjuvant treatment. Then trastuzumab is continued after surgery for a total of 6 months to a year of treatment.

3. Hormone therapy: If the cancer is hormone receptor-positive, hormone therapy (tamoxifen, an aromatase inhibitor, or one followed by the other) is typically used. It can be started before surgery, but because it continues for at least 5 years, it needs to be given after surgery as well.

Treating stage III breast cancer

In stage III breast cancer, the tumor is large (more than 5 cm or about 2 inches across) or growing into nearby tissues (the skin over the breast or the muscle underneath), or the cancer has spread to many nearby lymph nodes. Stage III cancers also include some inflammatory breast cancers that have not spread beyond nearby lymph nodes. There are two main approaches to treating stage III breast cancer:

1. Starting with neoadjuvant therapy

Most often, these cancers are treated with neoadjuvant chemotherapy (before surgery). For HER2-positive tumors, the targeted drug trastuzumab (Herceptin) is given as well, sometimes along with pertuzumab (Perjeta). This may shrink the tumor enough to allow a woman to have breast-conserving surgery (BCS). If the tumor doesn't shrink enough, a mastectomy is done. Nearby lymph nodes will also need to be checked. A sentinel lymph node biopsy (SLNB) is often not an option for stage III cancers, so an axillary lymph node dissection (ALND) is usually done. Often, radiation therapy is

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needed after surgery.

2. Starting with surgery

Another option for stage III cancers is treatment with surgery first because these tumors are fairly large and/or have grown into nearby tissues, this usually means getting a mastectomy. For women with fairly large breasts, BCS may be an option if the cancer hasn't grown into nearby tissues. SLNB may be an option for some patients, but most will need an ALND. Surgery is usually followed by adjuvant chemotherapy, and/or hormone therapy, and/or trastuzumab. Radiation is usually recommended after surgery (American Cancer Society, 2015).

Breast Cancer Risk Factors

Being a woman and being older are the two main risk factors for breast cancer. The risk of developing breast cancer increases with age and as life expectancy increases, it is expected that more people will be diagnosed with cancer (World Health Organization, 2012). However, the incidence of breast cancer is increasing in many LMICs due to other factors such as exogenous hormones, changes to menstrual and reproductive life, obesity, high alcohol consumption, adoption of Western lifestyles and other extraneous factors (Sasco, 2013; Sitas, Parkin, Chirenje, Stein, Abratt & Wabinga, 2008).

Both exogenous and endogenous hormones, especially estrogen, are associated with increased risk of breast cancer. In a meta-analysis performed by Kahlenborn, Modugno, Potter and Severs (2006), the greater risk of developing breast cancer in premenopausal women was linked to intake of oral contraceptives. A South African case control study also found "that

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combined oral contraceptives can result in a small increase in risk, confined to women below the age of 25 years, but that injectable progesterone contraceptives did not increase risk" (Shapiro, Rosenberg, Hoffman, Truter, Cooper, Rao, ... & Bailie, 2000). Yet, according to an American population-based case-control study involving 4575 breast cancer patients and 4682 controls aged between 35 and 64 years old, the consumption of oral contraceptives did not increase risk of developing the breast disease significantly (Marchbanks, McDonald, Wilson, Folger, Mandel, Daling, & Norman, 2002).

Worldwide, women are attaining higher levels of education, increasingly entering the workforce and exercising more control over their reproductive lives. Consequently, they are having fewer children and are older at first full-term pregnancy (Yip, Buccimazza & Hartman, 2015). An additional reproductive change is the shortening of breastfeeding periods. Two-thirds of the difference in breast-cancer incidence between developed and developing countries are thought to be accounted for by breastfeeding, a hypothesized protective factor against breast cancer. However, this finding has been difficult to confirm in Africa (Sitas et al, 2008).

In the African context, diet has not been highlighted as a significant contributor to the development of breast cancer (Sitas et al, 2008). However, there is evidence that low physical exercise levels can play a role and "obesity in postmenopausal women has been identified as a risk factor when assessed by waist-hip ratio in sub-Saharan Africa" (Sitas et al, 2008).

Other extraneous factors that may increase the likelihood of developing breast cancer include stress and "exposure to radiation and

chemicals" (Sasco, 2013; Igene, 2008). Many of the aforementioned risk factors are associated with economic and urban development. As African women adopt "western lifestyles", the incidence of breast cancer is expected to continue to increase which adds to the importance of studying the disease (Sitas et al, 2008).

Conceptual Framework

The conceptual framework shows how psychological distress, spirituality and nutritional status predict quality of life in patients with breast cancer. The framework also shows the moderating effect of spirituality in the relationship between psychological distress and quality of life.
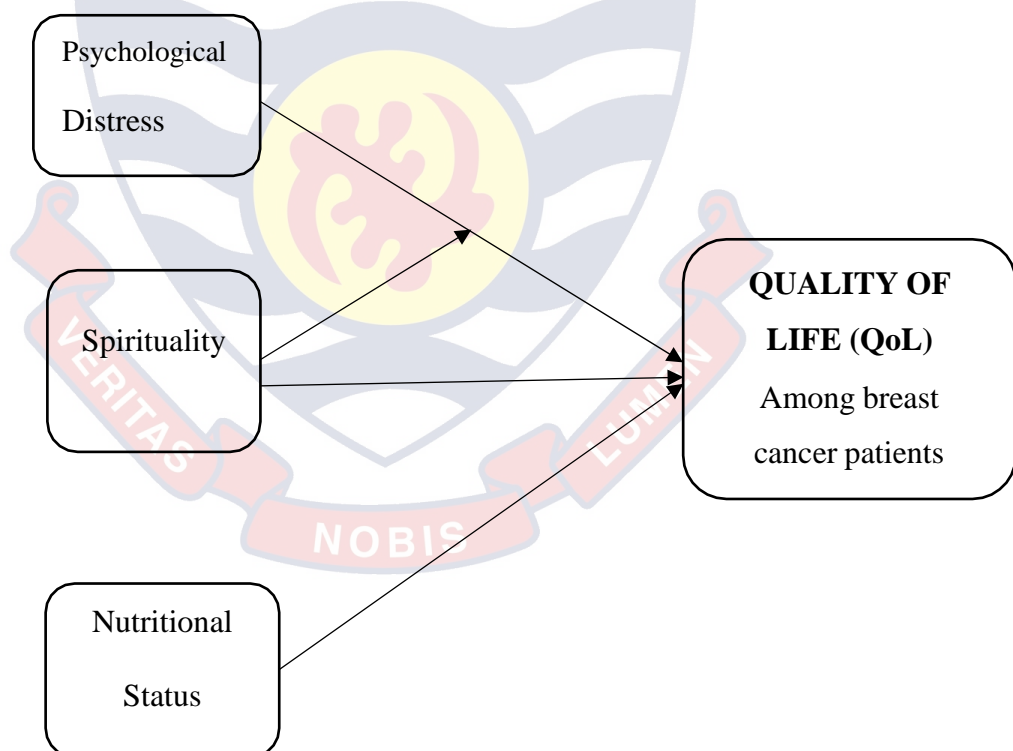

Figure 3: Psychological distress, spirituality and nutritional status as predictors of quality of life, with spirituality moderating the relationship between psychological distress and quality of life

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Empirical Review

A number of studies will be reviewed in this section and to a large degree explore the relationship that exist among the variables psychological distress, spirituality, nutritional status and quality of life.

Psychological Distress on Quality among Breast Cancer Patients

Both physical and mental health interacts in a bidirectional manner where the aggravation of one type of condition can deeply impact the other. Psychological disorders are strong predictors of the development of communicable and non-communicable diseases (Prince et al., 2007; Sweetland et al., 2014). Conversely, individuals with physical health conditions - especially chronic illnesses such as HIV, diabetes, heart disease and cancer - are at an increased risk of developing a mental disorder (Patel & Kleinman, 2003; Menil et al., 2012). Left untreated, mental disorder can negatively impact physical health mainly through negative health-related behaviors (Sweetland et al., 2014).

The female breast is intrinsically linked to psychological concepts such as self-esteem, gender identity, femininity and motherhood (Akin-Odanye, Asuzu & Popoola, 2011). Hence, a disease such as breast cancer which affects this organ can be a source of significant stress and may be harmful to a woman's psychological wellbeing. A study in Malaysia revealed a 51% prevalence of psychological distress and 32% prevalence of depression and anxiety among 168 women with breast cancer undergoing out-patient chemotherapy (Zainal, Hui, Hang & Bustam, 2007).

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Furthermore, breast cancer has emotional implications characterized by deep feelings and fears. The combination of psychological and physical symptoms experienced by breast cancer patients is described as "dual experience trajectory" (Lackey, Gates, and Brown, 2001). Anxiety and depression are the most frequent mental disorders for breast cancer patients and "psychosocial issues associated with breast cancer include concerns about social stigma, body image, or changes in social roles" (Distelhorst, Cleary, Ganz, Bese, Camacho-Rodriguez, Anderson, 2015; Akin-Odanye et al., 2015). Psychological distress can worsen a patient's outcome. (Greif & Dodoo, 2015; Fann et al, 2008; Badger et al., 2001; Groenvold et al., 2007; Pasacreta, 1997). Berard, Boermeester and Vilijoen (1998) postulated that levels of psychological distress and predisposition to mental disorder among cancer patients vary according to intrinsic and extrinsic factors. Accordingly, factors related to the breast disease such as type, stage and recurrence as well as cancer complications and treatment side effects are labeled intrinsic factors (Akin-Odanye et al., 2011; Berard, Boermeester & Vilijoen, 1998). Conversely, history of mental disorder, facility of navigating through the healthcare system, personal support and "psychosocial stressors" are the extrinsic factors (Berard, Boermeester & Vilijoen, 1998). Therefore, these vulnerability factors in conjunction with breast cancer can be conducive to the progression of psychological distress and mental illness (Berard, Boermeester & Vilijoen, 1998).

Clegg-Lamptey, Dakubo and Attobra (2009) evaluated the psychosocial and emotional impact of being diagnosed with breast cancer in Ghanaian women. Fear, shock, devastation, weeping and depression were the

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most common reactions to hearing the diagnosis. The primary concerns of the patients were fear of death and "mastectomy/deformity, cost of treatment, uncertain future, job security and marriage security" (Clegg-Lamptey, Dakubo & Attobra, 2009)

A study by Akin-Odanye, Chioma and Abiodun (2011) indicated varying degrees of depressive symptoms from minimal to severe depression in Nigerian female breast cancer patients receiving chemotherapy. The results demonstrated that women with breast cancer knowledge and higher education had lower levels of depression. Simultaneously, those with advanced cancer stage had higher risk for developing depression. Average monthly income was proposed to be a significant predictor for depression as those with higher income will be at a reduced likelihood of developing a mental disorder (Akin-Odanye, Chioma and Abiodun, 2011).

In contrast to the two previous studies where the women were in the early stages of the breast cancer treatment, Boateng (2017) conducted a study which was aim to assess the psychological distress and quality of life of women at various stages of breast cancer treatment journey. It was found out that breast cancer patients had higher psychological distress than the healthy women and also scored lower on the quality of life domains of physical health, psychological well-being and environment. The lived experiences of the breast cancer patients followed a similar journey from suspicion of ill-health to difficulty navigating the health system, feeling the effects of breast cancer and lastly, regaining confidence. Breast cancer had affected the women's daily activities, health, female identity, roles and responsibilities. However, financial, emotional and social support, together with individual coping

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mechanisms such as religion and physical exercise, mitigated the impact of the breast disease. The researcher explored only psychological distress as the only variable that may affect quality of life of breast cancer patient, however in the conclusion of the work, recommendations were made to explore other variables. Also, the researcher used sequential explanatory mixed methods study composed of two phases: a quantitative followed by a qualitative study. Also, the researchers sample size was small and the data was taken from only one hospital which makes it difficult to generalize the findings to all cancer patients hence the need for continuous study in psychological distress among breast cancer patients.

In all, both physical and mental health issues work in a symbiotic manner and can compromise an individual's quality of life and can interfere with one's daily activities and ability to care for oneself (Berard, Boermeester & Viljoen, 1998; Greif & Dodoo, 2015). Therefore, it is hoped that this preliminary study will lead to more focused research and possible changes to care and management of women with breast cancer in Ghana.

Spirituality on Quality of Life among Breast Cancer Patients

Breast cancer is the most common cancer in women in Ghana and constitutes a major source of medical and psychological morbidity. The psychosocial sequelae, while not always severe, can last up to a year after diagnosis. This may be a time when spiritual and psychosocial resources become important. It is known that practical and emotional support during treatment for breast cancer benefits the patient's mood and quality of life, but it is unclear as to how spirituality and spiritual well-being may benefit the patient.

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Samoans rely on spirituality to cope with life stressors and give meaning to life events (Kaholokula, Saito, Mau, Latimer, & Seto, 2008). This may be particularly true for both survivors and supporters when faced with the diagnosis of breast cancer of a loved one. The National Alliance of Caregiving (2004) reported that four out of five cancer supporters used coping strategies that involved prayer to deal with its stressors (AARP, 2004). Past studies have shown that spirituality and religious resources are frequent sources of support for both survivors and caregivers (Ferrell, Grant, Funk, Otis-Green, & Garcia, 1998; Gotay & Wilson, 1998). Religious resources and spiritual coping are multidimensional where religiosity may help to increase social networking, as well as increase the perceived control over factors that could be seen as inevitable (Koenig, 2002; Koenig, McCullough, & Larson, 2001).

Furthermore, Levine and Targ (2002) conducted a study that explored the relationships between spirituality, spiritual well-being, physical well-being, functional well-being, mood, and adjustment style in a sample of 191 women recently diagnosed with breast cancer or who had metastatic cancer. The women were asked to complete questionnaires pertaining to the above topics at enrollment to a group intervention study. Measures of spirituality, spiritual well-being, physical well-being, functional well-being, mood, and adjustment style taken at the same point in time were then correlated with each other. Results showed there were more significant correlations of spirituality and spiritual well-being with functional well-being than physical well-being, but items pertaining to meaning and peace tended to correlate significantly with physical well-being. Spirituality also correlated significantly with several coping styles, but not avoidance as has been previously suggested. Regression

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analyses were also performed to find the best combination of variables to predict physical and functional well-being.

Again a combination of social well-being and several questions pertaining to peacefulness accounted for 18% of the variance in physical well-being. However, a combination of social well-being and the spiritual scales accounted for 46% of the variance in functional well- being. When the spiritual scales were examined alone, they accounted for 40% of the variance in functional well-being. The results of this study confirm the importance of spirituality and spiritual well-being in both physical and functional well-being. Asking patients about the role of spirituality in their lives may be a useful marker to predict patient's ability to cope with stress in their lives and of their quality of life (Levine and Targ, 2002)

Also, Lim and Yi (2009) examined the effects of religiosity, spirituality, and quality of life (QOL) between Korean American and Korean breast and gynecologic cancer survivors and investigate the effect of religiosity, spirituality, and social support on QOL. A cross-sectional design with a sample size of 161 women diagnosed with breast and gynecologic cancer (110 Koreans and 51 Korean Americans) were used in this study. Participants completed a mailed questionnaire to identify the QOL outcomes, religiosity, spirituality, and social support, four standardized measures were used. Findings indicated that religiosity and spirituality were related to some QOL outcomes in different patterns in Korean American and Korean breast and gynecologic cancer survivors. Social support partially mediated the effect of spirituality on QOL but only among the Korean American cancer survivors. The findings provided evidence that the effect of religiosity and spirituality on

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QOL varied between Korean American and Korean survivors. The mediating effect of social support between spirituality and QOL for Korean Americans also was demonstrated.

Another study by Romero, Friedman, Kalidas, Elledge, Chang and Liscum (2006) evaluated whether a self-forgiving attitude and spirituality were related to psychological adjustment among 81 women who were being treated for breast cancer at a medical oncology clinic in a county general hospital. Both a self-forgiving attitude and spirituality were unique predictors of less mood disturbance and better quality of life (p's < 0.001). These results are consistent with previous research that has demonstrated a positive relationship between spirituality and well-being. The researcher's findings also suggested that self- forgiveness should be explored experimentally to determine whether it can protect against the psychological effects of breast cancer-related stress. Interventions targeting these characteristics could improve the quality of life and alleviate stress, especially in women with breast cancer in public sector settings.

Qualitative studies have found that majority of women see God as a guide and healer, find social and family support through religious practices, and use prayer to calm feelings of anxiety and unrest (Choumanova, Wanat, Barrett, & Koopman, 2006; Gall, Miquez de Renart, & Boonstra, 2000; Lackey, Gates, & Brown, 2001; Van Leeuwen, Tiesinga, Jochemasen, & Post, 2007). On the other hand, some studies found that spirituality may not provide respite for all cancer patients, particularly those who sought answers and relief through prayer but found they had more negative feelings and distress because they could not answer the "whys" of cancer onset (Abernathy, Chang, Seidlitz,

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Evinger, & Duberstein, 2005; McCullough, 1995). In contrast to above literatures, Molzahn (2007) explored effect of spirituality on quality of life among older adults. It was a cross sectional survey that employed a sample size of 426 people living in British Columbia and Canada. The researcher's findings revealed that spirituality was not a significant factor contributing to QOL in this sample, and that the strongest predictors of overall QOL were social support and health satisfaction.

In summary, most of the literatures reviewed revealed that there is positive significant relationship between spirituality and quality of life among women with breast cancer. This indicate that women with breast cancer who turns to find meaning, peace and faith in their ailment results to improving their social relationship, psychological health, physical health and environmental health. However, few studies reviewed indicated that some women with breast cancer turned to have more negative feelings and distress which ends up worsening their quality of life because they could not answer the "whys" of cancer onset which ends up affecting their spirituality.

Effect of Nutritional Status on Quality of Life

Patients with cancer frequently suffer a deteriorated quality of life and this is an important factor in the therapeutic decision. The correlation between quality of life and malnutrition seems obvious and bidirectional.

Mohammadi, Sulaiman, Koon, Amani, and Hosseini (2013) conducted a study on Association of Nutritional Status with Quality of Life in Breast Cancer Survivors. The aim of the study was to determine the influence of nutritional status on the quality of life of Iranian breast cancer survivors.

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Cross-sectional data were collected for 100 Iranian breast cancer survivors, aged 32 to 61 years, attending the oncology outpatient clinic at Golestan Hospital, Ahvaz, Iran. Nutritional status of subjects was assessed by anthropometric measurements, Patient-Generated Subjective Global Assessment (PG-SGA) and three non-consecutive 24-hour diet recalls. The European Organization of Research and Treatment of Cancer Quality of Life form (EORTC QLQ-C30) was used to assess quality of life. Ninety-four percent of the survivors were well-nourished, 6% were moderately malnourished or suspected of being malnourished while none were severely malnourished. Prevalence of overweight and obesity was 86%. Overall, participants had an inadequate intake of vitamin D, E, iron and magnesium according to dietary reference intake (DRI) recommendations. Survivors with better nutritional status had better functioning scales and experienced fewer clinical symptoms. It appears important to provide educational and nutritional screening programs to improve quality of life of cancer survivors.

Bering, Maurício, Da Silva, and Correia (2015) studied Nutritional and metabolic status of breast cancer women. In their study, different methods for nutritional assessment in breast cancer patients undergoing adjuvant therapy were used, including subjective global assessment (SGA), body mass index (BMI), triceps skinfold (TSF), mid-arm circumference (MAC), adductor pollicis muscle thickness (APMT), hand grip strength (HGS) and bioelectrical impedance analysis (BIA). The presence of metabolic syndrome (MetS) was also evaluated. The occurrence of complications during cancer treatment versus the nutritional status was assessed. Findings revealed that of the 78 women participated in the study with a mean age of 53.2 years, most patients

(80.8%) were considered well nourished. Excessive body fat mass by BIA and MetS were found in 80,8 % and 41.9% of the patients respectively. There were significant differences in BMI, TSF, WC (waist circumference) and % fat mass between patients with and without MetS. Most patients experienced complications during cancer treatment, but there was no association with nutritional or metabolic status. The researchers concluded that in breast cancer women undergoing adjuvant therapy, the prevalence of metabolic syndrome was high and, on the contrary, undernutrition was low. There were no short-term effects of metabolic.

Dwyer, Larive, Leung, Rocco, Burrowes, Chumlea, and Hemodialysis (HEMO) Study Group (2002) conducted a study to evaluate associations between frequently used indicators for assessing nutritional status and health-related quality of life in hemodialysis patients after controlling for demographics, comorbidity and dialysis dose. A Survey of 1,387 hemodialysis patients enrolled at baseline in the Hemodialysis (HEMO) Study. Nutritional status indicators included dietary energy intake, equilibrated normalized protein catabolic rate (enPCR), serum creatinine (SCr), serum albumin (SAlb), body mass index (BMI), calf circumference, and appetite. Health-related quality of life was measured by the Medical Outcomes Study Short Form-36 (MOS-SF-36) summary measures: the Physical Component Scale (PCS) and Mental Component Scale (MCS). The results showed a mean PCS score was 36.1 ± 10 SD, lower than normative data in healthy populations. PCS scores were lower among women, whites, and those with diabetes, severe comorbidities, and poor appetites. Appetite, dietary energy intake, SAlb, and SCr were strongly associated with PCS scores even after controlling for

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demographics and comorbidity. The sum of the parameter estimates for the effects of nutritional status on PCS was large, 7 points or more depending on the individual's nutritional status indicators. The mean MCS score was 49.7 ± 10.1 SD, similar to scores in healthy populations, but lower among those with severe comorbidities, poor appetites, advanced age, and more years on dialysis. Appetite, age, and years on dialysis were significantly associated with MCS after controlling for other demographics and comorbidity. Dialysis dose did not significantly alter these relationships. It was concluded that Easy-to-use indicators for assessing nutritional status (appetite, energy intake, SAlb, and SCr) together are strongly associated with health-related quality of life, even after controlling for comorbidities and dose of dialysis in hemodialysis patients, providing an additional reason for maximizing patients' nutritional status and health.

Nourissat, Vasson, Merrouche, Bouteloup, Goutte, Mille, and Chauvin, (2008) conducted a study to evaluate the relationship between nutritional status and quality of life in patients with cancer. The aim of the study was to describe the global quality of life and its various dimensions in patients with cancer, as a function of the nutritional status. A transversal observational study was performed in wards in hospitals in Clermont Ferrand and Saint Etienne on 907 patients. The EORTC questionnaire, QLQ-C30, was used to assess the quality of life. The mean global quality of life score was 48.8 for patients who had a weight loss of more than 10% since the beginning of their illness, compared with 62.8 for the other patients ($p < 0.001$). A significant association with weight was observed for the main dimensions of the quality of life: physical, functional, cognitive, social, fatigue, nausea, pain, loss of

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appetite, constipation and diarrhoea. This strong relation between quality of life and weight loss shows the importance of dietary management in patients with cancer.

A study was conducted by Isenring, Bauer and Capra (2003) with the Objective of evaluating the scored Patient-generated Subjective Global Assessment (PG-SGA) tool as an outcome measure in clinical nutrition practice and determining its association with quality of life (QoL). A prospective 4-week study assessing the nutritional status and QoL of ambulatory patients receiving radiation therapy to the head, neck, rectal or abdominal area at Australian radiation oncology facilities. Sixty cancer patients aged 24–85 years participated in the study. Scored PG-SGA questionnaire, subjective global assessment (SGA), QoL (EORTC QLQ-C30 version 3) were administered to the participants. Results according to SGA, 65.0% (39) of subjects were well-nourished, 28.3% (17) moderately or suspected of being malnourished and 6.7% (4) severely malnourished. However, PG-SGA score and global QoL were correlated (r ¼ 70.66, P<0.001) at baseline. There was a decrease in nutritional status according to PG-SGA score (P <0.001) and SGA (P <0.001); and a decrease in global QoL (P <0.001) after 4 weeks of radiotherapy. There was a linear trend for change in PG-SGA score (P <0.001) and change in global QoL (P ¼0.003) between those patients who improved (5%) maintained (56.7%) or deteriorated (33.3%) in nutritional status according to SGA. There was a correlation between change in PG-SGA score and change in QoL after 4 weeks of radiotherapy (r¼ 70.55, P <0.001). Regression analysis determined that 26% of the variation of change in QoL was explained by change in PG-SGA (P ¼0.001). Finally, the

researcher concluded that the scored PG-SGA is a nutrition assessment tool that identifies malnutrition in ambulatory oncology patients receiving radiotherapy and can be used to predict the magnitude of change in QoL.

Effect of Psychological Distress, Spirituality, and Nutritional Status on Quality of Life

A cross sectional study by Davison, and Jhangri (2013) with an objective of exploring the relationship between psychosocial adjustment to illness, existential well-being (EWB) and HRQL in patients with advanced chronic kidney disease. This was a study of 253 prevalent Stage 4 or 5 chronic kidney disease and dialysis patients. Participants completed the Spiritual Well-Being Scale, the Psychological Adjustment to Illness Scale (PAIS)-Self-Report, and the Kidney Dialysis Quality of Life Short Form. Results indicates that, the combined effect of Psychological distress and extended family relationships, showed a decrease in standardized b weights from 0.27 to 0.14. Similar results can be seen for the overall HRQL and physical HRQL regression analyses. For overall HRQL, the combined effect of psychological distress and extended family relationship domains of the PAIS showed a decrease in standardized b weights from 0.24 to 0.13. Thus, these two variables together, after controlling for age, contributed almost all the variance in predicting physical HRQL.

Spirituality as Moderating Variable

Fabricatore, Handal and Fenzel (2000) examined the impact that a personal, integrated spirituality has on well-being and its role in moderating the effects of stressors (both significant life events and hassles) on well-being

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among a sample of 120 undergraduates at a private religiously affiliated college. Results showed that personal spirituality was found to moderate the relationship between stressors and life satisfaction, accounting for a small yet significant portion of the variance. Personal spirituality is conceptualized as a useful resource among undergraduates for maintaining life satisfaction in the face of stressors.

Kim and Seidlitz (2002) examined the relationship of spirituality with emotional and physical adjustment to daily stress. One hundred and thirteen college students completed questionnaire measures of spirituality, daily stress, affect, and physical symptoms at two times one month apart. The stress spirituality interaction effect was significant on changes in both negative affect and physical symptom reports, but not on change in positive affect. The positive relations between stress and both negative affect and physical symptom reports were weaker at higher levels of spirituality. These results suggest that spirituality buffered the effect of stress on negative affect and physical adjustment. Next, they examined whether the stress moderating effects of spirituality were contingent on whether the participants were religiously affiliated. The three-way interaction was significant on negative affect but not significant on physical adjustment. The result suggests that spirituality buffered the effect of stress on negative affect more for participants affiliated with a religious group than for those without religious affiliation. Spirituality, however, buffered the effect of stress on physical adjustment regardless of whether the participants were affiliated with a religious group.

Wang and Lin (2016) conducted a study to examine the mediating or moderating role of spiritual well-being in reducing the impact of cancer-

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related symptoms on quality of life and the desire for hastened death in terminally ill cancer patients. Eighty-five terminally ill cancer patients were assessed using the Taiwanese version of the M. D. Anderson Symptom Inventory, the Functional Assessment of Cancer Therapy-General, the Functional Assessment of Chronic Illness Therapy-Spiritual Well-being, the Beck Hopelessness Scale, and the Schedule of Attitudes Toward Hastened Death. Results indicated that Spiritual well-being was significantly negatively correlated with symptom severity (r = j0.46, P G .01). Symptom severity negatively correlated with quality of life (r = 0.54) and positively correlated with hopelessness (r = 0.51, P = .01) and the desire for hastened death (r = 0.61, P = .01). Spiritual well-being was a partial mediator and moderator between symptom severity and quality of life. Spiritual well-being was a partial mediator between symptom severity and the desire for hastened death. The meaning subscale of spiritual well-being was a more significant predictor of the desire for hastened death and quality of life than the faith subscale was. Spiritual well-being was determined to function as a moderator and partial mediator between symptom severity and quality of life. As a partial mediator, spiritual well-being reduces the influence of symptom severity on quality of life by 46.1% (P < .001).

Colgrove, Kim and Thompsom (2007) inspected the moderating effects of spirituality on the relation between caregiving stress and spousal caregivers' mental and physical health. A caregiver survey was mailed to participants who were nominated by their respective cancer survivors including measures of spirituality (Functional Assessment of Chronic Illness Therapy—Spirituality), caregiving stress (Pearlin Stress Scale), and mental

and physical health (MOS Short Form-36). Four hundred and three spousal caregivers participated in the study. Results from Hierarchical regression analyses strengthened the hypothesized moderating effects of spirituality but in different patterns. Caregiving stress was associated with poorer mental functioning, which was less prominent among caregivers with a high level of spirituality (stress-buffering effect). Caregiving stress was also associated with poorer physical functioning but was only significant among caregivers with a high level of spirituality (stress-aggravating effect).

Chapter Summary

This chapter reviewed literature that is important to this study. This chapter defined the theoretical review of this study emphasizing the cognitive theories of Beck and conceptual models of health-related quality of life. The chapter also defined the various variables in the study and how they are connected to each other. It also reviewed various empirical findings of studies done worldwide among patients and non-patients. The literature from the review is considered appropriate for discussing the findings from this study and resolving the controversy.

CHAPTER THREE

RESEARCH METHODS

Broadly, chapter three of the study discusses the procedures for the conduct of the study. Specifically, it discusses research design, study area, study population, sampling procedures, data collection instruments, data collection procedures, ethical consideration, data processing and analysis. The appropriate method used to answer the research questions with respect to the aim of the research has been presented in this chapter.

Research Design

The researcher employed descriptive survey design for data gathering. According to Koul (2009), descriptive research involves measurement, classification, analysis, comparison and interpretation. It consists of three types of information which include what is in existence, comparing what exists with the norm or desirable, and how to achieve goals. Although descriptive research is considered primitive, it is able to provide information to solve problems and at times provide data to form the basis of another research. Descriptive research involves events that had happened and are related to the current happenings. Descriptive research varies greatly in complexity. At one instance, it constitutes frequency account of events to study of local problems without any significant research purpose. Also, according to Koul (2009), descriptive survey attempts to ascertain significant interrelationships among phenomena.

A cross-sectional study that implored quantitative research methods was used to examine effect of psychological distress, spirituality and nutritional status on quality of life among women with breast cancer.

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According to Babbie (2004), cross sectional study is a study based on observations at a single point in time. In this study, participant psychological distress, spirituality, nutritional status and quality of life were studied at a single point in time. Data was collected at a single point for each participant studied and the phenomena studied remained fixed throughout the period of interest.

Study Area

The Ashanti Region has 530 health facilities. 170 of these health facilities are operated by the Ghana Health Service; 71 by missions; 281 by private institutions; and 8 by the Ashanti quasi-government. The Ashanti monarchy operates about 32 percent of all health facilities in the Ashanti Region. Peace and Love Hospital is located at Oduom in the Kumasi Metropolitan. Oduom is a small town in the Kumasi Metropolitan, a district of the Ashanti Region of Ghana. Oduom is 15 kilometres from the centre of Kumasi. Oduom is a dormitory town. It serves mainly as a residential area for workers in various companies in Kumasi. The town is bordered on the south by Fumesua, to the West by Domeabra, to the east by Boadi and to the North by Kentinkrono. Sweden Ghana Medical Centre (SGMC) is a Hospital located in Accra, Ghana. It is found near Nmai Djorn Katamanso East Legon Hills. The Greater Accra Region has the smallest area of Ghana's 16 administrative regions, occupying a total land surface of 3,245 square kilometres. This is 1.4 per cent of the total land area of Ghana. It is the second most populated region, after the Ashanti Region, with a population of 4,010,054 in 2010, accounting for 16.3 per cent of Ghana's total population. The Greater Accra region is the

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most urbanized region in the country with 87.4% of its total population living in urban centres. The Greater Accra Region is bordered on the north by the Eastern Region, on the east by the Volta Region, on the south by the Gulf of Guinea, and on the west by the Central Region.

Population

The target population for the research was One Hundred and thirty (130) breast cancer patients, medically diagnosed and undergoing cancer treatment in the two specialized hospitals specifically at Peace and Love Hospital and Sweden Ghana Medical Center (SGMC). According to Amedahe (2000), target population refers to the population that the researcher will ideally like to generalize. The target population was useful in determining the appropriate participants to be considered since members of the population from which the sample was drawn were medically diagnosed, hence ascertaining the veracity of the representative sample. Also, Babbie (2014) argued that a target or theoretical population refers to the group about whom a researcher hopes to generalize findings whereas a study population constitutes the actual sampling frame from which a sample is drawn.

Sampling Procedure

Wahyuni (2012) postulates that, a sample enables the researcher to study a relatively smaller number of units in place of the target population and to obtain data that are representative of the target population. According to Amedahe (2000), sampling involves the process of selecting a portion of the population to represent the entire population. Based on Krejcie and Morgan (1970) who developed a formula for determining sample size, the researcher

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used a sample size of One Hundred and one (101) participants since it targeted a population size of One Hundred and Thirty (130). Out of the 101 participants 65 and 36 of the respondents were receiving treatment from Peace and Love Hospital and Sweden Medical Center respectively. The demographic data of the sample included participants' age, educational level, marital status, stage of condition and type of treatment they were receiving.

Multi-stage sampling procedure was used which included; Purposive sampling technique which is a non-probability sampling technique was employed to select the hospitals with women with breast cancer in order to facilitate the testing of the variables in the study. Purposive sampling technique was used because the researcher was looking for a targeted population with unique characteristics or experiences. Purposive sampling technique is the most effective sampling technique when studying a particular cultural domain with knowledgeable experience which enhances quality of data collected (Roper & Shapira, 2000; Tongco, 2007). A convenience sample which is a non-probability sampling method was used to sample a group of breast cancer patients who were easy to contact or to reach.

Inclusion Criteria

All out-patient female breast cancer patients within stages I to stage III who visited the hospital during the data collection period were eligible for participation in the study. The participant should have no comorbidity with other conditions other than breast cancer and should have the willingness to participate in the study.

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Exclusion Criteria

People with consciousness or cognitive disorders, instability of clinical status, neurodegenerative disorders in movement like stroke, hemiplegia, Parkinsonism, myopathy, severe arthritis, cardio pulmonary, male breast cancer patients and other cancer patients (other than breast cancer) was excluded from the study.

Data Collection Instrument

Instruments are the tools which a researcher uses to collect data. A set of standardized questionnaires for the quantitative method was employed after examining the research questions. Koul (2009) citing Goode and Hatt (1952) stated that questionnaire refers to a device aimed at securing answers to a series of questions by using a form which the respondent fills himself or herself. Section A of the questionnaire for data collection was to solicit for demographic information of participants. Four instruments used in this study are presented below;

The World Health Organization Quality of Life BREF (WHOQOL-Bref)

The World Health Organization Quality of Life BREF (WHOQOL-Bref) was selected to examine the quality of life breast cancer patients. According to the World Health Organization (WHO), quality of life is defined as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (Harper & WHOQOL group, 1996). Based on this definition, the WHOQOL-BREF was developed as a measure of quality of life consisting of four domains: Physical Health, Psychological,

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Social relationships and Environment. The facets incorporated within the physical health domain are activities of daily living, dependence on medicinal substances & medical aids, energy, mobility, pain, sleep and capacity for work. The psychological domain included bodily image and appearance, negative and positive feelings, self-esteem, spirituality/ religion/personal beliefs and thinking, learning, memory and concentration.

The questions in the social relationship's domain related to personal relationships, social support and sexual activity. The environment domain included questions pertaining to financial resources; physical safety; accessibility to quality health and social care; opportunities for acquiring new information; opportunities for recreation/ leisure activities; physical environment (pollution/ noise/ traffic/ climate/ home) and transport. A systematic and critical review undertaken by Bowden and Fox-Rushby (2003) found that "the WHOQOL approach is more likely to establish reliable conclusions concerning the equivalence of their instrument across countries" when compared to other quality of life scales. Due to the lengthiness of the WHOQOL-100, the WHOQOL-Bref was selected in order to increase the likelihood of completion of the questionnaire by the Ghanaian women. The WHOQOL-Bref has been tested and determined to be a valid measure of quality of life and correlated with the WHOQOL-100 (Harper & WHOQOL group, 1996). Authors of the scale also encouraged the use of the WHOQOL-Bref for cross-sectional studies (Harper & WHOQOL group, 1996). Each of the 26 question items were on a five-point scale. Using item responses, scores on a 20-point scale were produced for each domain: physical health, psychological well-being, social relationships and environment.

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Kessler Psychological Distress scale (K-10)

The Kessler Psychological Distress scale (K-10) is a robust measure of non-specific psychological distress (Bougie, Arim, Kohen, & Findlay, 2016). The K-10 has a total of six questions. The first question has 10 sub-items asking the participants how often they have experienced different feelings in the past month. Each sub-item is on a 5-point scale where 1 is all of the time and 5 is none of the time. The 10 sub-items were then reverse coded to yield a score between 10 and 50, with fifty representing high psychological distress. Based on normative data on the K-10, individuals who scored under 20 were considered to be doing well. However, a score between 20 and 24 may indicate that an individual has a mild mental disorder and a score between 25 and 29 may point to a moderate mental disorder. Women who scored over 30 were considered to have a severe mental disorder (Andrews & Slade, 2001; Kessler, Andrews, Colpe et al, 2002). The remaining five items sought to understand how feelings of psychological distress had progressed in comparison to previous months, how these feelings had affected the individual's ability to work and how often these feelings were caused by physical health problems.

The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp-12)

Spirituality was measured using the FACIT-Sp-12, a 12-item questionnaire that measures spiritual well-being in individuals with cancer and other chronic illnesses. The FACIT-Sp-12 is part of the larger FACIT measurement system that assesses multidimensional Health Related Quality of

Life. FACITSp-12 has been translated and linguistically validated in 22 languages and has been used in studies examining the relationships among spiritual well-being, health, and adjustment to illness (Smith, Stein, Mehta, Kaw, Kepner et al., 2007; Murphy, Canada, Fitchett, Stein, Portier, Crammer, & Peterman, 2010; Bredle, Salsman, Deb, Arnold & Cella, 2011).

The FACIT-Sp-12 was developed with the input of patients with cancer, psychotherapists, and hospital chaplains (Peterman, Fitchet, Brady, Hernandez, Cella, 2002). It asks patients to describe aspects of spirituality and/or religious faith that have contributed to HRQOL over the past 7 days. The measure was originally developed with 2 components or factors of a total (overall) score: a 4-item Faith component (eg, I find comfort in my faith or spiritual beliefs) and an 8-item Meaning/Peace component (eg, I feel a sense of purpose in my life, I feel peaceful). Recently, 3 components or factors were isolated: the 4-item Faith subscale and separate 4-item subscales for Meaning and for Peace (Murphy et al., 2010). Because health professionals and researchers use both the 2-factor and 3-factor approaches, we have included normative values for both scoring methods of the FACIT-Sp-12 measure.

Response options include a 5- point Likert scale ranging from 0 (not at all) to 4 (very much). Two items are negatively worded and must be reverse coded. Responses are summed to create a total FACIT-Sp-12 score and individual subscale scores, with higher scores reflecting higher well-being. The FACIT-Sp-12 has demonstrated good validity and reliability among large, ethnically diverse samples (Haugan, 2015; Peterman et al. 2002). It has been used to assess spiritual well-being across a wide range of religious traditions, including those who identify themselves as "spiritual yet not religious

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(Monod, Brennan, Rochat, Martin, Rochat, & Büla, 2011).

Patient-Generated Subjective Global Assessment (PG-SGA)

The nutritional status of patients was assessed by the Patient-Generated Subjective Global Assessment (PG-SGA) which was developed specially for cancer patients (Ottery, 2000). A researcher experienced in using the scored PG-SGA (Ottery, 2000) will assess all participants. Each subject will be classified as either well-nourished (SGA A), moderately or suspected of being malnourished (SGA B), or severely malnourished (SGA C) and in addition, a total PG-SGA score will be calculated. While the PG-SGA score and subjective global rating are related, they are independent assessment and triage systems.

The scored PG-SGA consists of two sections: a patient-completed medical component and a clinician portion. The four medical components (weight loss, nutrition impact symptoms, intake and functional capacity) will be completed by the patient using a check box format. The clinician nutritionist will be required to complete the form (diagnosis, age and metabolic stress), conduct a physical examination assessing fat, muscle stores and fluid status and perform a global assessment of nutritional status (SGA). For each component of the PG-SGA, points (0–4) are awarded depending on the impact on nutritional status. Typical scores range from 0–35 with a higher score reflecting a greater risk of malnutrition and scores ≥ 9 indicating a critical need for nutrition intervention and symptom management.

Pilot-testing of Instrument

A pilot test of the adopted instruments was done at Police Hospital which is a government hospital in the Greater Accra Region to determine the

effectiveness and the reliability of the scales employed in the study. An appropriate setting was located at the hospital premises for the collection of the data. Pilot testing was carried out on the instruments to determine their appropriateness before using them for the main study. This was to identify questions on the questionnaire that respondents might have difficulty understanding or interpreting as intended. Also, pilot testing was done to ensure that instructions and questions on the items are clear and also devoid of ambiguous and misleading items. Finally, pilot testing of instruments offered the researcher the opportunity to identify unclear questions as well as to try out the coding and classification system for the data analysis. Table 1 shows reliability scores of the pilot testing.

Table 1: Reliability Estimates of Pilot Testing

Scale	No. of items	Cronbach's Alpha
OverallHealth Related Quality of Life (BREF)	26	0.80
Psychological distress	10	0.77
Spirituality	12	0.63
Nutritional Status	48	0.71

Source: Field survey (2019)

Data Collection Procedure

Dealing with ethical issues like confidentiality, anonymity, consent and debriefing the researcher applied for Ethical clearance from Ethical Review Board, University of Cape Coast. Consent to conduct the study was also sought from the University of Cape Coast Ethical Review Board, Graduate School for Ethical Clearance to conduct the study. Also, an introductory letter

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was collected from the Department of Education and Psychology in addition to the Ethical Clearance which granted the researcher access to the two hospitals involved in the study. An approval letter to conduct the study was received from each of the hospital and that was used as a passport to access participants. For SGMC, the researcher was introduced to participants by the Head of research and was assisted by a nurse and the nutritionist. Data collection from SGMC lasted for a period of 4 weeks. Also, data collection from Peace and love was supervised by the hospital counsellor and administrator. The researcher was assisted by a nutritionist and a research assistant. A period of 6 weeks was used in the collection of data from Peace and Love Hospital, Kumasi.

To ensure high questionnaire return rate and quick responses, the researcher, together with all the research assistants helped in the administration of the questionnaire. Prior to the data collection, the researcher trained all the research assistants involved on how data should be collected. The nutritionist assisted in taking the data for nutritional status and scoring. The purpose of the study as well as issues of confidentiality were explained to the patients after which informed consent was given to participants and questionnaire administered to them. The researcher gave a verbal instruction on how to respond to them and guidance was given on how to respond to the items on the questionnaire. Approximately 8 minutes was spent on each section amounting 32 minutes for the completion of each questionnaire. After successful completion of the questionnaire, a word of gratitude was said to each of them and an airtime package of GH¢5 of preferred network was given to participants as a token of appreciation. The researchers contact address was

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given to participants who were interested in knowing the findings of the research.

Data Processing and Analysis

Hypotheses 1 to 3 were tested using multivariate linear regression. Hypothesis 4 was tested using Hierarchical Linear Regression Analysis. The regression analysis helps in understanding how much the dependent variable changes with a change in one or more independent variables. Finally, hypothesis 5 was tested using Moderation Analysis using PROCESS by Hayes, specifically 5000 bootstrap samples The following assumptions were tested before proceeding to the testing of the hypothesis, linearity of residuals, independence of residuals, normal distribution of residuals and equal variance of using bootstrapping analysis.

Ethical Issues

The privacy and confidentiality of the respondents was assured. All information provided by the respondents was kept as confidential and data was on computers protected by passwords. The name and identity of the respondent was not needed for the study. All the information provided by the respondents was used for the purpose of the study. Finally, respondent was not forced to participate in the research but required voluntary participation and signing of consent form.

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Chapter Summary

This chapter examined the research methodology employed in the study. The chapter looked at the research design, population, sample and sampling procedure, instruments, data collection procedure and data analysis. The study used the descriptive survey research design. The sample size used was 101. The sampling procedure used was purposive sampling. The instrument used was the questionnaire which comprises various psychological tests and inventories Data analysis included inferential approaches such as multiple linear regression and moderation analysis using PROCESS.

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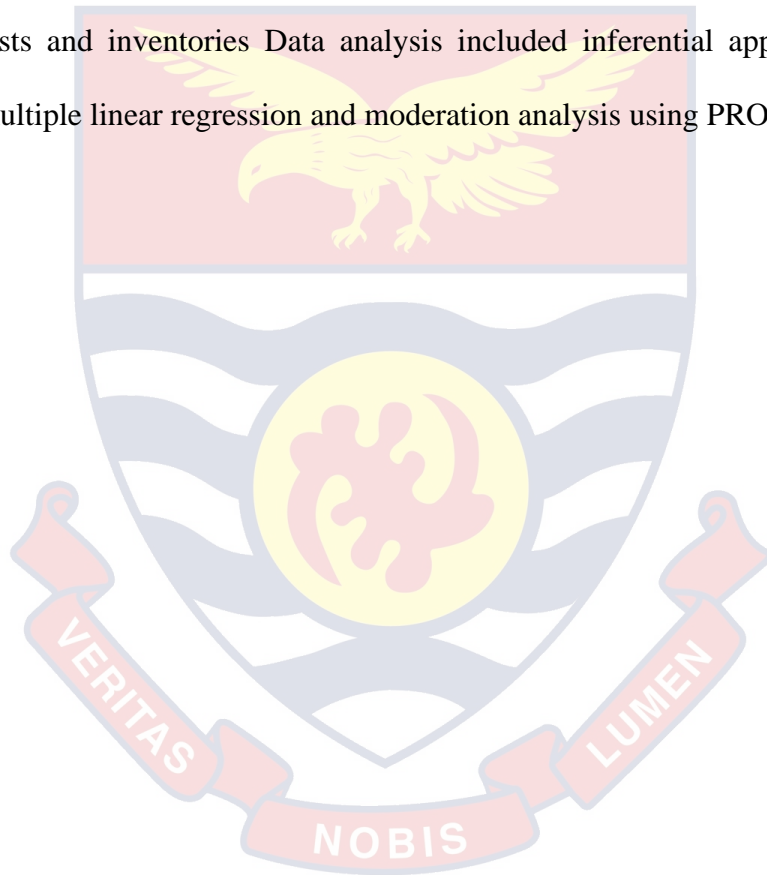
CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The purpose of this research was to examine the effect of psychological distress, spirituality and nutritional status on quality of life among women with breast cancer. Data was collected from 101 women with breast cancer undergoing cancer treatment in any of the specialized hospitals specifically at Peace and Love Hospital and Sweden Ghana Medical Center (SGMC). All the 101 patients participated in the study, and this contributed to a 100% response rate. This chapter presents results on the data collected from the field, and this was followed by the discussion of the results. The chapter, first, presents the results on the demographic characteristics of the respondents. In addition, the main results are presented in the order of the hypotheses.

Demographic Characteristics

This section presents the demographic characteristics of the respondents. The demographic information covered include age, highest level of education, marital status, current health status, type of breast cancer treatment respondents receives, and stage of breast cancer. Tables 2 and 3 present the demographic information and health condition, respectively.

Table 2: Demographic Characteristics (N = 101)

Variable	Frequency	Percentage (%)
Highest education		
None at all	36	35.6
Elementary school	25	24.8
High school	25	24.8
College/University	15	14.9
Marital status		
Single	8	7.9
Married	50	49.5
Living as married	3	3.0
Separated	10	9.9
Divorced	10	9.9
Widowed	20	19.8

Source: Field survey (2019)

From Table 2, majority 36 (35.6%) of the respondents had no formal education, 25 (24.8%) equally have had elementary and high school education each. A vast majority 50 (49.5%) of the respondents were married, while few 3 (3%) were living as married. Respondents were in their early 50s ($M =$ 50.37, $SD =$ 12.18).

Table 3: Health Condition (N = 101)

Variable	Frequency	Percentage (%)
Are you currently ill?		
Yes	50	49.5
No	51	50.5
Type of breast cancer treatment		
Drug therapy	28	27.7
Radiotherapy	23	22.8
Chemo therapy	30	29.7
Wound treatment	8	7.9
Surgery	12	11.9
Staging of breast cancer		
Stage 1	18	17.8
Stage 2	62	61.4
Stage 3	21	20.8

Source: Field survey (2019)

Almost half 50 (49.5%) of the respondents indicated they were currently ill. Majority 30 (29.7%) of the respondents were receiving treatment from chemo therapy, while 8 (7.9%) had their wounds being treated. More than half 62 (61.4%) of the respondents were at Stage 2 of breast cancer, while 18 (17.8%) were at Stage 1 of breast cancer.

Hypotheses Testing

This section presents the results of the hypotheses that were tested. The study tested five hypotheses. Prior to the testing of the hypotheses, the

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descriptive information of the variables was presented, and then assumptions surrounding the use of statistical tests were checked. Table 4 presents the results on the descriptive statistics.

Table 4: Description Statistics

Variables	Mean	SD	5% Trim. Mean	Statistic	Sig.
Quality of life					
Physical health	51.10	15.08	51.38	.986	.355
Psychological	47.65	16.76	47.30	.985	.287
Social relationships	48.76	18.72	48.90	.974	.042
Environmental	46.60	14.05	45.84	.959	.003
Spirituality					
Peace	16.63	3.99	16.57	.977	.075
Faith	9.38	2.42	9.56	.896	.000
Mean of means	*26.01*	*5.27*	*25.96*	*.978*	*.097*
Psychological distress	20.21	4.85	20.14	.985	.298
Nutritional status	12.42	6.23	12.31	.979	.102

Source: Field survey (2019)

The scores for the dimensions of quality of life (physical health, psychological, social relationships, and environmental) were scored from 0 to 100, where the higher the score, the better the quality of life, and the lower the score the poorer the quality of life. From Table 4, the quality of life for respondents were in terms of psychological ($M = 47.65$, $SD = 16.76$), social relationships ($M = 48.76$, $SD = 18.72$), and environmental ($M = 46.60$, $SD = $

14.05) were poorer compared to their physical health (M = 51.10, SD = 15.08).

In terms of spirituality, the scores generally ranged from 0 to 48, where higher scores depict better spiritual well-being. Respondents, generally, had a better well-being, spirituality (M = 26.01, SD = 5.27). Respondents were likely to have mild Psychological distress (M = 20.21, SD = 4.85); and their nutritional status was quite better (M = 12.42, SD = 6.23).

The results in Table 4 further provided results on the normality assumption using the Shapiro-Wilk test. From the results in Table 4, the Shapiro-Wilk test for all the variables, the data were normally distributed (p > .05), apart from environmental health and faith (p < .05). Aside the Shapiro-Wilk test, the mean scores and the 5% trimmed mean for all the variables were compared, and they were approximately the same, and this implies that the data were normally distributed. In addition, visual examination of the normal Q-Q plots for all the variables show that the data were normally distributed (see Appendix B). Based on this, it can be said that the data on all the variables were normally distributed.

Hypothesis 1

H0: Psychological distress is not a significant predictor of quality of life among breast cancer patients.

H1: Psychological distress is a significant predictor of quality of life among breast cancer patients.

This hypothesis sought to determine whether or not psychological distress would predict quality of life among breast cancer patients. This hypothesis was tested using multivariate linear regression analysis. The predictor variable was psychological distress, which was measured on

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continuous basis. The criterion variables were the four dimensions of quality of life: physical health, psychological, social relationships, and environment. These were measured on continuous bases. Tables 5 to 7 present the results for the hypothesis.

Table 5: Multivariate Model for Psychological Distress

Effect		Value	F	df1	df2	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.661	46.823	4	96	.000	.661
	Wilks' Lambda	.339	46.823	4	96	.000	.661
	Hotelling's Trace	1.951	46.823	4	96	.000	.661
	Roy's Largest Root	1.951	46.823	4	96	.000	.661
Psychological distress	Pillai's Trace	.187	5.517	4	96	.000	.187
	Wilks' Lambda	.813	5.517	4	96	.000*	.187
	Hotelling's Trace	.230	5.517	4	96	.000	.187
	Roy's Largest Root	.230	5.517	4	96	.000	.187

Source: Field survey (2019); *Significant, $p < .05$

From Table 5, the multivariate model containing the psychological distress and the combined dimensions of quality of life was statistically significant, Wilks' Lambda $\Lambda = .813$, $F (4, 96) = 5.52$, $p < .001$, partial eta squared = .19. This implies that psychological distress explained 19% of the variance in the combined dimensions of quality of life. Table 6 presents the univariate models using Bonferroni's alpha of .013.

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Table 6: Univariate Model for Psychological Distress

Source	Dependent Variable	df	Mean Square	F	Sig.	Partial Eta squared
Corrected Model	Physical[a]	1	1750.40	8.25	.005	.077
	Psychological[b]	1	4638.35	19.57	.000	.165
	Social relationships[c]	1	3714.33	11.73	.001	.106
	Environmental[d]	1	2408.98	13.75	.000	.122
Intercept	Physical	1	25609.18	120.74	.000	.549
	Psychological	1	31515.13	132.96	.000	.573
	Social relationships	1	29985.20	94.72	.000	.489
	Environmental	1	24512.56	139.96	.000	.586
Psychological Distress	Physical	1	1750.40	8.25	.005*	.077
	Psychological	1	4638.35	19.57	.000*	.165
	Social relationships	1	3714.33	11.73	.001*	.106
	Environmental	1	2408.98	13.75	.000*	.122
Error	Physical	99	212.10			
	Psychological	99	237.034			
	Social relationships	99	316.56			
	Environmental	99	175.14			

Source: Field survey (2019); *Significant, $p < .013$ (Bonferroni's alpha)
a. R Squared = .077 (Adjusted R Squared = .068)
b. R Squared = .165 (Adjusted R Squared = .157)
c. R Squared = .106 (Adjusted R Squared = .097)
d. R Squared = .122 (Adjusted R Squared = .113)

As shown in Table 6, the model for psychological distress and physical health was statistically significant, $F(1, 99) = 8.25$, $p = .005$. This result further implies that psychological distress explained 6.8% (Adjusted R

Squared) of the variance in physical health. The model containing psychological distress and psychological health was statistically significant, $F(1, 99) = 19.57$, $p < .001$. Psychological distress explained 15.7% (Adjusted R Squared) of the variance in psychological health. It was further revealed that the model containing psychological distress and social relationships was statistically significant, $F(1, 99) = 11.73$, $p = .001$. Psychological distress explained 9.7% (R Squared) of the variance in social relationships. The model containing psychological distress and environmental health was also statistically significant, $F(1, 99) = 13.75$, $p < .001$. Psychological distress explained 11.3% (Adjusted R Squared) of the variance in environmental health. The regression coefficients of the psychological distress for each of the dimension of quality of life are presented in Table 7.

Table 7: Regression Coefficients of Psychological Distress

Dependent Variable	Parameter	B	Std. Error	T	Sig.
Physical health	Intercept	68.519	6.236	10.988	.000
	Psychological Distress	-.862*	.300	-2.873	.005
Psychological	Intercept	76.011	6.592	11.531	.000
	Psychological Distress	-1.404*	.317	-4.424	.000
Social relationships	Intercept	74.143	7.618	9.733	.000
	Psychological Distress	-1.256*	.367	-3.425	.001
Environment	Intercept	67.036	5.666	11.830	.000
	Psychological Distress	-1.011*	.273	-3.709	.000

Source: Field survey (2019); *Significant, $p < .013$

From Table 7, psychological distress was significant negative predictor of each of the four dimensions of quality of life. The results further indicate that a unit increase in respondents' level of psychological distress, would lead to .86, 1.41, 1.23, and 1.01 decrease in quality of life in terms of physical health, psychological, social relationships, and environment, respectively. These results imply that as respondents become more distressed psychologically, their quality of life worsens in all facets. Generally, it can be said that psychological distress is a threat to quality of life among breast cancer patients.

Based on these results, the null hypothesis that "Psychological distress is not a significant predictor of quality of life among breast cancer patients" is rejected in favour of its alternative hypothesis.

Hypothesis 2

H0: Spirituality is not a significant predictor of quality of life among breast cancer patients.

H1: Spirituality is a significant predictor of quality of life among breast cancer patients.

The aim of this hypothesis was determining whether spirituality could significantly predict quality of life among breast cancer patients. This hypothesis was tested using multivariate multiple linear regression analysis. The predictor variables were the two dimensions of spirituality: peace/meaning and faith were measured on continuous basis. The criterion variables were the four dimensions of quality of life: physical health, psychological, social relationships, and environment. These were also measured on continuous basis. The results for the hypothesis are presented in

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Tables 8 to 10.

Table 8: Multivariate Model for Spirituality and Quality of Life

Effect		Value	F	df1	df2	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.158	4.451	4	95	.002	.158
	Wilks' Lambda	.842	4.451	4	95	.002	.158
	Hotelling's Trace	.187	4.451	4	95	.002	.158
	Roy's Largest Root	.187	4.451	4	95	.002	.158
Peace/Meaning	Pillai's Trace	.338	12.124	4	95	.000	.338
	Wilks' Lambda	.662	12.124	4	95	.000*	.338
	Hotelling's Trace	.510	12.124	4	95	.000	.338
	Roy's Largest Root	.510	12.124	4	95	.000	.338
Faith	Pillai's Trace	.128	3.472	4	95	.011	.128
	Wilks' Lambda	.872	3.472	4	95	.011*	.128
	Hotelling's Trace	.146	3.472	4	95	.011	.128
	Roy's Largest Root	.146	3.472	4	95	.011	.128

Source: Field survey (2019); *Significant, $p < .05$

As shown in Table 8, the multivariate model for peace/meaning dimension of spirituality and the four dimensions of quality of life was statistically significant, Wilks' Lambda $\Lambda = .66$, $F(4, 95) = 12.12$, $p < .001$, partial eta squared $= .34$. Also, the multivariate model for faith and the four dimensions of spirituality was statistically significant, Wilks' Lambda $\Lambda = .87$, $F(4, 95) = 3.47$, $p = .011$, partial eta squared $= .13$. These results imply that peace/meaning and faith explained 34% and 13%, respectively, of the variance

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in the combined quality of life. Table 9 presents the univariate models, with
Bonferroni's alpha of .013.

Table 9: Univariate Model for Spirituality and Quality of Life

Source	Dependent Variable	df	Mean Square	F	Sig.	Partial Eta squared
Corrected Model	Physical[a]	2	1648.779	8.307	.000	.145
	Psychological[b]	2	5626.613	32.722	.000	.400
	Social relationships[c]	2	4653.315	17.712	.000	.265
	Environmental[d]	2	3160.556	23.068	.000	.320
Intercept	Physical	1	2051.442	10.336	.002	.095
	Psychological	1	65.577	.381	.538	.004
	Social relationships	1	2.369	.009	.925	.000
	Environmental	1	271.115	1.979	.163	.020
Peace/Meaning	Physical	1	1888.839	9.517	.003*	.089
	Psychological	1	6641.386	38.623	.000*	.283
	Social relationships	1	3945.397	15.017	.000*	.133
	Environmental	1	4107.272	29.978	.000*	.234
Faith	Physical	1	491.240	2.475	.119	.025
	Psychological	1	1537.736	8.943	.004*	.084
	Social relationships	1	2506.819	9.542	.003*	.089
	Environmental	1	614.994	4.489	.037	.044
Error	Physical	98	198.479			
	Psychological	98	171.954			
	Social relationships	98	262.725			
	Environmental	98	137.009			

Source: Field survey (2019); *Significant, $p < .013$ (Bonferroni's alpha)
a. R Squared = .145 (Adjusted R Squared = .128)
b. R Squared = .400 (Adjusted R Squared = .388)
c. R Squared = .265 (Adjusted R Squared = .251)
d. R Squared = .320 (Adjusted R Squared = .306)

As indicated in Table 9, in terms of peace/meaning aspect of spirituality, the model was statistically significant for each of the dimensions of quality of life: physical health, $F(1, 98) = 9.52$, $p = .003$, partial eta squared = .089; psychological, $F(1, 98) = 38.62$, $p < .001$, partial eta squared = .283; social relationships, $F(1, 98) = 15.02$, $p < .001$, partial eta squared = .133; and environment, $F(1, 98) = 30.0$, $p < .001$, partial eta squared = .234. The results imply that peace/meaning explained 8.9%, 28.3%, 13.3%, and 23.4% of the variances in physical health, psychological, social relationships, and environment, respectively.

In the case of faith, the model was statistically significant for only psychological health, $F(1, 98) = 8.94$, $p = .004$, partial eta squared = .084; and social relationships, $F(1, 98) = 9.54$, $p = .003$, partial eta squared = .089. These imply that peace/meaning explained 8.4%, and 8.9% of the variances in psychological and social relationships, respectively. The model was however not statistically significant for physical health, $F(1, 98) = 2.48$, $p = .119$, partial eta squared = .025; and environment, $F(1, 98) = 4.49$, $p = .037$, partial eta squared = .044.

Generally, the results imply that peace/meaning and faith jointly explained 12.8%, 38.8%, 25.1%, and 30.6% of the variances in physical health, psychological, social relationships, and environment, respectively (Adjusted R Squared). The predictions of peace/meaning and faith are presented in Table 10.

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Table 10: Regression Coefficients of Spirituality

Dependent Variable	Parameter	B	Std. Error	T	Sig.
Physical health	Intercept	22.984	7.149	3.215	.002
	Peace/meaning	1.147*	.372	3.085	.003
	Faith	.964	.612	1.573	.119
Psychological	Intercept	-4.109	6.654	-.618	.538
	Peace/meaning	2.151*	.346	6.215	.000
	Faith	1.705*	.570	2.990	.004
Social relationships	Intercept	.781	8.225	.095	.925
	Peace/meaning	1.658*	.428	3.875	.000
	Faith	2.177*	.705	3.089	.003
Environment	Intercept	8.355	5.940	1.407	.163
	Peace/meaning	1.691*	.309	5.475	.000
	Faith	1.078	.509	2.119	.037

Source: Field survey (2019); *Significant, $p < .013$ (Bonferroni's alpha)

From the results in Table 10, peace/meaning was a significant predictor of all the dimensions of quality of life: physical health (B = 1.15, p = .003); psychological, (B = 2.15, $p < .001$); social relationships, (B = 1.66, $p < .001$); and environment (B = 1.69, $p < .001$). Peace/meaning positively predicted quality of life. Thus, an increase in breast cancer patients' peace/meaning aspect of spirituality by one unit would lead to 1.15, 2.15, 1.66, and 1.69 increase in their quality of life in terms of physical health, psychological, social relationships, and environment, respectively.

It was further shown in Table 10 that faith significantly predicted only psychological health (B = 1.71, p = .004) and social relationships (B = 2.18, p = .003). Faith, however, did not significantly predict physical health (B = .96, p = .119) and environment (B = 1.08, p = .037). These results imply a unit

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increase in faith would lead to 1.71 and 2.18 increase in psychological health and environment, respectively. Based on the foregoing results, the null hypothesis that "Spirituality is not a significant predictor of quality of life among breast cancer patients" is rejected in favour of its alternative hypothesis.

Hypothesis 3

H0: Nutritional status does not have significant effect on quality of life among breast cancer patients.

H1: Nutritional status has a significant effect on quality of life among breast cancer patients.

The focus of this hypothesis was to determine whether nutritional status would predict quality of life among breast cancer patients. Multivariate linear regression analysis was performed to test this hypothesis. The predictor variable was respondents' score on the PG-SGA scale, which indicated their nutritional status. These scores were such that higher scores indicate poor nutritional status, and lower scores depicted better nutritional status. The criterion variables were the four dimensions of quality of life: physical health, psychological, social relationships, and environment, which were measured on continuous basis. Details of the results are presented in Tables 11 to 13.

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Table 11: Multivariate Model for Nutritional Status and Quality of Life

Effect		Value	F	df1	df2	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.888	190.175	4	96	.000	.888
	Wilks' Lambda	.112	190.175	4	96	.000	.888
	Hotelling's Trace	7.924	190.175	4	96	.000	.888
	Roy's Largest Root	7.924	190.175	4	96	.000	.888
Nutritional status	Pillai's Trace	.366	13.838	4	96	.000	.366
	Wilks' Lambda	.634	13.838	4	96	.000*	.366
	Hotelling's Trace	.577	13.838	4	96	.000	.366
	Roy's Largest Root	.577	13.838	4	96	.000	.366

Source: Field survey (2019); *Significant, $p < .05$

The multivariate model containing nutritional status and the combined dimensions of quality of life was statistically significant, Wilk's Lambda Λ = .63, $F(4, 96) = 13.84$, $p < .001$, partial eta squared = .366 (see Table 11). The result implies that 36.6% of the variances in the combined dimensions of quality of life was explained by nutritional status of breast cancer patients. The univariate models are presented in Table 12.

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Table 12: Univariate Model for Nutritional Status and Quality of Life

Source	Dependent Variable	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected	Physical[a]	1	6478.854	39.423	.000	.285
Model	Psychological[b]	1	6069.088	27.267	.000	.216
	Social relationships[c]	1	3437.624	10.764	.001	.098
	Environmental[d]	1	5675.627	39.928	.000	.287
Intercept	Physical	1	91409.262	556.220	.000	.849
	Psychological	1	80929.615	363.594	.000	.786
	Social relationships	1	74136.308	232.145	.000	.701
	Environmental	1	76974.638	541.520	.000	.845
Nutritional	Physical	1	6478.854	39.423	.000*	.285
status	Psychological	1	6069.088	27.267	.000*	.216
	Social relationships	1	3437.624	10.764	.001*	.098
	Environmental	1	5675.627	39.928	.000*	.287
Error	Physical	99	164.340			
	Psychological	99	222.582			
	Social relationships	99	319.354			
	Environmental	99	142.145			

Source: Field survey (2019); *Significant, $p < .013$ (Bonferroni's alpha)
a. R Squared = .285 (Adjusted R Squared = .278)
b. R Squared = .216 (Adjusted R Squared = .208)
c. R Squared = .098 (Adjusted R Squared = .089)
d. R Squared = .287 (Adjusted R Squared = .280)

The univariate model, as presented in Table 12, the models containing nutritional status and each of the dimensions of quality of life was statistically significant, physical health, $F(1, 99) = 39.42$, $p < .001$, Adjusted R Squared = .278; psychological, $F(1, 99) = 27.27$, $p < .001$, Adjusted R Squared = .208; social relationships, $F(1, 99) = 10.76$, $p = .001$, Adjusted R Squared = .089;

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and environment, $F(1, 99) = 39.93$, $p < .001$, Adjusted R Squared = .280. The implication of these results is that, nutrition status explained 27.8%, 20.8%, 8.9%, and 28% of the variances in physical health, psychological, social relationships, and environment aspects of quality of life, respectively. Table 13 presents the regression coefficients of nutritional status to each of the dimensions.

Table 13: Predictions of Nutritional Status to Quality of Life

Dependent Variable	Parameter	B	Std. Error	T	Sig.
Physical health	Intercept	67.049	2.843	23.584	.000
	Nutritional status	-1.285*	.205	-6.279	.000
Psychological	Intercept	63.088	3.309	19.068	.000
	Nutritional status	-1.244*	.238	-5.222	.000
Social relationships	Intercept	60.383	3.963	15.236	.000
	Nutritional status	-.936*	.285	-3.281	.001
Environment	Intercept	61.528	2.644	23.271	.000
	Nutritional status	-1.203*	.190	-6.319	.000

Source: Field survey (2019); *Significant, $p < .013$ (Bonferroni's alpha)

From the results in Table 13, nutritional status was a significant predictor of all the dimensions of quality of life: physical health (B = -1.29, $p < .001$); psychological, (B = -1.24, $p < .001$); social relationships, (B = -.94, $p = .001$); and environment (B = -1.20, $p < .001$). It is evident that nutritional status negatively predicted quality of life. This implies that a unit increase in breast cancer patients' nutritional status by one unit would lead to 1.29, 1.24,

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.94, and 1.20 decrease in their quality of life in terms of physical health, psychological, social relationships, and environment, respectively. These results suggest that better nutrition among breast cancer patients would lead to better and improved quality of life.

Following these results, the null hypothesis that "Nutritional status does not have significant effect on quality of life among breast cancer patients" is rejected in favour of its alternative hypothesis.

Hypothesis 4

H_0: Psychological distress, spirituality, and nutritional status do not mutually affect quality of life among breast cancer patients.

H_1: Psychological distress, spirituality, and nutritional status mutually affect quality of life among breast cancer patients.

The hypothesis aimed at determining if psychological distress, spirituality and nutritional status jointly predict quality of life among breast cancer patients. This hypothesis was tested using hierarchical linear regression analysis. The predictor variables were psychological distress, spirituality, and nutritional status. The criterion variables were the dimensions of quality of life: physical health, psychological, social relationships, and environment. Four series of hierarchical linear regression were performed to test the mutual contribution of all the predictor variables. To control for type I error in the case of series of regression analysis, Bonferroni's alpha of .013 was used. Thus, .05 divided by 4, where four is the number of criterion variables. The results are presented in Table 14 and Appendix C.

Table 14:Model Summary for Joint Effect of Psychological Distress, Spirituality, and Nutritional Status on Quality of Life

Quality of Life	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
							Change Statistics				
Physical health	1	.277[a]	.077	.068	14.56373	.077	8.253	1	99	.005	
	2	.394[b]	.156	.138	14.00035	.079	9.128	1	98	.003	
	3	.577[c]	.332	.312	12.51307	.177	25.681	1	97	.000	1.996
Psychological	1	.406[a]	.165	.157	15.39591	.165	19.568	1	99	.000	
	2	.641[b]	.411	.399	12.99728	.246	40.912	1	98	.000	
	3	.677[c]	.458	.441	12.53547	.047	8.354	1	97	.005	1.851
Social relationship	1	.326[a]	.106	.097	17.79209	.106	11.733	1	99	.001	
	2	.520[b]	.271	.256	16.15245	.165	22.119	1	98	.000	
	3	.530[c]	.281	.259	16.11869	.010	1.411	1	97	.238	2.250
Environment	1	.349[a]	.122	.113	13.23412	.122	13.754	1	99	.000	
	2	.567[b]	.322	.308	11.68999	.200	28.881	1	98	.000	
	3	.656[c]	.430	.413	10.76895	.109	18.480	1	97	.000	2.112

a. Predictors: (Constant), Psychological distress
b. Predictors: (Constant), Psychological distress, Spirituality
c. Predictors: (Constant), Psychological distress, Spirituality, Nutritional status

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The results in Table 14 show that there was no autocorrelation, as the Durbin-Watson indices sets of models were greater than 1.4, but less than 2.5. In addition, there were no multicollinearity since the Variance Inflation Factors (VIFs) were less than 10 as shown in Appendix C. All the regression models for all the dimensions of quality of life were statistically significant (Appendix C).

As shown in Table 14, psychological distress solely contributed 7.7% (R Square) to the variance in terms of physical health, $\Delta F(1, 99) = 8.25$, $p = .005$. When spirituality was added to the model, both psychological distress and spirituality jointly contributed 15.6% to the variance in physical health, which implies that spirituality contributed 7.9% additionally to the variance in physical health, $\Delta F(1, 98) = 9.13$, $p = .003$. Further, nutritional status was added to the model and then the three variables: psychological distress, spirituality, and nutritional status altogether contributed 33.2% to the variances in physical health, and this was statistically significant, $\Delta F(1, 97) = 25.68$, $p < .001$. These results imply that psychological distress, spirituality, and nutritional status mutually affect quality of life.

The results in Table 14 further show that when psychological distress was entered into the model, it contributed to 16.5% of the variance in psychological health, $\Delta F(1, 99) = 19.57$, $p < .001$. With further introduction of spirituality there was an increment in the variation from 16.5% to 44.1%, an implication that spirituality alone contributed 24.6% to the model, $\Delta F(1, 98) = 40.91$, $p < .001$. In addition, when nutritional status was added to the model, it contributed 4.7% to the variances in psychological health. In all, the three variables jointly contributed 45.8% to the variance in psychological health,

$\Delta F(1, 97) = 8.35$, $p = .005$.

In the case of social relationship, 10.6% of its variance was explained by psychological distress, $\Delta F(1, 99) = 11.73$, $p = .001$; 16.5% of the variance was explained by spirituality, $\Delta F(1, 98) = 22.12$, $p < .001$. The results further indicated that nutritional status explained 1% of the variance, and this was however not statistically significant, $\Delta F(1, 97) = 1.41$, $p = .238$. These results imply that psychological distress, spirituality, and nutritional status do not jointly contribute to social relationships.

Additionally, 12.2% of the variance in environment was explained by psychological distress, $\Delta F(1, 99) = 13.75$, $p < .001$. Similarly, spirituality additionally contributed 20% of the variance in environment, $\Delta F(1, 98) = 28.88$, $p < .001$. Lastly, when nutritional status was added to the model, it solely contributed 10.9% of the variance in environment, $\Delta F(1, 97) = 18.48$, $p < .001$. In all, psychological distress, spirituality, and nutritional status mutually affect quality of life by explaining 43% of its variance.

Based on the results for the hypothesis, the null hypothesis that ": Psychological distress, spirituality, and nutritional status do not mutually affect quality of life among breast cancer patients" is rejected in favour of its alternative hypothesis.

Hypothesis 5

H0: Spirituality does not significantly moderate the relationship between psychological distress and quality of life.

H1: Spirituality significantly moderates the relationship between psychological distress and quality of life.

This hypothesis sought to determine whether the relationship between psychological distress and quality of life would be moderated by spirituality. Thus, the hypothesis aimed at examining whether effect of psychological distress on quality of life, at different levels of spirituality. Moderation analysis using PROCESS by Hayes, specifically 5000 bootstrap samples with bias corrected accelerated confidence intervals were used. The predictor variable was psychological distress, the moderator variable was spirituality, and the criterion variables were the dimensions of quality of life. All the variables were measured on continuous basis. The results are presented in Tables 15 to 18.
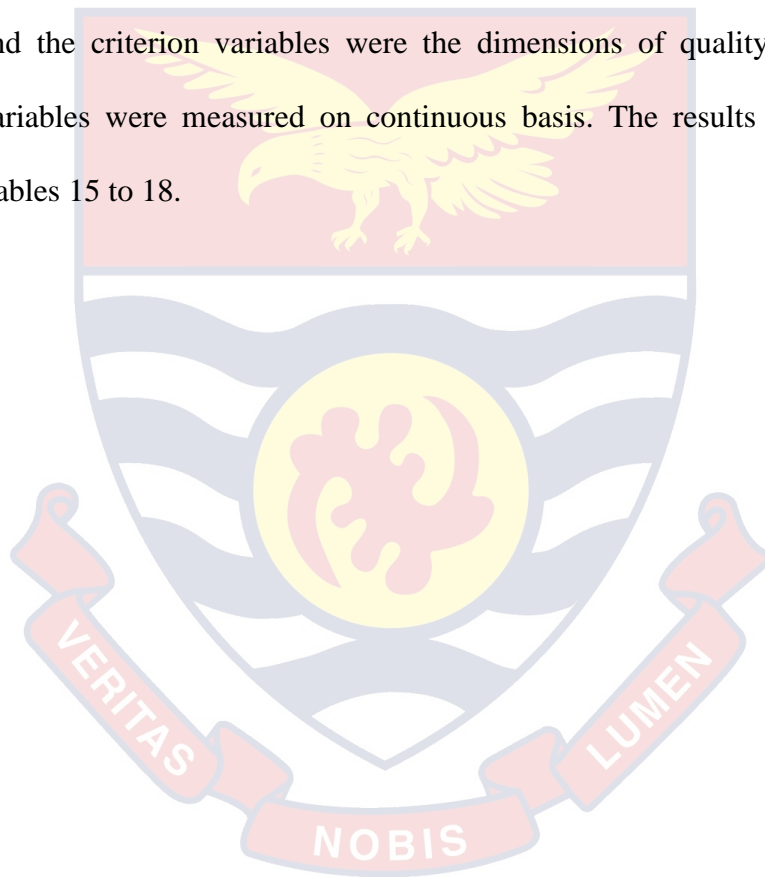
Table 15: Moderation Effect of Spirituality on the Relationship between Psychological Distress and Physical Health

	B	BootSE	LLCI	ULCI	R^2	F	df1	df2	p
			Boot95%CI			Model Summary			
Constant	-2.91	36.15	-60..87	79.33	.17	6.60	3	97	<.001
X on Y	1.60	1.72	-2.20	4.50					
W on Y	2.42	1.34	-.58	4.66					
X*W on Y	-.08	.07	-.20	.07					
Unconditional interaction					ΔR^2	F	df1	df2	p
X*W					.01	1.62	1	97	.207

X- Psychological Distress; Y- Physical Health; W – Spirituality

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From Table 15, the model containing the psychological distress, spirituality, and the interaction term shows that psychological distress was not a significant predictor of physical health, B = 1.60, *Boot95%CI* (-2.20, 4.50); spirituality was also not a significant predictor of physical health, B = 2.42, *Boot95%CI* (-.58, 4.66); and interaction between psychological distress and spirituality did not significantly predict physical health, B = -.08, *Boot95%CI* (-.20, .07). Though interaction between psychological distress and spirituality contributed .01 to the variance in physical health, it was however not significant, $F(1, 97) = 1.62, p = .207$.

The moderation effect of spirituality on the relationship between psychological distress and quality of life – psychological health was examined, and the results are presented in Table 16.

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Table 16: Moderation Effect of Spirituality on the Relationship between Psychological Distress and Psychological Health

	B	BootSE	LLCI	ULCI $R2$	F	df1	df2	p
			Boot95%CI		Model Summary			
Constant	-28.30	35.82	-89.43	52.41.42	23.64	3	97	<.001
X on Y	1.54	1.73	-2.22	4.63				
W on Y	3.32*	1.29	.52	5.59				
X*W on Y	-.08	.07	-.20	.06				
Unconditional interaction				ΔR^2	F	df1	df2	p
X*W				.01	1.91	1	97	.170

*Significant, $p < .05$

X- Psychological Distress; Y- Psychological Health; W – Spirituality

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As presented in Table 16, the model containing the predictor variable, the moderator variable, and the interaction term was statistically significant, $F(3, 97) = 23.64$, $p < .001$. The results further show that psychological distress was not a significant predictor of psychological health, when other variables within the model are controlled for, B = 1.54, *Boot95%CI* (-2.22, 4.63). Spirituality was a significant predictor of psychological health, B = 3.32, *Boot95%CI* (.52, 5.59). Interaction between spirituality and psychological distress was, however, not a significant predictor of psychological health, B = 1.54, *Boot95%CI* (-.20, .06).

Further analysis was performed to examine the moderation effect of spirituality on the relationship between psychological distress and quality of life – social relationships. Table 17 presents the results on the analysis.

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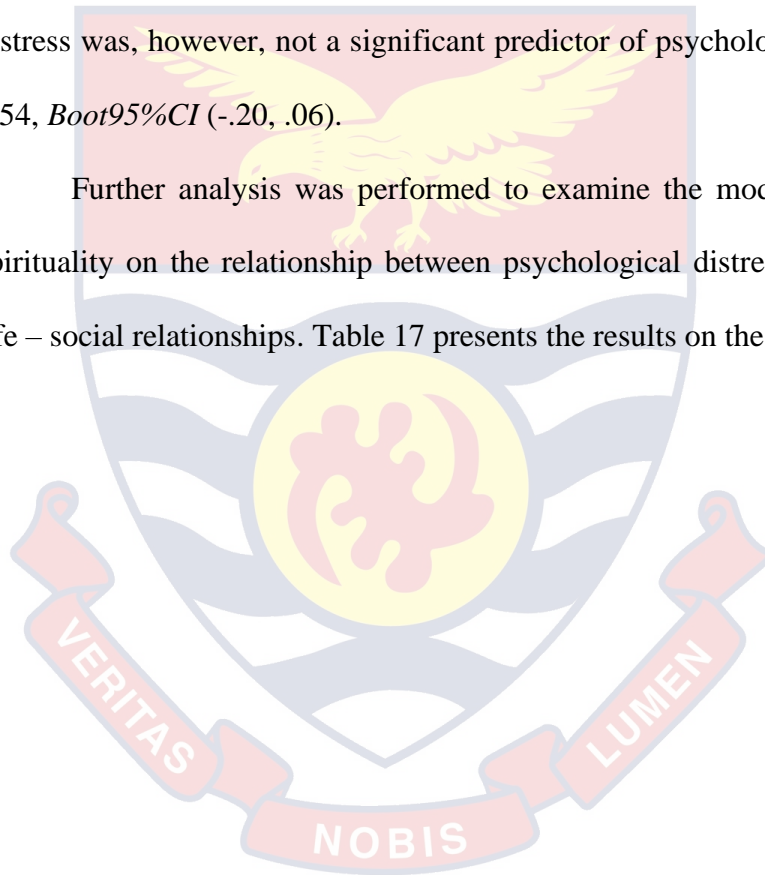
Table 17: Moderation Effect of Spirituality on the Relationship between Psychological Distress and Social Relationship

	B	BootSE	LLCI	ULCI	R^2	F	df1	df2	p
			Boot95%CI		Model Summary				
Constant	35.99	42.22	-43.05	125.57	.27	12.19	3	97	<.001
X on Y	-1.56	2.05	-5.77	2.27					
W on Y	.75	1.60	-2.56	3.77					
X*W on Y	.05	.08	-.10	.22					
Unconditional interaction					ΔR^2	F	df1	df2	p
X*W					.001	.43	1	97	.514

X- Psychological Distress; Y- Social Relationship; W – Spirituality

From Table 17, psychological distress was not a significant predictor of quality of life – social relationship, B = -1.56, *Boot95%CI* (-5.77, 2.27); similarly, spirituality was not a significant predictor of social relationship, B = .75, *Boot95%CI* (-2.56, 3.77). In addition, interaction between psychological distress and spirituality was not a significant predictor of quality of life – social relationship, B = -1.56, *Boot95%CI* (-.10, .22).

Lastly, the moderation effect of spirituality on the relationship between psychological distress and environment aspect of quality of life. Results on this analysis are presented in Table 18.

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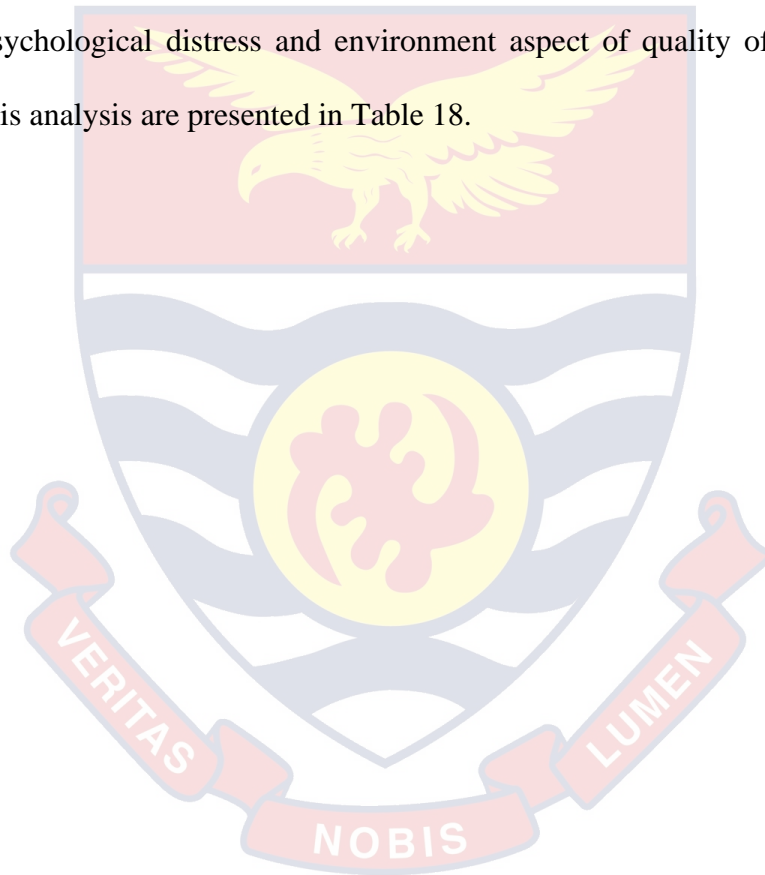
Table 18: Moderation Effect of Spirituality on the Relationship between Psychological Distress and Environment

| | B | BootSE | Boot95%CI | | Model Summary | | | | |
			LLCI	ULCI	R^2	F	df1	df2	p
Constant	-19.46	27.66	-74.74	34.81	.34	16.41	3	97	<.001
X on Y	1.62	1.26	-.87	4.18					
W on Y	2.82	1.03	-79	4.88					
X*W on Y	-.08	.05	-.18	.02					
Unconditional interaction					ΔR^2	F	df1	df2	P
X*W					.01	2.17	1	97	.514

X- Psychological Distress; Y- Environment; W – Spirituality

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As shown in Table 18, psychological distress was not a significant predictor of environment, when other variables within the model are controlled for, B = 1.62, *Boot95%CI* (-.87, 4.18). Spirituality was a significant predictor of psychological health, B = 2.82, *Boot95%CI* (.79, 4.88). Interaction between spirituality and psychological distress was, however, not a significant predictor of psychological health, B = -.08, *Boot95%CI* (-.18, .02).

Summing up the results from Tables 15 to 18, spirituality did not significantly moderate the relationship between psychological distress and quality of life. Based on these results, I failed to reject the null hypothesis that "Spirituality does not significantly moderate the relationship between psychological distress and quality of life".

Discussion of Findings

The findings are discussed based on the objectives of the research. It outlines areas where the findings of this study are consistent with other research findings and areas where there are inconsistencies.

Influence of Psychological Distress on Quality of Life among Breast Cancer Patients

The findings of research hypothesis one indicates that psychological distress significantly had an influence on combined dimensions of quality of life among breast cancer patients, Wilks' Lambda Λ = .813, $F(4, 96)$ = 5.52, p < .001, partial eta squared = .19. A further Univariate model for Psychological Distress and dimensions of quality of life (physical health, psychological health, social relationships environmental health) was statistically significant. Also, the regression coefficient of psychological distress for each of the four

dimensions of quality of life was negative which is an indication that psychological distress was significant negative predictor of the four dimensions of quality of life. This therefore suggest that, an increase in psychological distress among women with breast cancer patient would lead to a decrease in the patients' quality of life (physical health, psychological, social relationship and environment).

The findings of this study are in consonance with a study by Akin-Odanye, Chioma and Abiodun (2011) which used the 21-item Becks Depression Inventory II (BDI-II) and results indicated varying gradations of depressive symptoms from minimal to severe depression in Nigerian female breast cancer patients receiving chemotherapy. The findings of Akin-Odanye et al. (2011) futher showed those with advanced cancer stage had higher risk for developing depression. Also, a study in Malaysia revealed a 51% prevalence of psychological distress and 32% prevalence of depression and anxiety among 168 women with breast cancer undergoing out-patient chemotherapy (Zainal, Hui, Hang & Bustam, 2007). Psychological distress, although being studied with different instruments indicates varying degrees of psychological distress (Depression, anxiety and stress) among women living with breast cancer. Anxiety and depression are the most frequent mental distress for breast cancer patients and psychosocial issues associated with breast cancer include concerns about social stigma, body image, or changes in social roles (Distelhorst, Cleary, Ganz, Bese, Camacho-Rodriguez, Anderson, 2015; Akin-Odanye et al., 2015).

A study that was in line with this research also indicated similar results which therefore provides support to the findings from this study. Boateng

(2017) conducted a study which was aimed to assess the psychological distress and quality of life of women at various stages of breast cancer treatment journey. Kessler 10 and HRQOL BREF was employed to assess psychological distress and quality of life respectively among breast cancer women. It was demonstrated in the researcher's study that, cancer diagnosis had a significant effect on physical health, satisfaction with health, psychological well-being, environment and psychological distress. Women with breast cancer had lower scores than healthy controls on their overall satisfaction with health and quality of life. Again, from the study, women with breast cancer did have more psychological distress and scored lower for physical health, psychological well-being and environmental markers of quality of life. The women affirmed that breast cancer had affected their everyday life, physical health, female identity, roles and responsibilities to varying degrees. It is also indicated that psychological distress can worsen a patient's outcome thus overall quality of life (Greif & Dodoo, 2015; Fann et al, 2008; Badger et al., 2001; Groenvold et al., 2007; Pasacreta, 1997). Although, most literatures reviewed used other instruments in ascertaining psychological distress among breast cancer patients, but the findings were consistent with the finding of this study.

Spirituality as a Predictor of Quality of Life among Breast Cancer Patients

In general, the findings specified that spirituality is a significant predictor of quality of life among breast cancer patients. Faith aspect of spirituality was statistically significant in psychological wellbeing and social

relationship but was not significant in physical health and environment aspects of quality of life. It can be suggested from the findings that as breast cancer patients have comfort in their faith or spiritual beliefs, believe that whatever is happening to them will be okay, their psychological health and social relationships would be better, but not their physical health and environment. Peace/meaning aspect of spirituality was statistically significant in all dimensions of quality of life which is an indication that, an increase in peace/meaning aspect of spirituality will lead to a better quality of life (physical health, psychological wellbeing, social relationships, and environment) among women with breast cancer. It can be inferred from the findings that as breast cancer patients feel peaceful and have meaning and purpose for their lives, among others, their quality of life improves, holistically. Summing up, spirituality among breast cancer patients helps in the improvement of their quality of life. It is also to note that most breast Cancer patient in Ghana first source of seeking for treatment is to seek for spiritual help. This attitude contributes to their quality of life.

The finding of this study is consistent with other past studies that suggest spirituality and religious coping are recurrent source of support that improves the quality of life among cancer survivors and caregivers (Gotay & Wilson, 1998). Also, the findings are backed by Lim and Yi. (2009) who researched on effects of spirituality, religiosity and social support on quality of life among 110 koreans and 51 Korean Americans breast and gynecologic cancer survivors. The verdicts from Lim and Yi. (2009) revealed that spirituality and religiosity were related to quality of life and the variables had an effect on quality of life. Again, another study by Romero et al. (2006) had

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similar findings. Romero et al. (2006) assessed whether self-forgiving attitude and spirituality were related to psychological adjustment among 81 women receiving treatment for breast cancer. It was demonstrated from their findings that spirituality was a unique predictor of less mood disturbance and better quality of life

However, a study by Molzhan (2007) did not show the effect of spirituality on quality of life among older adults. His findings can be argued that his population was not characterized by any chronic conditions and as such the participant may not have the need to search for meaning, peace and faith in their dilemma. This assertion may be protested by findings of Abernathy et al. (2005) that spirituality may not offer relief for all cancer patients, especially those could not answer the "whys" of cancer onset.

Effect of Nutritional Status on Quality of Life among Women with Breast Cancer

In general, the findings of the study revealed that nutritional status have significant effect on quality of life among breast cancer patients which suggest that better nutrition among breast cancer patients would improve quality of life. Also, the findings showed forty two percent of the participants were well- nourished, 49% were moderately nourished and 9.9% were severely malnourished.

The findings from this study are in accord with the findings of Mohammadi, Sulaiman, Koon, Amani, and Hosseini (2013) who also found a significant effect of nutritional status on quality life among breast cancer survivors. Mohammadi et al. (2013) further explained from the findings that survivors with improved nutritional status had better functioning balances and

experienced fewer clinical symptoms resulting to better quality of life. In the same vein, the findings of Nourissat et al. (2008) who conducted a study to assess the relationship between nutritional status and quality of life in patients with cancer. The results showed a significant relation between nutritional status and quality of life among patients with cancer.

Combined effect of Psychological Distress, Spirituality, and Nutritional Status on Quality of Life among Breast Cancer Patients

The results from this study indicate that psychological distress, spirituality, and nutritional status mutually affect quality of life by explaining 43% of its variance. However, it should be noted from this study that, psychological distress, spirituality and nutritional status jointly contributes a significant variation to all the dimensions of quality of life (physical health, psychological health and environment) except social relationship where nutritional status do not significantly contribute to the variation. This can be elucidated as; breast cancer patients do not appreciate the necessity why their nutritional status whether being nourished and malnourished should affect how one relates with neighbours and family especially when faith and meaning/peace is attained. Also, the findings from this study demonstrated spirituality as the highest contributing factor to physical health, psychological health, social relationship and environment dimensions of quality of life. This can be attributed to notion that most Ghanaians are spiritual especially when it comes to the search of meaning in times of chronic conditions like Diabetes, hypertension and cancer.

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However, rigorous search through literature, there was no known studies found to either support or refute the findings of the mutual effect of psychological distress, spiritualty and nutritional status among women with breast cancer. Nevertheless Davison, and Jhangri, (2013) conducted a study among advanced chronic kidney patients to ascertain the combine effect of psychosocial adjustment to illness, psychological distress and existential well-being (EWB) on quality of life. The findings indicated psychological distress and existential well-being mutually contributed to Health-Related Quality of life among advanced chronic patients. There is therefore the need for more studies to be conducted to prove or disprove the findings of this objective.

Spirituality as a Moderator Variable of Psychological Distress and Quality of Life

The findings from the moderation analysis proposed spirituality does not moderate the relationship between psychological distress and all the dimensions of quality of life. In addition, it can be further explained as spirituality did not change the magnitude of the relationship between psychological distress and quality of life. The presence of spirituality did not enhance (where an increase in spirituality increased the effect of psychological distress on physical, psychological wellbeing, social relationship and environment), buffer (where an increase in spirituality decreased the effect of psychological distress on all the dimensions of quality of life) or antagonize (where an increase in spirituality would reverse the effect of the psychological distress on quality of life). This however does not connote that spirituality is not important because spirituality has proven to be essential as one of the

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coping strategies used by individuals with chronic condition for the betterment of their quality of life.

The finding is dissimilar to the study of Fabricatore, Handal and Fenzel, (2000). They examined the moderating role of personal and integrated spirituality on effect of stressors and wellbeing among undergraduate students. From their result, it was shown that personal spirituality was essential in maintaining life satisfaction in the face of life stressors. This disparity can be argued out based on the different samples used in the two studies. Sample for this study are faced with lifelong stressor whereas the stressors of the undergraduate samples may be normal everyday life hurdles. Different levels of spirituality will be needed in the both studies hence might contribute to the dissimilarity in findings. Also, a study by Colgrove, Kim and Thompsom (2007) demonstrated the moderating effect of spirituality on the relation between caregiving stress and spousal caregivers mental and physical health.

Searching through literature, there was no study on the moderating effect of spirituality on psychological distress and quality of life among women with breast cancer to either support or disprove the findings of the study. However, most, literatures reviewed found spirituality to moderate variables such as caregiving stress and spousal caregivers mental and physical health (Colgrove, Kim, & Thompsom 2007), spiritual well-being in reducing the impact of cancer- related symptoms on quality of life and the desire for hastened death in terminally ill cancer patients (Wang & Lin2016). Most variables being explored on spirituality as a moderator in most studies are different and population also differs. This might however attribute to incongruence in findings. There is the need for further research and replication

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to provide evidence to the findings of this hypothesis.

Chapter Summary

This chapter dealt with the analyses of data, presented the results and discussion of findings. Although majority of patients involved in the study were stage 2 breast cancer patients, psychological distress was found to be substantial predictor of their quality of life. Spirituality made a significant impact on quality of life among women with breast cancer in Ghana. Nutritional status made a profound effect on quality of life among women with breast cancer. Also, Psychological distress, spirituality and nutritional status mutually had a strong effect on quality of life among women with breast cancer although spirituality did not significantly moderate the relationship between psychological distress and quality of life among women with breast cancer. Findings for each hypothesis were discussed with appropriate literatures reviewed. Conclusion and recommendations are presented in chapter five.

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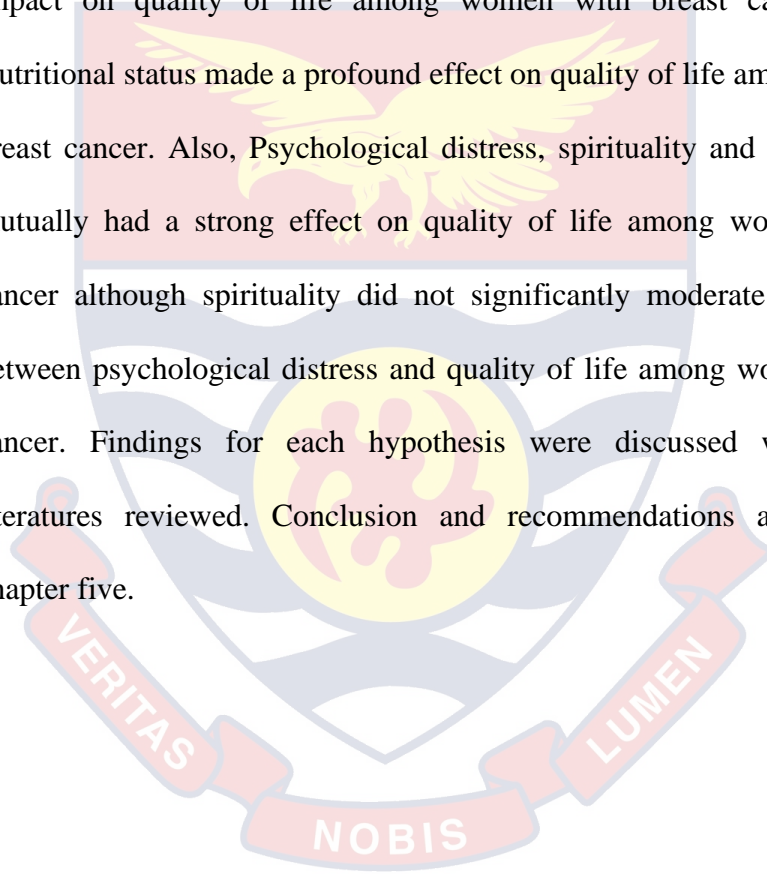
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Overview

The main purpose of this study was to examine the effect of psychological distress, spirituality and nutritional status on quality of life among women with breast cancer. Specifically, the objective sought to:

1. Assess if psychological distress has an influence on quality of life among breast cancer patients.

2. Determine if spirituality is a predictor of quality of life among breast cancer patients.

3. Ascertain whether nutritional status has an effect on quality of life among breast cancer patients.

4. Determine the combine effect of psychological distress, spirituality, and nutritional status on quality of life among breast cancer patients.

5. Ascertain whether spirituality moderates the relationship between psychological distress and quality of life among breast cancer patients.

The study was purely quantitative with descriptive survey design. Purposive sampling technique was used to select 101 breast cancer patients from Peace and Love Hospital and Sweden Ghana Medical Centre. The study utilized inferential and descriptive approaches in analysing the data collected.

Summary of Findings

From the analysis, the study identified the various findings based on the research objectives and hypothesis:

Psychological distress had strong effect on quality of life among women with breast cancer. Thus, as women with breast cancer become more distressed, their quality of life worsens in every aspect.

Spirituality predicted quality of life among women with breast cancer. In other words, as breast cancer patient's increases in faith, become peaceful and have meaning in their predicaments, their quality of life becomes better in all dimensions.

Nutritional status had a significant effect on quality of life among women in breast cancer. This finding connotes that breast cancer patients who happen to be well nourished (maintained weight, had fewer symptoms and eat balanced meals) had improved quality of life.

Psychological distress, spirituality and nutritional status jointly contributed to quality of life among women with breast cancer. All predictor variables involved contributed a significant percentage to the quality of life among women with breast cancer.

Finally, Spirituality did not moderate the relationship between psychological distress and quality of life. Spirituality did not enhance, buffer or antagonize the relationship between psychological distress and quality of life. Although spirituality did not moderate this relationship, the importance of spirituality cannot be overlooked from the cultural perspective. This is evidence in patients' first point of help when they are diagnosed with breast cancer.

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Conclusions

Research indicates that chronic conditions such as cancer are linked with different degrees of psychological problems. Psychological distress is one of the most important issues associated with being diagnosed and going through treatment for most chronic conditions. This impact the quality of life of patients living with chronic conditions. Overall, women with breast cancer did have more psychological distress and scored lower for physical health, psychological well- being and environmental markers of quality of life. This affirmed that breast cancer had affected their everyday life, physical health, female identity, roles and responsibilities to varying degrees.

Spirituality and nutrition also contribute to the wellbeing of people living with breast cancer. It is however evident that persons living with chronic conditions in Africa seek for spiritual help and neglect other aspect. Little is sought from nutritionist and psychologist in their quest for healing. There is therefore the need to intensify education on the need for breast cancer patients to seek for holistic intervention, also health professionals should be readily available to help patients and the services should be affordable.

Recommendations

From the findings, it is recommended that:

1. Treatment of chronic conditions such as cancer should focus on managing the physical conditions and symptoms, psychological issues, social problems of patients and spiritual needs. This goes a long way to impact the wellbeing of patients. It is important to have qualified personnel to provide treatment for patients because it would help

patients deal with all problems associated with their condition and help them cope effectively. This endorses the Biopsychosocial approach recommended by Engel (1977) on the need to consider biological, psychological, social and spiritual factors when dealing with human health.

2. Adopting patient-centred breast cancer care "requires that patients are well informed about their disorder and the resources are available to them" (Distelhorst et al, 2015). In the same regard, patients should be educated to recognize and treat breast cancer related physical and psychological side-effects. They should also be informed of their clinical stage and any information relevant to their particular condition such as likelihood of survival (Distelhorst et al, 2015). Most patient's dilemma is centred around the outcome of their predicaments since most information's are out of reach to them whether they are receiving palliative care or there is surgery.

3. Counselling services, nutritionists with social workers and mental health profession should be made available and accessible for these women with breast cancer. However, there is a dearth of health professionals, especially mental health professions, in LMICs such as Ghana (Bruckner, Scheffler, Shen, Yoon, Chisholm, Morris ... & Saxena, 2011). A probable solution would be to train some of the breast cancer survivors, to recognize mental health issues and counselling techniques to act as peer navigators and lay counsellors.

Suggestions for Further Research

1. The study should be replicated in different parts of the country in order to facilitate generalization.

2. Variables like the influence of cancer treatment, age, marriage and education should be explored among breast cancer patients. Age and length of time on treatment could be factors mediating the level of psychological distress.

3. Since this study examined the moderating role of spirituality in the relationship between psychology distress and quality of life among breast cancer patients' other studies should explore the mediating role of spirituality in the relationship between psychological distress and quality of life.

4. Further studies can integrate observation and interview guides to make the study more interactive since questionnaire served as the only instrument for data collection in this study.

5. Nutrition as a variable should be explored among breast cancer patients and intervention programme implemented.

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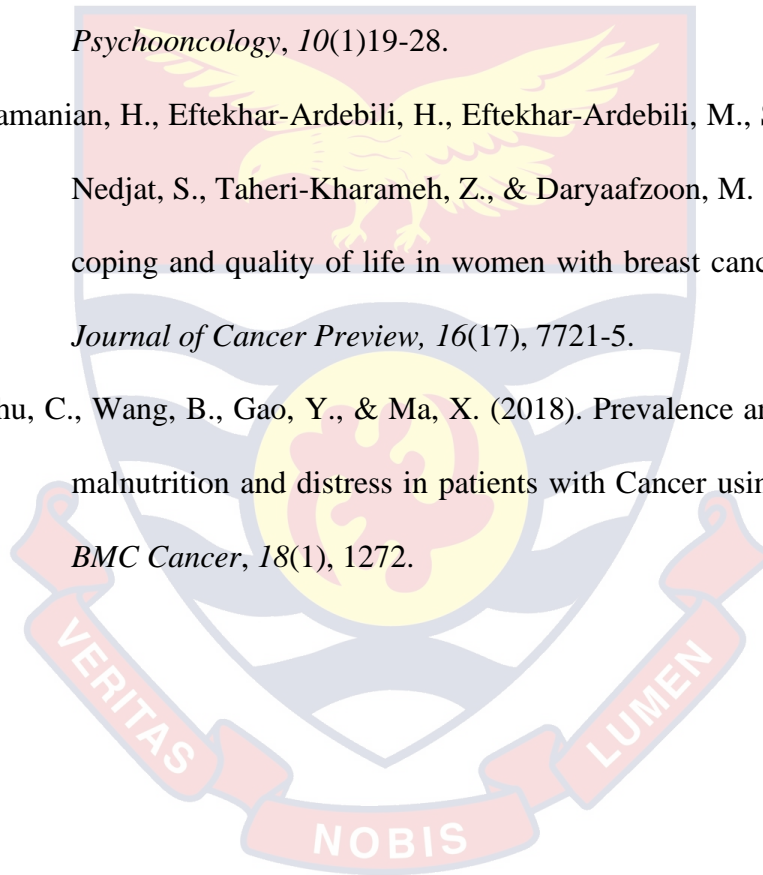
APPENDICES

APPENDIX A

CONSENT FORM

Title: Effect of Psychological Distress, Spirituality and Nutritional Status on Quality of Life among Women with Breast Cancer

Principal Investigator: Dorcas Ntiamoah Address: University of Cape Coast

LETTER OF INFORMATION/ CONSENT

Purpose of the Study: The researcher seeks to understand the mental health and quality of life of breast cancer women. You are invited to take part in this study. The researcher is seeking to learn more about the factors and everyday experiences that affect the lives of breast cancer women. The researcher will also explore the predictive effects of some variables on quality of life among breast cancer patients. Participants will be asked about how they feel their physical health, sleep, daily activities and other factors affect their mental health. This research is for a Master's thesis project and it is purely for academic purposes.

Procedures involved in the Research: The research will start by collecting some background information. You will be asked to fill out a quality of life questionnaire and mental health questionnaires. You have the option of completing the questionnaires at the Peace & Love Hospital or in your home under the supervision of the researcher. The session will last approximately forty- five minutes. There will be no one-one interview after the completion of the questionnaires.

Potential Harms, Risks or Discomforts: The risks involved in participating in this study are minimal. You may feel uncomfortable with questions within the questionnaires that require that you think about your current situation. You may worry about how others will react to the answers you provide during the study. You do not need to answer questions that you do not want to answer or that make you feel uncomfortable. You can also withdraw from the study at any time. I describe below the steps I am taking to protect your privacy.

Potential Benefits: We hope to learn more about the events that affect the quality of life and mental health of breast cancer women. The findings from this study may lead to more research into the experiences of Ghanaian women. The research may not benefit you directly. However, it might help develop strategies that you can use to deal with difficulties that come up in your everyday life.

Appreciation: After completion of the questionnaire, a word of gratitude was said to each of them and an airtime package of 5gh cedis of preferred network was given to each participant.

Confidentiality You are participating in this study confidentially. Every effort will be made to protect (guarantee) your confidentiality and privacy. I will not use your name or any information that would allow you to be identified. No one but the members of the research team will know whether you were in the study unless you choose to tell them. The information/data you provide in the questionnaire will be kept in a locked cabinet where only I will have access to it. Once the study has been completed, the data will be stored for three years. After three years, the data will be destroyed.

Participation and Withdrawal: Your participation in this study is voluntary. It is your choice to be part of the study or not. If you decide to be part of the study, you can stop completing the questionnaire for whatever reason and even after signing the consent form. If you decide to withdraw, there will be no consequences to you. In cases of withdrawal, any data you have provided will be destroyed unless you indicate otherwise. If you do not want to answer some of the questions you do not have to, but you can still be in the study.

Information about the Study Results: The study is expected to be complete by approximately July 2019. Brochures with the summary of the results will be at the Peace & Love Hospital at the end of July, 2019. Participants may also request to receive the study findings by email.

If you have questions or need more information about the study itself, please contact me at: *dorcas.ntiamoah@stu.ucc.edu.gh*

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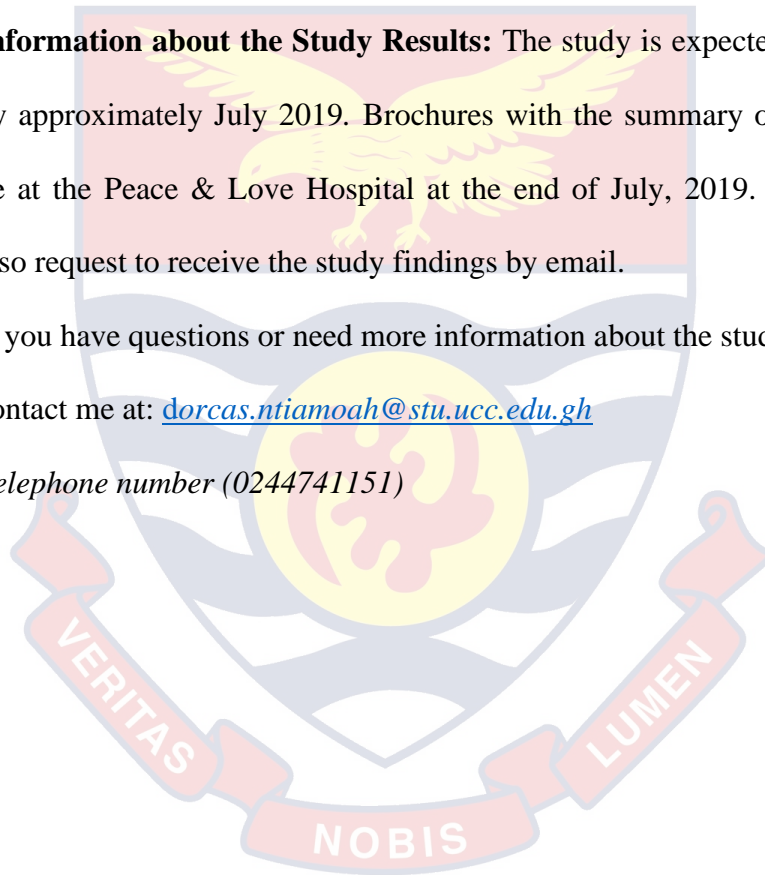
CONSENT

☐ I have read the

☐ I understand that if I agree to participate in this study, I may withdraw from the information presented in the information letter about a study being conducted

☐ I have had the opportunity to ask questions about my involvement in this study by Dorcas Ntiamoah of University of Cape Coast, Ghana. and to receive

additional details I requested. study at any time.

☐ I will receive a signed copy of this form.

☐ I agree to participate in the study.

…Yes, I would like to receive a summary of the study's results.

Please send them to me at this email address _____

… No, I do not want to receive a summary of the study's results.

_____   _____

Name of Participant   Signature   Date Consent form explained in person by:

_____   _____   _____

Name and Role   Signature   Date

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APPENDIX B

NORMALITY PLOTS

Normal Q-Q Plot of physical_trans

Normal Q-Q Plot of physical_trans

Normal Q-Q Plot of social_trans

Normal Q-Q Plot of environment_trans

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Normal Q-Q Plot of PeacMean

Normal Q-Q Plot of Faith

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Normal Q-Q Plot of Spirituality

Normal Q-Q Plot of PsycDistress

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Normal Q-Q Plot of Total PG-SGA score

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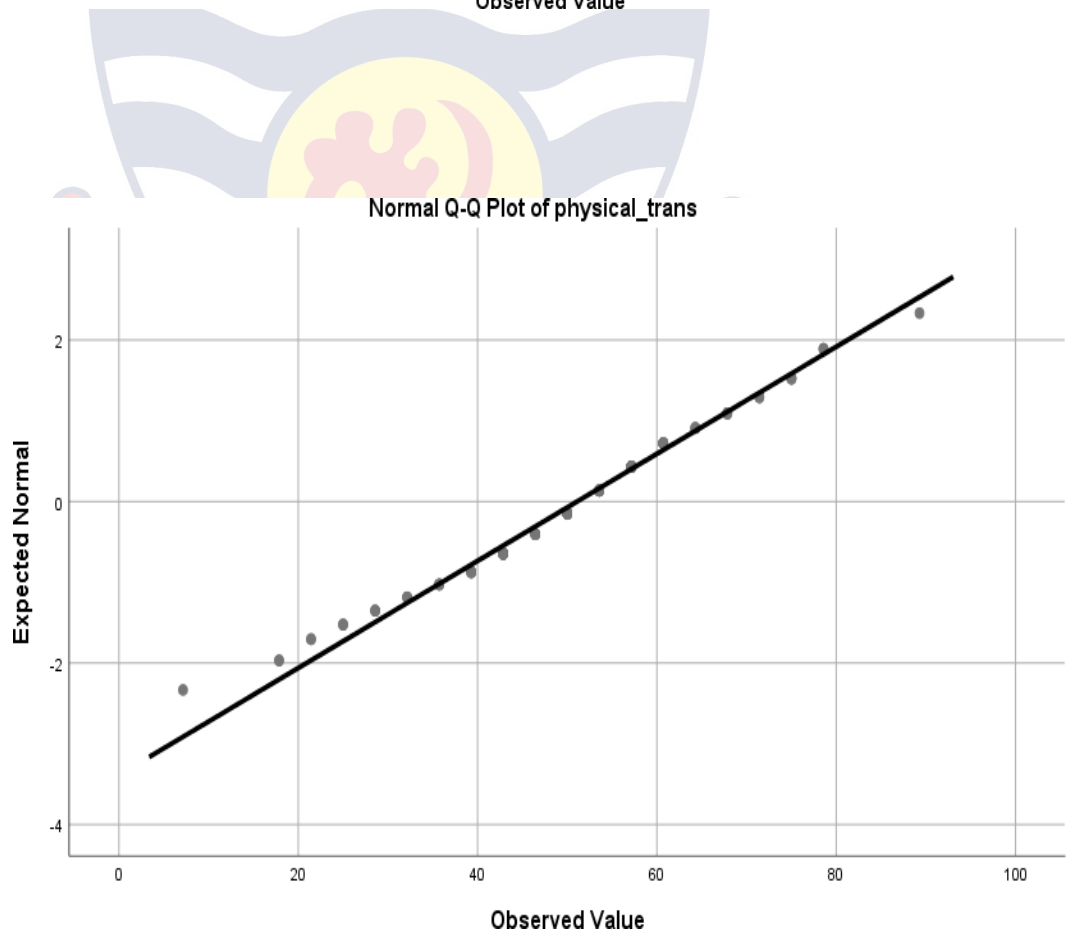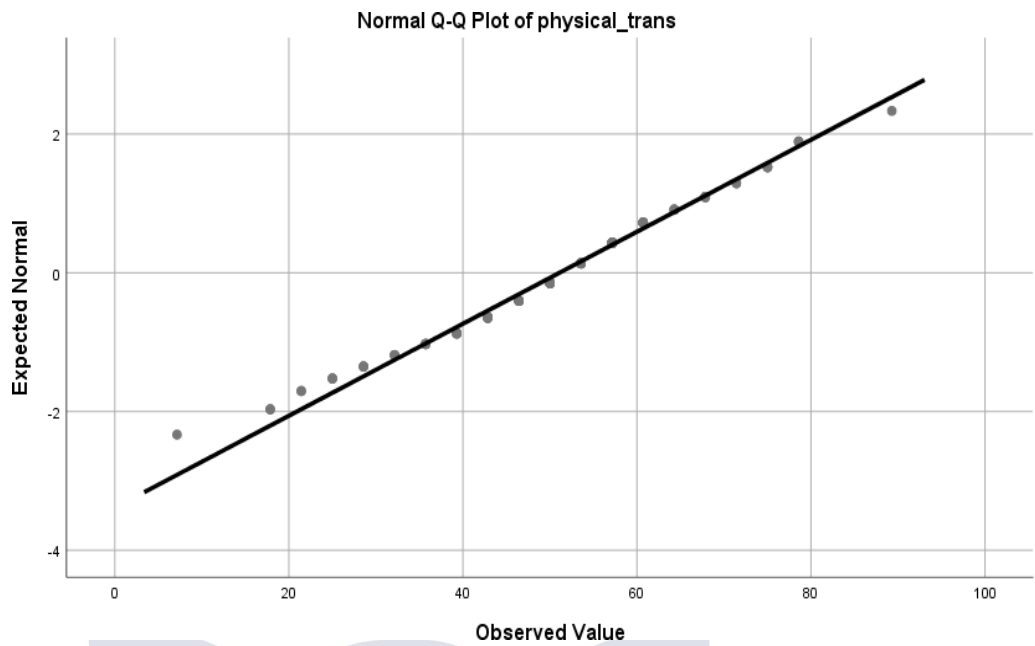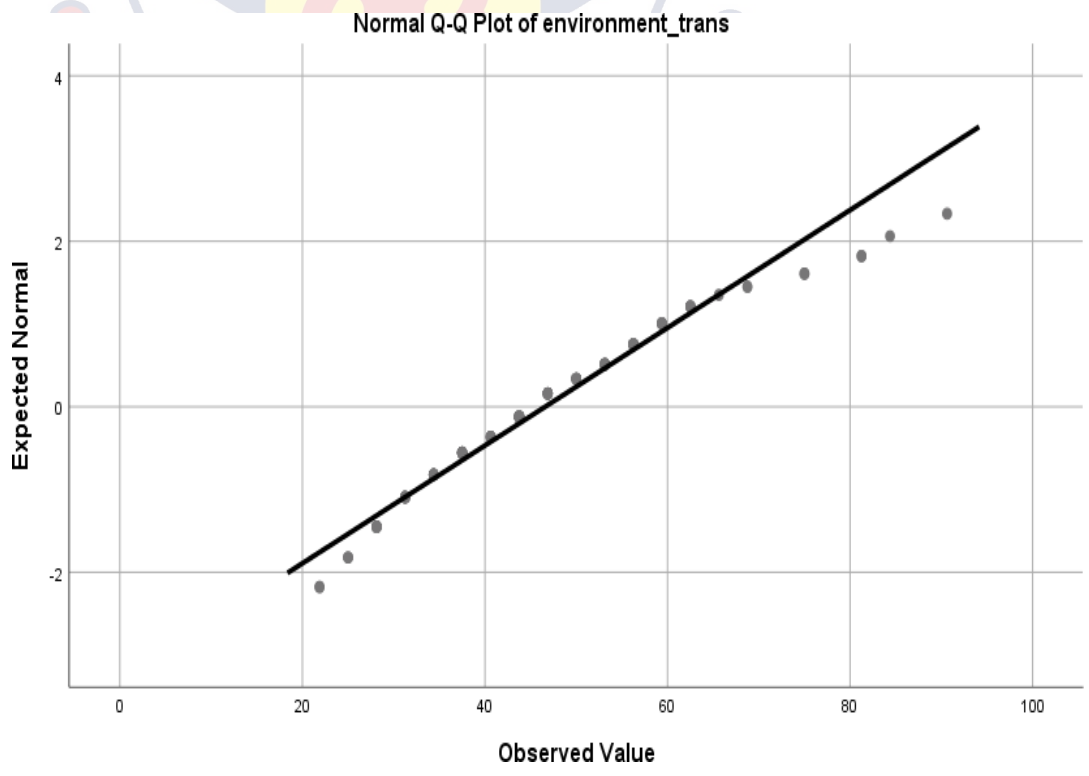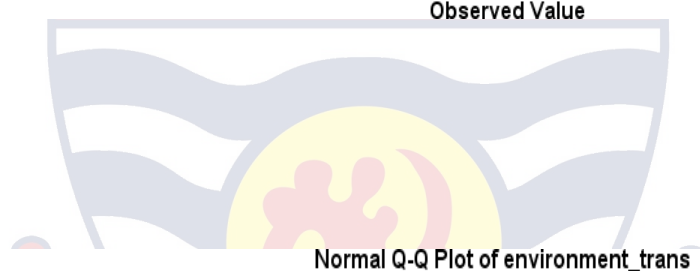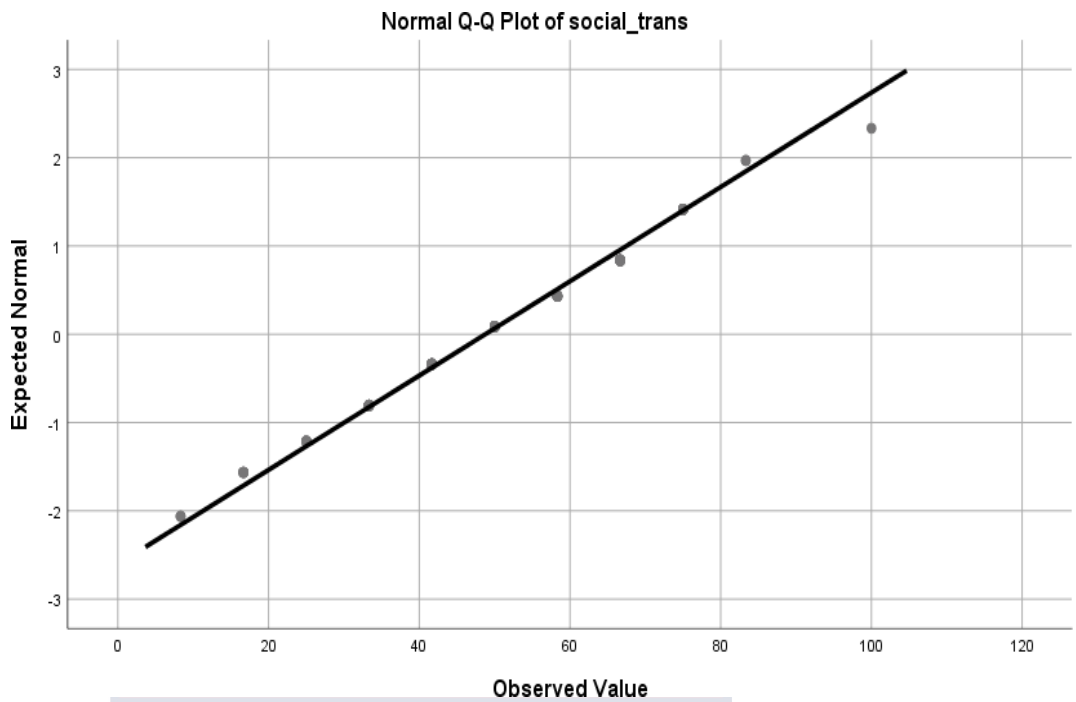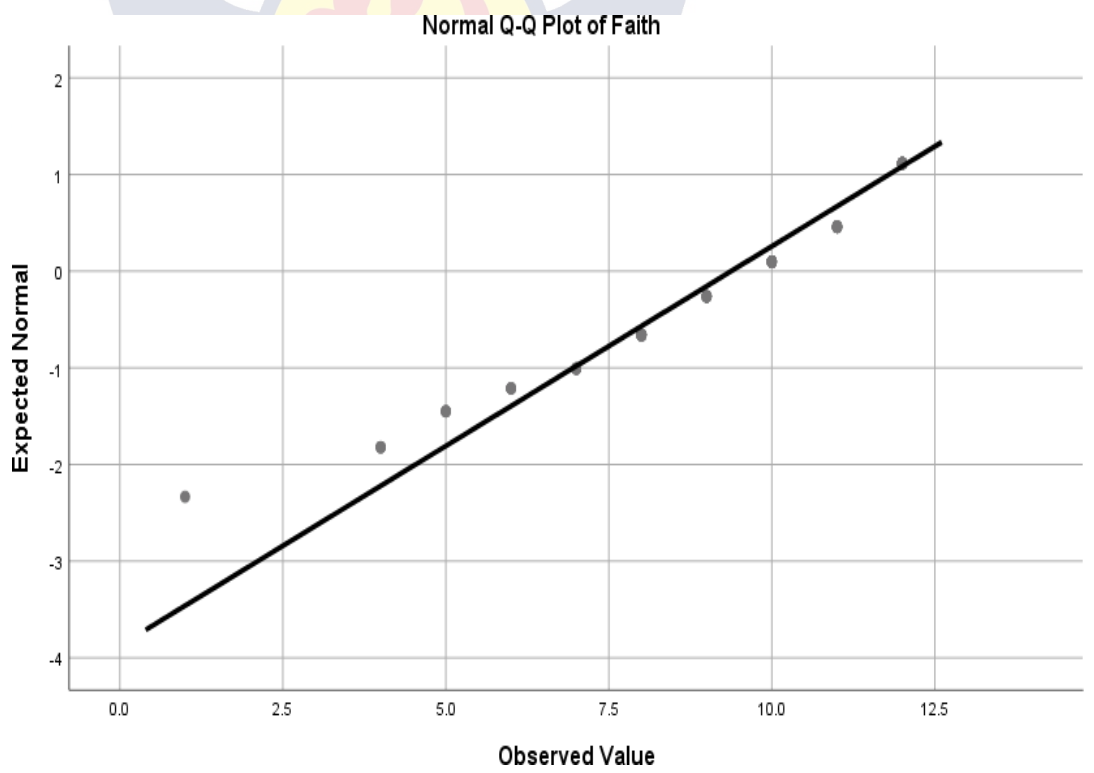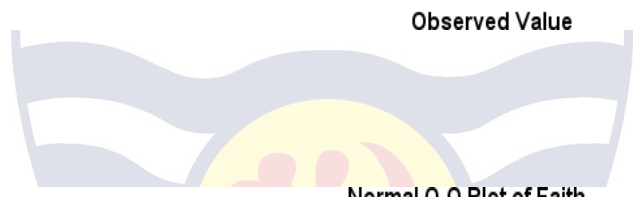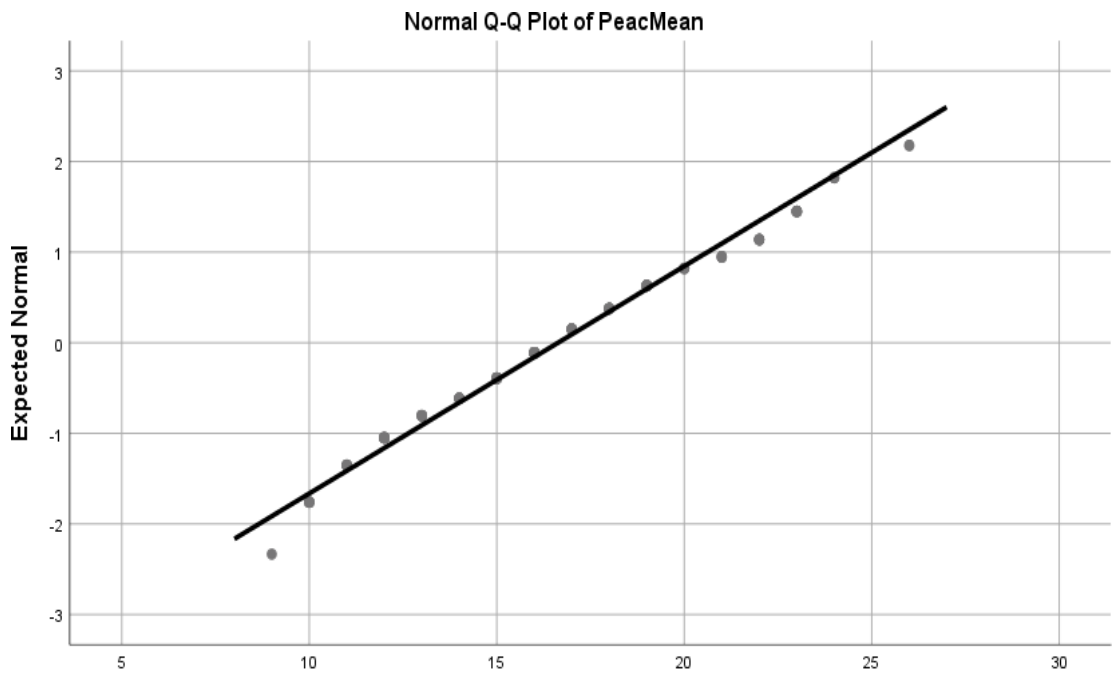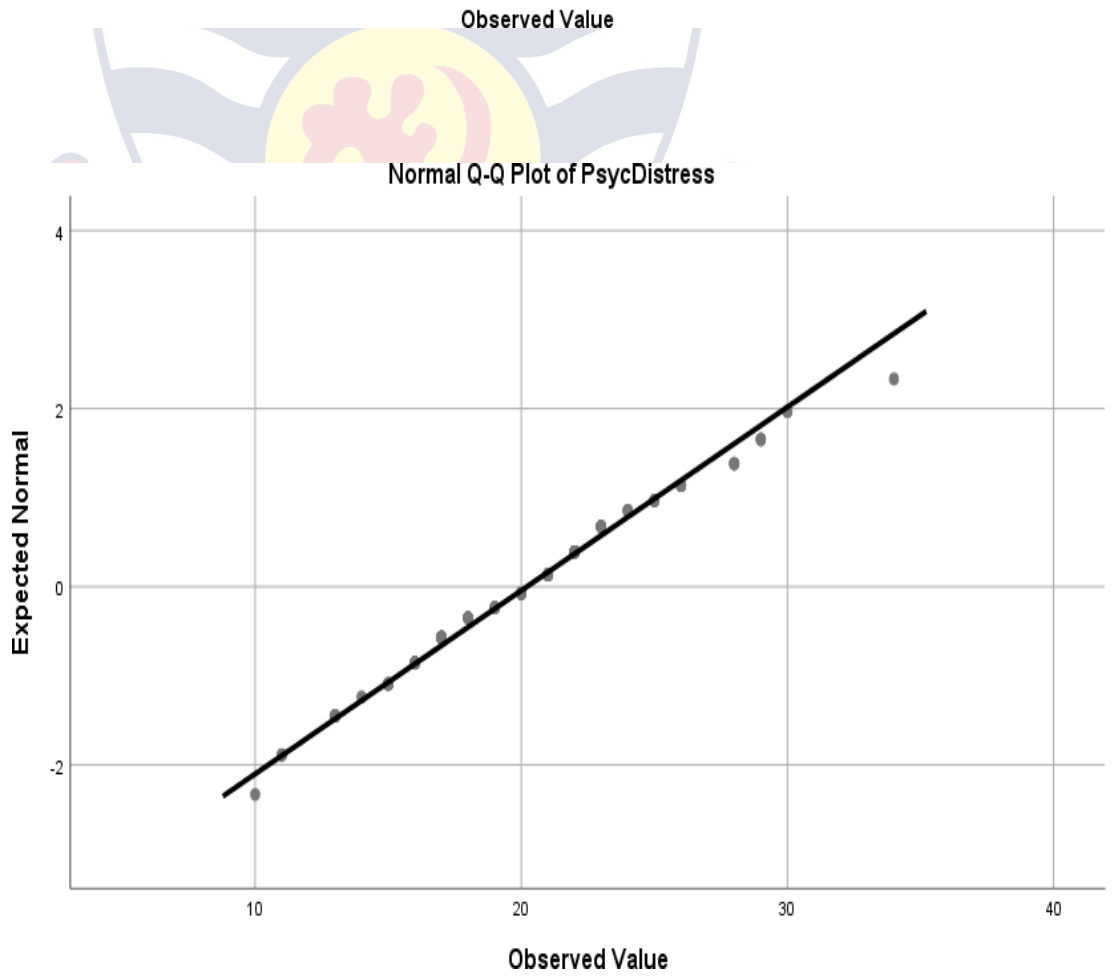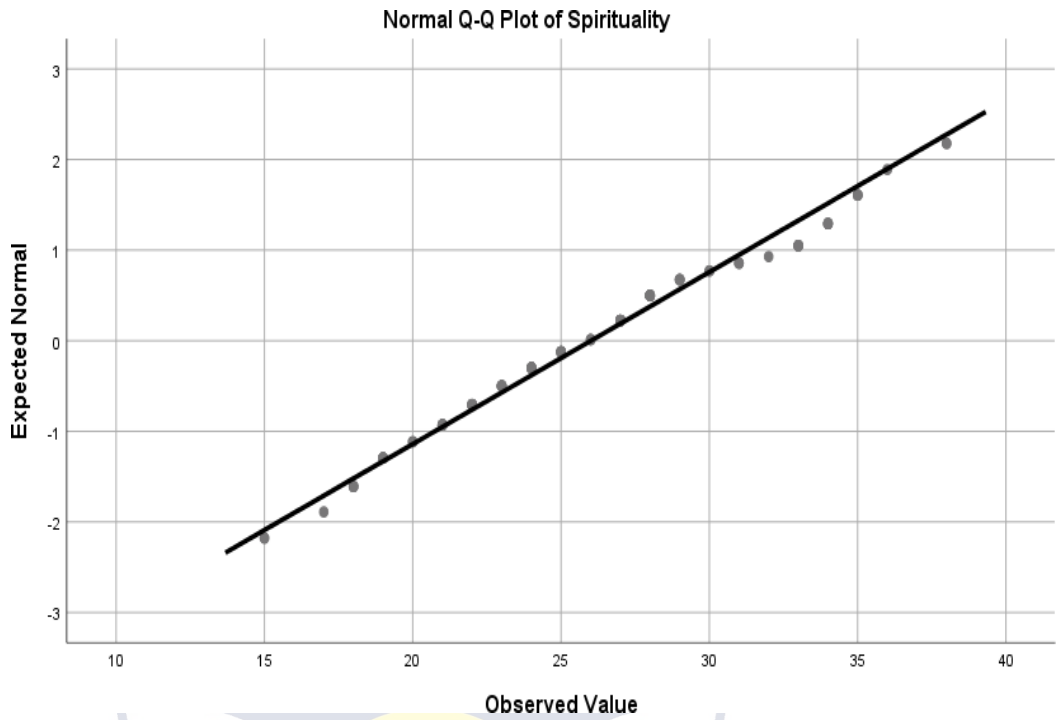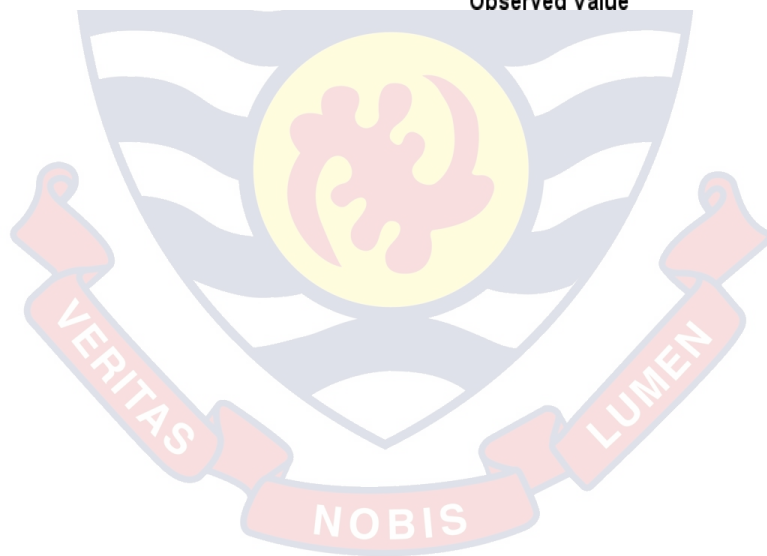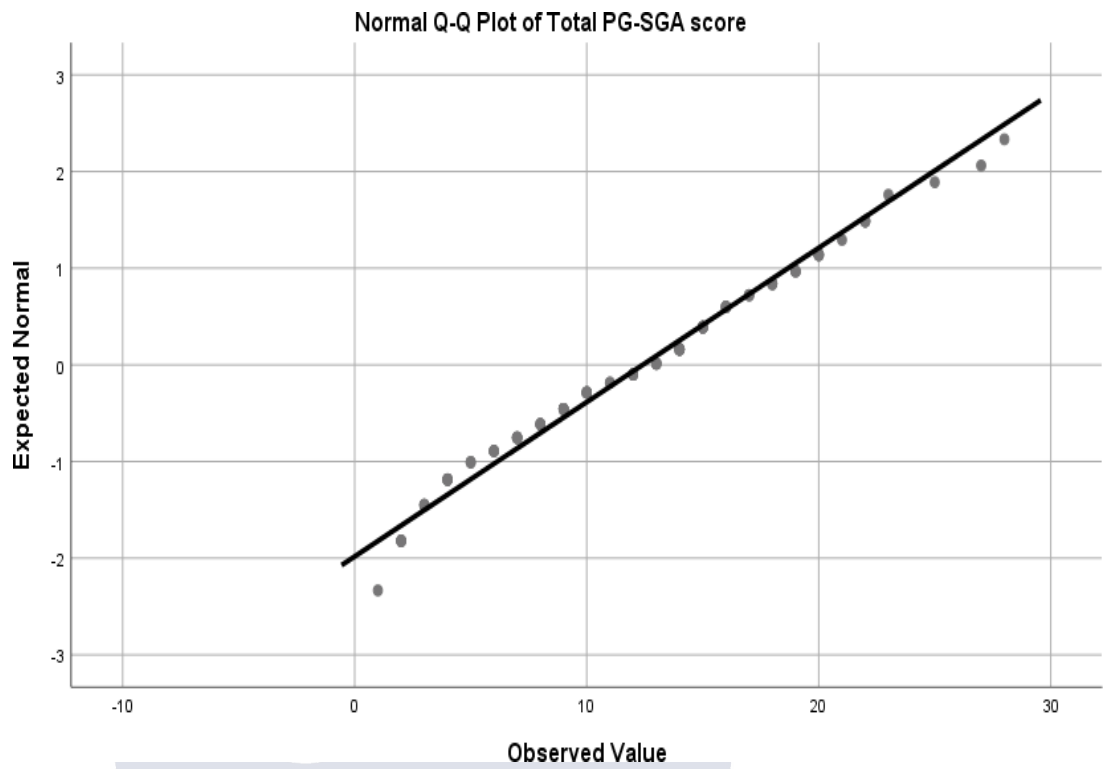
APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

About You

Before you begin we would like to ask you to answer a few general questions about yourself by **ticking the correct answer** or by **filling the space** provided.

1. Age   ……………………

2.   What is the highest education you received   None at all   [ ]

                                  Elementary School [ ]

                                                    High School   [ ]

                                                    College   [ ]

3. What is your marital status?   Single [ ]   Separated [ ]

                                  Married [ ]   Divorced [ ]

Living as Married[ ] Widowed [ ]

4.   Are you currently ill? Yes[ ] No [ ]

5.   What type of breast cancer treatment are you receiving treatment for

     …………………..

6.   Staging of breast cancer…………………….

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Please read each question, assess your feelings and circle the number on the scale for each that gives the best answer for you

		very poor	poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5

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The following questions ask about how much you have experienced certain things in the last two weeks

		Not at all	A little	A moderate Amount	Very much	An extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were

able to do certain things in the last two years

		Not at all	A little	Moderate	Mostly	Completely
10	Do you have energy for everyday life?	1	2	3	4	5
11	Are able to accept your body appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
15	How well are you able to get around	1	2	3	4	5

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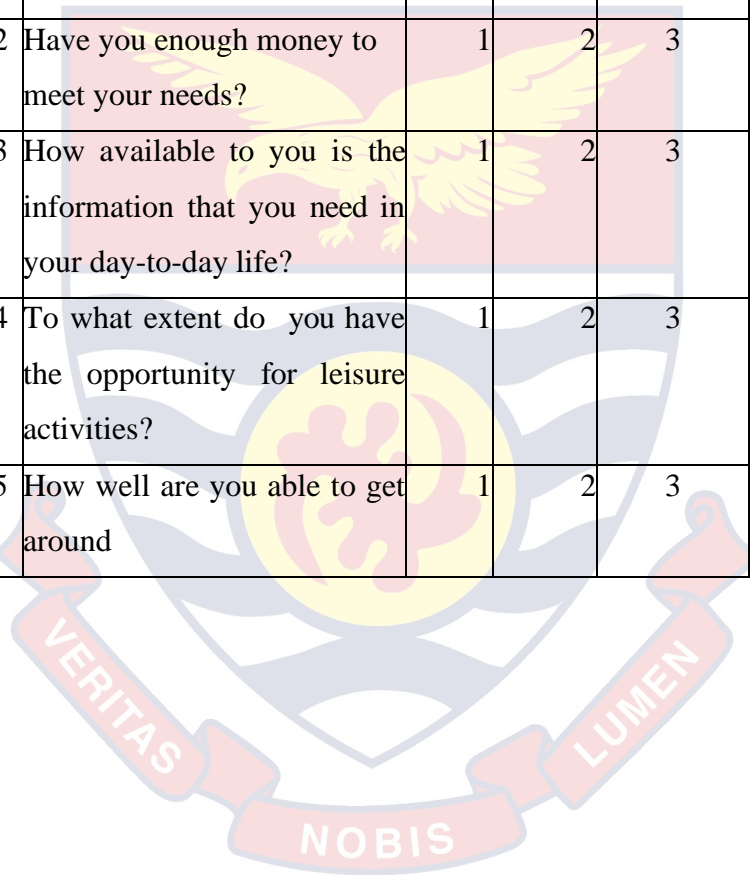
The following questions ask you say how **good or satisfied** you have felt

about various aspect of your life over the last two weeks.

Very Dissatisfied = VD, Dissatisfied = D, Neither Satisfied or Dissatisfied =

NS/D, Satisfied = S, Very Satisfied = VS

		VD	D	NS/ S	S	VS
16	How satisfied are you with your sleep?					
17	How satisfied are you with your ability to perform your daily living activities?					
18	How satisfied are you with your capacity for work?					
19	How satisfied are you with yourself?					
20	How satisfied are you with your personal relationships?					
21	How satisfied are you with your sex life?					
22	How satisfied are you with the support you get from your friends?					
23	How satisfied are you with the conditions of your living place?					
24	How satisfied are you with your access to health services?					
25	How satisfied are you with your transport?					

The following question refers to **how often** you have felt or experienced

certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Below is a list of statements that other people with your illness have said are

important**. Please circle or mark one number per line to indicate your**

response as it applies to the <u>past 7 days</u>.

		Not at all	A little bit	Some-what	Quite a bit	Very much
1	I feel peaceful	0	1	2	3	4
2	I have a reason for living	0	1	2	3	4
3	My life has been productive	0	1	2	3	4
4	I have trouble feeling peace of mind	0	1	2	3	4
5	I feel a sense of purpose in my life	0	1	2	3	4
6	I am able to reach down deep into myself for comfort	0	1	2	3	4
7	I feel a sense of harmony within myself	0	1	2	3	4
8	My life lacks meaning and purpose	0	1	2	3	4
9	I find comfort in my faith or spiritual beliefs	0	1	2	3	4
10	I find strength in my faith or spiritual belief	0	1	2	3	4
11	My illness has strengthened my faith or spiritual beliefs	0	1	2	3	4
12	I know that whatever happens with my illness, things will be okay	0	1	2	3	4

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The following questions ask about how you have been feeling during the past 30 days. For each question, please circle the number that best describes how often you had this feeling.

	During the month, how often did you feel…………	None of the time	A little of the time	Some of the time	Most of the time	All of the time
13	…. tired out for no reason?					
14	…. nervous?					
15	…. so nervous that nothing could calm you down?					
16	…. hopeless?					
17	…. restless or fidgety?					
18	…. so restless that you could not sit still?					
19	…. depressed?					
20	…. so depressed that nothing could cheer you up?					
21	…. that everything was an effort?					
22	…. worthless?					

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Scored Patient-Generated Subjective Global Assessment (PG-SGA)

History (Boxes 1-4 are designed to be completed by the patient.)

Patient ID Information

1. Weight *(See Worksheet 1)*

In summary of my current and recent weight:

I currently weigh about _____ pounds
I am about _____ feet _____ tall

One month ago I weighed about _____ pounds
Six months ago I weighed about _____ pounds

During the past two weeks my weight has:

☐ decreased (1)   ☐ not changed (0)   ☐ increased (0)   Box 1 ☐

2. Food Intake: As compared to my normal intake, I would rate my food intake during the past month as:

☐ unchanged (0)
☐ more than usual (0)
☐ less than usual (1)
    I am now taking:
        ☐ *normal food* but less than normal amount (1)
        ☐ little solid food (2)
        ☐ only liquids (3)
        ☐ only nutritonal supplements (3)
        ☐ very little of anything (4)
        ☐ only tube feedings or only nutrition by vein (0)   Box 2 ☐

3. Symptoms: I have had the following problems that have kept me from eating enough during the past two weeks (check all that apply):

☐ no problems eating (0)

☐ no appetite, just did not feel like eating (3)

☐ nausea (1)   ☐ vomiting (3)
☐ constipation (1)   ☐ diarrhea (3)
☐ mouth sores (2)   ☐ dry mouth (1)
☐ things taste funny or have no taste (1)   ☐ smells bother me (1)
☐ problems swallowing (2)   ☐ feel full quickly (1)
☐ pain; where? (3) _____   ☐ fatigue (1)
☐ other** (1) _____
    ** Examples: depression, money, or dental problems

Box 3 ☐

4. Activities and Function: Over the past month, I would generally rate my activity as:

☐ normal with no limitations (0)

☐ not my normal self, but able to be up and about with fairly normal activities (1)

☐ not feeling up to most things, but in bed or chair less than half the day (2)

☐ able to do little activity and spend most of the day in bed or chair (3)

☐ pretty much bedridden, rarely out of bed (3)

Box 4 ☐

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Additive Score of the Boxes 1-4 ☐ A

The remainder of this form will be completed by your doctor, nurse, dietitian, or therapist. Thank you.

Scored Patient-Generated Subjective Global Assessment (PG-SGA)

Worksheet 1 - Scoring Weight (Wt) Loss

To determine score, use 1 month weight data if available. Use 6 month data only if there is no 1 month weight data. Use points below to score weight change and add one extra point if patient has lost weight during the past 2

Wt loss in 1 month	Points	Wt loss in 6 months
10% or greater	4	20% or greater
5-9.9%	3	10 -19.9%
3-4.9%	2	6 - 9.9%
2-2.9%	1	2 - 5.9%
0-1.9%	0	0 - 1.9%

Numerical score from Worksheet 1 ☐

Additive Score of the Boxes 1-4 (See Side 1) ☐ A

5. Worksheet 2 - Disease and its relation to nutritional requirements

All relevant diagnoses (specify) _____ .

One point each:

☐Cancer ☐AIDS ☐ Pulmonary or cardiac cachexia ☐ Presence of decubitus, open wound, or fistula
☐Presence of trauma ☐ Age greater than 65 years   ☐ Chronic renal insufficiency

Numerical score from Worksheet 2 ☐ B

6. Work Sheet 3 - Metabolic Demand

Score for metabolic stress is determined by a number of variables known to increase protein & calorie needs. The score is additive so that a patient who has a fever of > 102 degrees (3 points) and is on 10 mg of prednisone chronically (2 points) would have an additive score for this section of 5 points.

Stress	none (0)	low (1)	moderate (2)	high (3)
Fever	no fever	>99 and <101	≥101 and <102	≥102
Fever duration	no fever	<72 hrs	72 hrs	> 72 hrs
Corticosteroids	no corticosteroids	low dose	moderate dose	high dose steroid
		(<10mg prednisone equivalents/day)	(≥10 and <30mg prednisone equivalents/day)	(≥30mg prednisone equivalents/day)

Numerical score from Worksheet 3 ☐ C

7. Worksheet 4 - Physical Exam

Physical exam includes a subjective evaluation of 3 aspects of body composition: fat, muscle, & fluid status. Since this is subjective, each aspect of the exam is rated for degree of deficit. Muscle deficit impacts point score more than fat deficit. Definition of categories: 0 = no deficit, 1+ = mild deficit, 2+ = moderate   3+ = severe

Muscle Status:

temples (temporalis muscle)	0	1+	2+	3+
clavicles (pectoralis & deltoids)	0	1+	2+	3+
shoulders (deltoids)	0	1+	2+	3+
interosseous muscles	0	1+	2+	3+
Scapula (latissimus dorsi, trapezius, deltoids)	0	1+	2+	3+
thigh (quadriceps)	0	1+	2+	3+
calf (gastrocnemius)	0	1+	2+	3+
Global muscle status rating	**0**	**1+**	**2+**	**3+**

Fluid Status:

ankle edema	0	1+	2+	3+
sacral edema	0	1+	2+	3+
ascites	0	1+	2+	3+
Global fluid status rating	**0**	**1+**	**2+**	**3+**

Fat Stores:

orbital fat pads	0	1+	2+	3+
triceps skin fold	0	1+	2+	3+
fat overlying lower ribs	0	1+	2+	3+
Global fat deficit rating	**0**	**1+**	**2+**	**3+**

Numerical score from Worksheet 4 ☐ D

Total PG-SGA score ☐

(Total numerical score of A+B+C+D above)

(See triage recommendations below)

Global PG-SGA rating (A, B, or C) = ☐

Clinician Signature _____ RD RN PA MD DO Other ___ Date _____

Worksheet 5 - PG-SGA Global Assessment Categories

Category	Stage A	Stage B	Stage C
Weight	Well nourished. No wt loss OR Recent wt gain	Moderately malnourished ≤5% wt loss in 1 month (or 10% in 6 mos) OR Progressive wt loss	Severely malnourished > 5% wt loss in 1 month (or >10% in 6 mos) OR Progressive wt loss
Nutrient intake	No deficit OR Significant recent improvement	Definite decrease in intake	Severe deficit in intake
Nutrition Impact Symptoms	None OR Significant recent improvement allowing adequate intake	Present of nutrition impact symptoms (PG-SGA Box 3)	Present of nutrition impact symptoms (PG-SGA Box 3)
Functioning	No deficit OR Recent improvement	Moderate functional deficit OR Recent deterioration	Severe functional deficit OR recent significant deterioration
Physical Exam	No deficit OR Chronic deficit but recent improvement	Evidence of mild to moderate loss of muscle mass / SQ fat / muscle tone on palpation	Obvious signs of malnutrition (eg, severe loss muscle, SQ tissue, possible edema)

Nutritional Triage Recommendations:
Additive score is used to define specific nutritional interventions including patient & family education, symptom management including pharmacologic intervention, and appropriate nutrient intervention (food, nutritional supplements, enteral, or parenteral triage).

First line nutrition intervention includes optimal symptom management.

Triage based on PG-SGA point score

0-1	No intervention required at this time. Re-assessment on routine and regular basis during treatment.
2-3	Patient & family education by dietitian, nurse, or other clinician with pharmacologic intervention as indicated by symptom survey (Box 3) and lab values as appropriate.
4-8	Requires intervention by dietitian, in conjunction with nurse or physician as indicated by symptoms (Box 3).
≥ 9	Indicates a critical need for improved symptom management and/or nutrient intervention options.

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APPENDIX D

ETHICAL CLEARANCE FORM

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES-ERB/ucc.edu/v3/19-04

Date: March 4, 2019

Your Ref: ....

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

Secretary, CES-ERB
Prof. Linda Dzama Forde
lforde@ucc.edu.gh
0244786680

The bearer, Dorcas Nhiamoah....,...., Reg. No. EF/CHP/17/0004... is an
M.Phil. /Ph.D. student in the Department of ...Psychology and
Education...................... in the College of Education Studies,
University of Cape Coast, Cape Coast, Ghana. He / She wishes to
undertake a research study on the topic:

Effect of psychological distress, spirituality
and nutritional status on quality of life
of women with breast cancer.......................

The Ethical Review Board (ERB) of the College of Education Studies
(CES) has assessed his/her proposal and confirm that the proposal
satisfies the College's ethical requirements for the conduct of the
study.

In view of the above, the researcher has been cleared and given approval
to commence his/her study. The ERB would be grateful if you would
give him/her the necessary assistance to facilitate the conduct of the said
research.

Thank you.
Yours faithfully,

Prof. Linda Dzama Forde
(Secretary, CES-ERB)

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APPENDIX E

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 233-3321-32440/4 & 32480/3	
Direct: 033 20 91697	
Fax: 03321-30184	
Telex: 2552, UCC, GH.	
Telegram & Cables: University, Cape Coast	
Email: edufound@ucc.edu.gh	

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

8th March, 2019

Our Ref:

Your Ref:

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

THESIS WORK
INTRODUCTORY LETTER: MS. DORCAS NTIAMOAH

We introduce to you Ms. Ntiamoah, a student from the Department of Education and Psychology, University of Cape Coast. She is pursuing a Master of Philosophy degree in Clinical Health Psychology and is currently at the thesis stage.

Ms. Ntiamoah is researching on the topic: *"Psychological Distress, Spirituality and Nutritional Status on Quality of Life Among Women With Breast Cancer"*.

She has opted to collect data at your institution/establishment for the Thesis work. We would be most grateful if you could provide her the opportunity for the study. Any information provided would be treated as strictly confidential.

Thank you.

Yours faithfully,

Gloria Sagoe
Chief Administrative Assistant
For: **HEAD**

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APPENDIX F

APPROVAL LETTER

PEACE AND LOVE HOSPITAL

Tel: +233-244-145-064
Email: peaceandlove2002@gmail.com
URL: www.breastcareghana.com

Breast Care International Ave
Plt 1, Blk C, Oduom-Kumasi
PO Box X374
FNT, Kumasi, Ghana

Our Ref: DNA001/PLH19   Your Ref: ……………..   Date: April 29, 2019

Ms Dorcas Ntiamoah
University of Cape Coast
College of Education Studies
University Post Office, Cape Coast
Email: dorcas.ntiamoah@stu.ucc.edu.gh

Dear Dorcas,

Letter of Approval

Study Title: Effect of psychological distress, spirituality and nutritional status on quality of life among breast cancer patients

Proposed Study Site: Peace and Love Hospital, Oduom-Kumasi

Sponsoring Institution: University of Cape Coast, College of Education Studies

Your submission to the Peace and Love Hospital (PLH) and Breast Care International (BCI) Ethical and Protocol Review Committee (EPRC) on the above named study based on the following documentation:
- Research protocol
- Participant Information Sheet
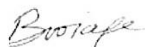- Informed Consent Form
- Researcher Introductory Letter

The committee considered the ethical value of your submission and approved the protocol, therefore; you can start your study as planned. This approval is for a specific period of time between May 1, 2019 and April 30, 2020. However, the committee has the right to suspend or revoke this ethical approval at anytime if it is found that your study contravenes the approved protocol.

Please note that data gathered for this study should be used for the approved purposes only and permission should be sought from the committee if there is any need to make amendment to the protocol.

A final report on your study should be sent to the committee at the close of your study and any publication that may arise from it.

We wish you all the best in your study.

Sincerely Yours,

Beatrice W Addai, MD.,PhD
For Chairperson

Community Participation

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APPENDIX G

ETHICAL APPROVAL

Application for ethical approval of Research involving Human Participants

This application form should be completed for research involving human participants conducted at the Sweden Ghana Medical Centre (SGMC). 'Human Participants' are defined as including living human beings, human beings who

have recently died, human tissue and body fluids and human data and records (such as but not restricted to medical, genetic, financial, personal, criminal or administrative records and test results including scholastic achievements). Research should not commence until written approval has been received (from departmental research director). This should be in mind when settling a start date for the project.

A full copy of the signed application will be retained by the department for 6 years following completion of the project.

Title of Project:

2. Principal Investigator

Name	Department

3. Name of supervisor (s)

Name	Department

Proposed start date of research :
(Note ethical approval cannot be granted retrospectively)
Probable Duration

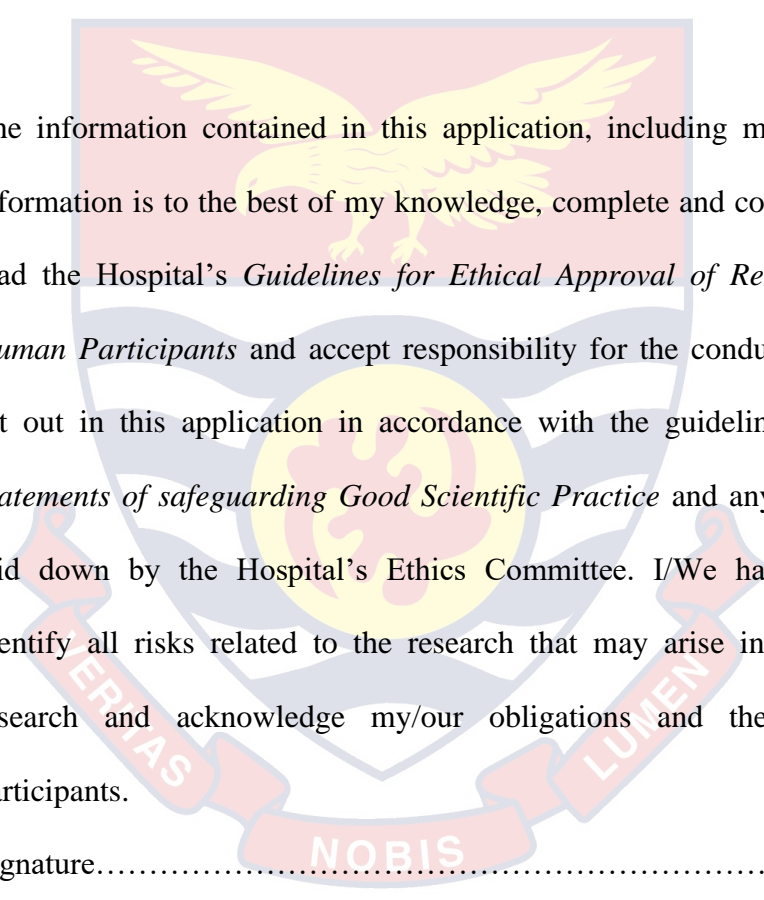4.   Will this project be externally funded   YES

        NO If Yes,

What is the source of funding?

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Please attach proof of funding

5.   External ethical approval obtained (attach evidence of approval)

YES   NO

_____

Declaration of Principal Investigator:

The information contained in this application, including my accompanying information is to the best of my knowledge, complete and correct. I/ We have read the Hospital's *Guidelines for Ethical Approval of Research Involving Human Participants* and accept responsibility for the conduct of procedures set out in this application in accordance with the guidelines, the *Hospital Statements of safeguarding Good Scientific Practice* and any other condition laid down by the Hospital's Ethics Committee. I/We have attempted to identify all risks related to the research that may arise in conducting this research and acknowledge my/our obligations and the rights of the participants.

Signature…………………………………………………………………

Name (s) in block letters ……………………………………………………

Date: …………………………………………………………………………

For official use only

_____

The application has been approved by the Ethics Committee The application

has not been approved by the ethics committee

The application has been referred to the Hospital's Ethics Committee

Signature……………………………………………………………………

Name (s) in block letters ……………………………………………………

Faculty….……………………………………………………………………

Date: …………………………………………………………………………..

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