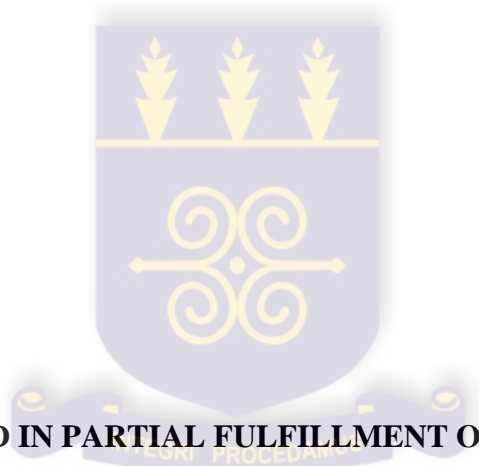


**PSYCHOSOCIAL DETERMINANTS OF BREAST CANCER SURVIVAL
(A STUDY AMONG BREAST CANCER PATIENTS)**

BY

MARCELLINE NAAEDER

(10025848)



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Declaration

I, Marcelline Naaeder, the author of this thesis do hereby declare that except for references to other people's work, which I have duly acknowledged, the study herein presented is the first of its kind to be carried out in the Department of Psychology, University of Ghana, Legon, during the 2013/2014 academic year under objective supervision of Professor S. A. Danquah and Dr. P. N. Doku. This work has never been submitted in any form, whole, or part for a degree in this university or elsewhere.

Signed

Marcelline Naaeder
(Student)

Date

This work has been submitted for examination with our approval as supervisors.

Signed.....

Professor S. A Danquah
(Principal Supervisor)

Date

Signed.....

Dr. P. N. Doku
(Co-Supervisor)

Date

Abstract

The study used a cross-sectional survey method approach to investigate coping and psychosocial adjustment among cancer patients and how these are influenced by personal factors, social support, and illness-related factors. 98 cancer patients were conveniently sampled from the Radiotherapy Centre of the Korle- Bu Teaching Hospital in Accra, Ghana. The Coping Orientation of Problem Experience Inventory, Life Orientation Test–Revised Questionnaire, Hospital Anxiety and Depression Scale, Functional Assessment of Chronic Illness Therapy–Spiritual Well Being, Medical Outcome Studies Social Support Survey, The Psychosocial Adjustment to Illness Scale and a demographic questionnaire were used to measure coping, optimism, anxiety/depression, spirituality, social support, psychosocial adjustment and demographic characteristics respectively. The results revealed almost all key variables of the study including age, educational level, stage of cancer, spirituality, optimism, social support, depression, anxiety and coping were significantly related with psychosocial adjustment. Whilst educational level and spirituality mediated between coping and psychosocial adjustment, optimism, social support, depression and medical factors like stage of cancer and previous surgery (mastectomy) moderated between coping and psychosocial adjustment. Many of these findings support previous research though some conflict with prior results. The implication however of these outcomes is that coping is associated with these factors to influence adjustment for cancer survivors to a certain degree.

Dedication

This work is dedicated to my dear husband Dr. Peter Quarcoopome Sackey and wonderful son Samuel Nii Sackey, who have been a source of strength and unwavering support. God bless you.



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I have been fortunate to have had the support of many wonderful people throughout the time that it took to complete this dissertation.

I am first, grateful to God who granted me the strength to complete this dissertation

I am thankful for the women who participated in this research I have learned from their experiences that although this diagnosis can be trying and at times devastating, it can also lead to positive outcomes.

I especially acknowledge and thank Prof. Samuel Danquah, my principal supervisor. This thesis would not have been possible without his help, support and patience not to mention his advice and unsurpassed knowledge which was both insightful and instrumental in the completion of this project. I also express my gratitude to Dr. Paul Doku, my second supervisor who gave his invaluable advice, support, and expertise.

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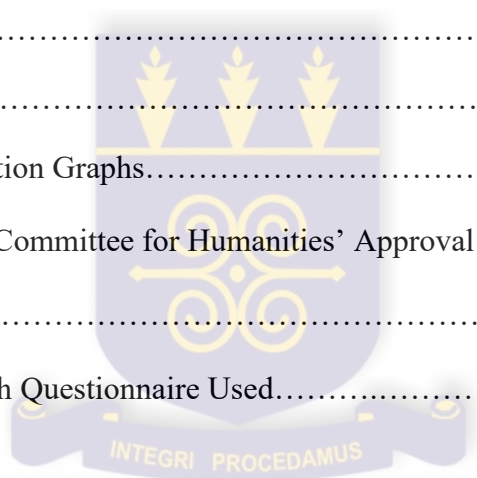
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List of Abbreviations

ACS	American Cancer Society
ASR	Age Standardized Incidence Ratio
AJCC	American Joint Committee on Cancer
COPE	Coping Orientation of Problem Experience Inventory
ECH	Ethics Committee for Humanities
FACIT- Sp	Functional Assessment of Chronic Illness Therapy Spiritual
HADS	Hospital Anxiety and Depression Scale
JHS	Junior High School
KBTH	Korle- Bu Teaching Hospital
LOT-R	Life Orientation Test- Revised
NCCS	National Coalition for Cancer Survivorship
PAIS	Psychosocial Adjustment to Illness Scale
SHS	Senior High School
TNM	Tumor Node Metastasis
QOL	Quality of Life
USA	United States of America
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Overview of Breast Cancer

According to the World Health Organization Cancer is a generic term for a large group of diseases that can affect any part of the body. Other terms used are malignant tumours and neoplasms.

Worldwide, cancer is a leading cause of disease, with an estimated 12.7 million new cancer cases occurring in 2008. Cancer is also a leading cause of death worldwide with 7.6 million deaths recorded in 2008 (around 13% of all deaths). Approximately 47% of cancer cases and 55% of cancer deaths occur in the less developed regions of the world and if recent trends in major cancers are seen globally in the future, the burden of cancer will increase to 22 million new cases each year by 2030 (WHO, 2012). In addition an estimated 25 million cancer survivors diagnosed within the past 5 years are living with the diagnosis, some still in treatment and others post-treatment, and managing disease sequelae and the threat of recurrence (American cancer society, 2007).

The knowledge of cancer patterns in Africa unfortunately is woefully inadequate and population-based epidemiological data on the occurrence of cancer in sub-Saharan Africa, especially, is sparse. Until recently, cancers and other non-communicable diseases were thought to be unimportant public health problems in developing countries, such as Ghana due to the overwhelming high prevalence of communicable diseases. In Ghana cancer mortality patterns have not been reviewed since 1953, and also there is no population-based data available for cancer morbidity and mortality patterns due to the absence of a population-based cancer registry anywhere in the country. A dearth of

reliable data on cancers is however available. Available data are obtained from institutional reports or modelled data. Institutional data are often limited by completeness in terms of geographical coverage and scope of diseases but in spite of this statistical limitation, available data indicate that cancer has emerged as an important cause of morbidity and mortality in Ghana.

Reviews of cancer in Ghana have been mainly restricted to the study of single cancers, rather than the relative contributions of the various cancers to the disease burden and Globocon (2008) has estimated that 16 600 cases of cancer occur annually in Ghana, yielding an age standardized rate of 109.5 cases per 100 000 persons. Cancer is the third commonest cause of hospital admissions in Ghana, after cardiovascular diseases and accidents/poisons (Biritwum, Gulaid & Amaning, 2000). In 1996 alone, 12.8% of all admissions for malignant neoplasms to the Korle-Bu Teaching hospital were for breast cancer which is the second commonest cancer among women in Ghana. It forms 15% of all cancer and 40% of female cancers. In Ghana 2,062 new breast cases and 1,137 breast cancer deaths were estimated annually (16.5% of all women cancer deaths) with age standardized-incidence and mortality rates of 25.8 and 15.2 per 100 000 women respectively (Globocan 2008). Estimates from the WHO put the Age Standardized Incidence Ratio (ASIR) at 37/100,000 of the population (although there is no cancer registry in Ghana to substantiate this). The available data on median age in Ghana is limited and mainly hospital based. However Clegg-Lampsey et al. (2009) has reported a median age at diagnosis of 43 years on a sample of 66 women newly diagnosed with breast cancer (the age range in this instance was broad, from 20 to 84 years).

The incidence-mortality ratio of Breast cancer in Ghana is 0.68 as compared to 0.2 in the USA (WHO, 2004). Thus it can be inferred that mortality from the disease is therefore relatively high in Ghana and other developing countries. Baako (2001) found a 5-year survival of only 25% in Korle - Bu Teaching Hospital (KBTH) compared to over 85% in the USA and sixty percent of cases were detected at late stages (IIIB, III and IV) (Clegg-Lampitey, Dakubo & Attobra (2009). With regards to treatment, surgery still represents the main form of treatment for breast cancer in the country (Clegg-Lampitey & Hodasi, 2007) though in other African countries some cultural beliefs and mysticisms surround the disease (Okobia, Bunker & Okonofua, et al., 2006).

A diagnosis of breast cancer affects women physically, emotionally, as well as psychologically (Stone, Richards, A_Hern, & Hardy, 2000; Hann, Denniston, & Baker, 2000). The breast cancer experience by women has several distinct phases, each characterized by a unique set of psychosocial concerns. These phases include diagnosis, primary treatment, special issues related to non-invasive breast cancer, genetic risk and its psychological management, completing treatment and re-entry to usual living, survivorship, recurrence, and palliation of advanced cancer (Hewitt, Herdman, & Holland; National Research Council, 2004). Patients with breast cancer go through severe emotional problems that may be related to their socioeconomic situation, psychological make-up and coping abilities, the medical parameters of the disease, the type of operation they undergo (mastectomy or lumpectomy), other forms of adjuvant treatment (chemotherapy, hormonal therapy or radiotherapy), the side effects of the treatment, and the availability of emotional and financial support (Adachi, Ueno, Fujioka, Fujitomi & Uco, 2007; Hislop, Waxler, Coldman et al., 1987; Payne, Sullivan, Massie, 1996).

Appropriate coping and adjustment/adaptation is therefore important when faced with a diagnosis of breast cancer since the coping strategies utilized by women impact on their adaptation and response to breast cancer (Doumit, Huijjer, Kelley et al., 2010).

Coping strategies refer to the specific efforts, both behavioral and events. Coping efforts may be distinguished from their effects on the stressful situation, on emotional well-being and on subsequent health and adjustment. Such efforts have also been shown to be a function of both person and situation factors (Fieshman, 1984; Folkman, Lazarus, Gruen, & Delongis, 1986; Holahan & Moos, 1987; Parkes, 1986). Attesting to this a recent review of literature on coping with a diagnosis of breast cancer (Al-Azri, Al-Awisi & Al Moundhri, 2009) summarized factors that can influence coping strategies. In addition, in a study done by Dragset & Lindstrom (2005), demographic characteristics, educational level, positive thinking and psychosocial support were identified as of importance in determining women's method of coping. Personal factors such as socio-demographic factors (age, sex, employment status, education, income, religion, religiosity) and situational factors (site of cancer, stage of disease, time since diagnosis, current treatment status and associated medical conditions) were also studied as significant determinants of coping efforts in a study done by Dunkel- Schetter, Feinstein, Taylor & Falke (1992).

1.2 Statement of the Problem

Cancer patients are occupied with many psychosocial problems, which are only partially related to their state of health and medical treatments and breast cancer has been shown to be associated with psychosocial problems and these may have an effect on prognosis.

According to statistics in Ghana breast cancer is the leading malignancy, with the number of cases on the increase. Many of these patients have to cope with a diagnosis of breast cancer in varying ways which will influence how they adjust psychosocially. It is therefore important to research into the psychosocial determinants of breast cancer survival in Ghanaian women diagnosed with breast cancer and assess whether these factors result in patients adopting adaptive or maladaptive coping styles and hence high or low levels of psychosocial adjustment respectively.

1.3 Rationale of the study

It is important to describe women's experiences of health, illness, coping and adjustment. Women with breast cancer are faced with many demanding challenges different from initial diagnosis and treatment. While breast cancer is an incurable disease in most cases, some women will live for years or even decades with their illness. Women with recurrent breast cancer are not only challenged in terms of coping with changes in health and progressive experiences of illness, they also have to comprehend, manage and enhance "meaning" in life while living with a persistent threat, as well as creating new ways of interacting with families and significant others.

In view of the available statistics pertaining to the number of cancer cases reporting at the Korle-Bu Teaching Hospital, unpublished records of those in other facilities around the

country, and WHO estimates for Ghana, it can be seen that the cancer patient burden will increase significantly over the next few years. Reported clinical studies from Ghana and other communities in sub-Saharan Africa indicate that breast cancer indigenous in black African populations, is often severe with unfavourable prognostic features.

Very few studies have been done in breast cancer patients in Ghana and these include; Addressing the impact of health education on breast cancer (Clegg-Lamprey, 2007); Breast cancer in Kumasi, Ghana, describing the characteristics of breast cancer patients attending the Komfo-Anokye Teaching Hospital in Kumasi, Ghana (Ohene-Yeboah, 2012); The influence of cultural beliefs of breast cancer risk factor knowledge of women in Kumasi, Ghana (William et.al, 2009), however no studies have yet been done on coping and psychosocial adaptation in breast cancer patients and factors which can influence coping. The psychosocial aspects of breast cancer treatment in Ghana (Clegg-Lamprey, 2009), is the closest research done in recent times.

Also from the literature review most of the studies done were carried out in White, Caucasian and African-American populations but the nature of the disease requires that every population (in this case the Ghanaian population) must define the characteristics and outcomes of breast cancer among its people so as to be able to determine the most suitable coping- skills based interventions and psychosocial interventions to be made. Additional knowledge in cancer research/literature in Ghana is also needed, especially with regards to the coping and psychosocial adjustment/adaptation in management of the breast cancer. It is therefore against this background that the study was designed.

1.4 Research Aim

To test a multivariate model of factors that affect breast cancer survivors' psychosocial adjustment based on a stress-coping model.

1.5 Specific Research Objectives

1. To determine the influence of personal factors, social support and illness related antecedents on coping strategies/styles used by breast cancer survivors.
2. To establish the relationship between coping strategies/styles used by cancer patients and psychosocial adjustment.
3. To assess whether coping strategies/styles mediate the effects of personal factors, social support and illness related antecedents on psychosocial adjustment.
4. To ascertain whether personal factors, social support and illness-related factors moderate the link between coping strategies and psychosocial support

1.6 Significance of the Study

According to the National Strategy for Cancer Control (2012-2016), the strategy for the overall treatment of cancers includes offering psychotherapy as part of treatment. Knowledge about the psychosocial determinants of breast cancer survival will provide further insight during psychotherapy and also serve as a basis for coping- skills based interventions which can be incorporated into treatment protocols and guidelines for management of cancer.

A large proportion of cancer patients in Ghana present with late disease and are eligible for palliative care. Palliative care is an approach that improves the quality of life of patients and their families facing terminal disease. It is an essential component of cancer management. The goal of palliative care is to avoid unnecessary suffering and to improve the quality of life of cancer patients through emotional support, symptom control, end-of-life care and bereavement care. It addresses the physical, psychosocial, and spiritual needs of patients and their families. The needs of the patient can be anticipated and preventive and treatment measures planned and put into effect. With good palliative care people with advanced disease can have dignity and peace during the difficult and final phases of life.

Unfortunately such services are not always available and many patients die without adequate support. The goal of the cancer control program is to provide such care to 25% of eligible patient by 2020. According to the principles and components of palliative care, it will integrate clinical, psychological and spiritual aspects of care, offer a support system to help patients live as actively as possible until death, offer a support system to help the family cope, during the patient's illness and in their own bereavement, enhance quality of life, and this may positively influence the course of illness. Information and knowledge on coping strategies would therefore be very valuable not only in cancer palliative care but also in rehabilitation and in developing a further understanding of the psychosocial determinants of coping in breast cancer survival and how these coping strategies influence the outcome of psychosocial adjustment.

1.7 Organization of the study

The thesis starts with an introductory chapter that includes the context/background to the study, problem statement, the rationale, the aims and objectives, the significance of the study, a brief summary on the organization of the study and operational definitions. The researcher provides a review of the literature review relevant to the thesis; that is, coping strategies, psychosocial determinants of these coping strategies and the effects of coping on psychosocial adjustment in breast cancer survival, the conceptual and theoretical framework and the statement of hypothesis in Chapter 2. Chapter 3 discusses the methodology of the study with an overview of the variety of methods employed within the thesis and a discussion of the psychometric principles adopted during data collection and analysis. Chapter 4 presents the results of the data. Chapter 5 provides a critical discussion on the data of the study, contributions and implications for future research, implications for practice, limitations of the study, recommendations for future research and concluding remarks.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of literature deals with the following: a brief overview of the pathology of breast cancer and breast cancer survival/survivorship, coping strategies, psychosocial determinants of breast cancer survival and coping, psychosocial adjustment and coping and psychosocial adjustment.

2.2 Breast cancer

Breast cancer is an abnormal growth in cells that normally line the ducts and the lobules (ACS, 2007b). Abnormal cells may develop in the ductal epithelial cells and spread further in the breast duct or lobule wall. As breast cancer advances it invades the basement membrane mammary fat, underlying muscle and overlying skin and spreads to the blood vessels and lymph vessels of the dermis.

Stage of breast cancer constitutes one indicator of breast cancer survival rate of the patient and is important for identifying appropriate treatment. The American Joint Committee on Cancer (AJCC, 2007) divided the phases of breast cancer into five stages using the criteria of TNM (Tumor, Node, Metastasis) classification.

Primary Tumour (T)

- TX Primary tumor cannot be assessed
- T0 No evidence of primary tumor
- Tis Carcinoma in situ
- T0 No evidence of primary tumour
- T1 Tumour 2 cm or less in greatest dimension
- T2 Tumour more than 2 but not more than 5 cm in greatest dimension
- T3 Tumour more than 5 cm in greatest dimension
- T4 Tumour of any size with direct extension to the chest wall or skin

Regional Lymph Nodes (N)

- NX: Regional lymph nodes cannot be assessed
- N0: No regional lymph node metastasis
- N1: Metastasis to movable ipsilateral axillary node(s)
- N2: Metastasis to ipsilateral axillary node(s) fixed to one another or to other structures
- N3: Metastasis to ipsilateral internal mammary lymph node(s)

Pathologic classification (pN)

- pNx; Regional lymph nodes cannot be assessed
- pN0 No regional lymph node metastasis
- pN1 Metastasis to movable ipsilateral axillary lymph node(s)
- pN2 Metastasis to ipsilateral axillary lymph nodes that are fixed to another or to other structures
- pN3 Metastasis to ipsilateral internal mammary lymph node(s)

Distant Metastasis (M)

MX Distant metastasis cannot be assessed

M0 No distant metastasis

M1 Distant metastasis

The above classification can be further categorized into stages. These stages” can be determined clinically or pathologically or both.

Stage Grouping:	Stage 0	Tis	N0	M0
	Stage I	TI	N0	M0
	Stage IIA	T0	NI	M0
		TI	NI	M0
		T2	N0	M0
	Stage IIB	T2	NI	M0
		T3	N0	M0
	Stage IIIA	T0	N2	M0
		TI	N2	M0
		T2	N2	M0
		T3	N2	M0
		T3	N2	M0
	Stage IIIB	T0	N2	M0
		T4	Any N	M0
		Any T	N3	M0
	Stage IV	Any T	Any N	MI

2.3 Breast cancer survival/ survivorship

Forty years ago, a diagnosis was almost certainly a death sentence (Aziz, 2002; Bloom, 2001; Holland, 2003; Hewitt & Ganz, 2006; Lunney & O'Mara, 2001). Now, however the situation has much improved. As a result of technological advances developing more effective screening tools and treatments, cancer detection occurs much earlier, thus giving more cancer patients a better prognosis (Bowman, Deimling, Smerglia, Sage & Kahana, 2003; Holland, 2003; Hewitt & Ganz, 2006). The result is more people, not only surviving cancer but living with cancer as a chronic condition.

In 1986 the National Coalition for Cancer Survivorship (NCCS) changed the language used to define a person with a diagnosis of cancer from cancer patient to cancer survivor. The use of the term cancer survivor was developed to encapsulate an individual's experience from the moment of diagnosis of cancer to the day of the individual's death regardless of the cause (Hewitt & Ganz, 2006). This definition was developed from the description written by Mullan, of his own experiences whilst undergoing cancer treatment. In his journal, Mullan referred to himself as a survivor in the battle against cancer rather than a victim or patient (Aziz, 2002; Hewitt & Ganz, 2006). The term was adopted by the NCCS as it was thought to give people hope, regardless of the severity of their diagnosis (Ganz, 2005). The term cancer survivor has evolved over the past 30 years and several different definitions have been developed. One definition is that a cancer survivor is an individual who has completed the initial phase of treatment. Another definition is that a survivor is an individual who has survived five years after diagnosis, and still another is that a cancer survivor is an individual who previously had cancer but is now free of the disease (Hewitt & Ganz, 2006; Reuben, 2004). The definition of a

cancer survivor has also been extended by some to include not just the individual, but others such as parents, partners, caregivers and children supporting the individual (Hewitt & Ganz, 2006; Reuben, 2004). This extended definition has been questioned by Feuerstein (2007), who considers that family and significant others should not be called cancer survivors as they have not experienced cancer biologically and functionally, or in a social or emotional equivalence to the person living biologically with the diagnosis. Whilst the experience of the family and caregivers are important due to their functional and emotional role in supporting the individual, for the purpose of this study cancer survivors will be defined as only those individuals with a diagnosis of cancer.

The Cancer Survivor and survivorship

For those with a diagnosis of cancer, survivorship begins the day of diagnosis and encompasses the physiological, social and psychological effects of the cancer (Aziz, 2002; Bloom, 2001; Hewitt & Ganz, 2006). The term cancer survivorship therefore represents the living of life following a diagnosis of cancer and involves a continual dynamic process that entails much uncertainty (Bowman et. al., 2003; Hewitt & Ganz, 2006; Zebrak, 2000).

Due to advancements in diagnosis and treatments, millions of cancer survivors now live with cancer as a chronic illness and have to be cared for with this consideration (Aziz, 2002; Miller, 2009). Longer survival rates present medical service providers and support teams with additional challenges of working to extend a cancer survivor's life whilst at the same time maintaining quality of life of those individuals (Jacobsen & Jim, 1999). The quality of life is often affected by cancer experience and can be influenced by the

disease state and treatment variables (Miller & Massie, 2006). Furthermore, the type of treatment prescribed, the presence of co-morbidities, and individual psychological characteristics of the cancer survivor influence the experience of survivorship (Miller & Massie, 2006). Treatment options vary depending on individual characteristics and the pathophysiological indicators of the cancer. At present the most commonly utilized forms of treatment are chemotherapy, radiotherapy and surgery.

Internal individual characteristics such as coping ability, adaptation skills, emotional development, a history of losses, locus of control, cognitive flexibility and spiritual beliefs influence how a cancer survivor copes with the diagnosis and the events that follow (Miller & Massie, 2006; Zebrak, 2000). External and social factors also have a role in providing individuals with support and facilitating their coping (Ell et al., 1989; Miller & Massie, 2006; Zebrak 2000). A large variation in these factors can result in each cancer survivor having quite different experiences of cancer diagnosis and treatment. Many survivors have difficulty in coping with returning to their “pre-cancer life”. For some cancer survivors, reintegrating into society socially, recreationally and through employment can be challenging. Role issues and relationship issues can become prominent concerns (Gotay & Muraoka, 1998; Jefford et al., 2008).

Although many survivors report a negative impact of cancer and on-going difficulties post-diagnosis, some survivors have reported beneficial changes. These changes have included a greater appreciation of life and/or a sense of purpose that have resulted in positive change in perspective for the survivor (Alfano & Roland, 2006). Many have reported a sudden and irrevocable understanding that life is precious but can end at any time (Jefford et al., 2007; Bowman et al., 2003) which can resolve in revised priorities in

life, changes in lifestyles and values and a greater connection to spiritual aspects such as faith and religion (Alfano & Roland, 2006; Bowman et al., 2003; Jefford et al., 2008; Reuben, 2004).

Despite the heterogeneous experiences of cancer and the influence this has on an individual's perceptions and behaviours, there appear to be stages of survivorship that people with cancer progress through. Three different stages (acute, extended and permanent) have been described as the seasons or stages of survival (Mullan, 1985). Each stage has its own distinct challenges which patients need to overcome, often before progressing through to the next phase. The acute stage of cancer survivorship begins at diagnosis, continues through until the initial phase of treatment is completed, and may last for between one month to a year or more. The main focus during the acute phase is the disease itself (Bloom 2001). The extended stage of cancer survivorship begins when initial treatments have ended. The extended stage is the period in which cancer recurrences are most likely to occur (Bloom, 2001). For those patients that survive their cancer, the permanent stage is the final stage of survivorship that begins when the probability of recurrence has diminished and continues for the rest of the survivor's life (Bloom 2002). However for the purpose of this study cancer survivors will be limited to those in the acute stage and the extended stage of survivorship.

The acute stage of cancer survivorship

The acute stage is an active, busy time that includes treatment, often in the form of surgery, followed by repeat or additional treatments that may be invasive and painful. Research indicates that while most cancer survivors view their experience of cancer in both negative and positive terms, there is a general agreement that the most stressful stage, physically and psychologically is the acute stage (Bowman et al., 2003). Following diagnosis, many cancer survivors experience a period of adjustment during which anxiety, fear, depression and somatic symptoms of distress such as disruption of sleep and appetite occur (Ell et al., 1989; Miller & Massie, 2006). Grief reactions such as denial, anger, bargaining and depression are often part of the process leading to acceptance of the diagnosis and the need for treatment (Cheng 2009). It is at this time that strong familial and social support, strong bonds of communication and a strong therapeutic relationship with their physician is important for the psychological wellbeing of the patient (Miller & Massie, 2006).

The development of psychiatric symptoms in cancer survivors is not uncommon. Miller and Massie (2006) reported that in a sample of 215 cancer survivors nearly 90% of the observed psychiatric disorders were reactions to, or manifestations of, the disease or treatment. Out of the 215 survivors, 53% were adjusting normally to stress and 47% had clinically-apparent psychiatric disorders. Two thirds (68%) of the 47% had adjustment disorders with depressed or anxious mood and of these, 13% had a major depressive. For many cancer survivors, depressive symptoms are always exacerbated by feelings of helplessness and hopelessness perpetuated by the fear of possible recurrence, and fear of pain of the future treatments and side-effects (Miller & Massie, 2006; Schroevers,

Helgeson, Sanderman & Ranchor, 2009). Even once an individual has completed therapy there is an increased risk of suicide for those with a poor prognosis, higher levels of pain, delirium, depression, and/or a sense of hopelessness that can continue into the permanent stage of survivorship (Miller & Massie, 2006; Lunney & O'Mara, 2001; Schroevers et al., 2009)

Chemotherapy and radiotherapy occur in the acute phase. During and after these therapies, the survivors often experience acute side-effects. Side-effects may include skin and hair changes, hair loss pain and chronic fatigue, nausea, cognitive changes, weight gain or loss, sexual and/or reproductive changes, and damage to other organs of the body not previously affected by the cancer (Balducci & Extermann, 2000). These changes often create further difficulties for the cancer survivor to cope with. Chemotherapy can also reduce the body's ability to fight infection due to its impact of decreasing red blood cells, further intensifying the survivor's experience of being unwell (Yasko & Greene, 2009). Thus many cancer survivors experience an exacerbation of distress and physical symptoms during treatment and can experience intermittent periods of disability, particularly when treatments are combined (Deimling, Bowman, Schaefer, 2002). Unlike the systemic approach of chemotherapy, radiation therapy is usually localized to the site of the tumor. Therefore the side-effects of radiation therapy are often contained to the site of the treatment and can include severe and long lasting burning and tissue damage. The side effects of radiation therapy are often intensified by its combination with chemotherapy, thereby increasing the probability of more severe local and systemic side effects.

In order to facilitate coping, many cancer survivors attempt to work or function in their normal routines for as long as they are able through the acute stage (Harpham, 1999). Being busy appears to provide a link to previous normality and is reportedly a preferential distraction to rumination about cancer, the therapy and possible outcomes of the cancer and the therapy (Harpham, 1999). One of the main obstructions to this however is the level of fatigue most cancer survivors undergoing treatment experience. Fatigue affects between 70 – 100% of cancer survivors and whilst it is a subjective experience, fatigue has a profound effect on the ability for cancer survivors to function normally (Ahlberg, 2003, as cited in Cramp, 2008).

An additional challenge throughout cancer treatments and recovery, are the need to come to terms with the many losses associated with a cancer diagnosis. Research has indicated that the initial stage of cancer carries with it the “critical attributes of traumatic life event that is characterized by loss and crises” (Filipp, 1992, as cited in Deimling, Bowman, & Schaefer, 2002, p. 479). Losses experienced can include loss of job, of role (i.e. breadwinner, lover and home-maker), of physical comfort (i.e. pain, loss of hair and loss of limbs), of personal control (feeling as though life is out of control), of relationships, and of financial security (Harpham, 1999; Bloom, 2001). The previously mentioned side effects such as physical and emotional fatigue can often further exacerbate the sense of loss and helplessness for many survivors (de Boer- Dennert et al., 1997).

The extended stage of cancer survivorship

The extended stage of cancer survivorship occurs when initial treatments have ended. The extended stage is the period in which cancer recurrences are most likely to occur (Bloom, 2001). In addition to the potential threat of recurrences the extended the extended phase of survival is the phase in which interpersonal issues such as changes in relationships, re-employment challenges, sexual dysfunction are most salient (Bloom, Hewitt & Ganz, 2006) as the patient attempts to return to —life before cancer”.

For many cancer survivors’ medical support is usually reduced during the extended stage, except for those receiving ongoing treatments. As the medical support withdraws, many cancer survivors reportedly find themselves feeling alone during this time with only the support of their closest family members (Jefford et al., 2007). Often during the extended stage, there is an erroneous assumption made by caregivers that as the cancer is gone the survivor no longer needs support (Jefford et al., 2007; Stanton et al., 2005). However, whilst the initial threat has been removed, late effects and adjustment issues still occur. Late effects are side effects of the different cancer treatments that can appear months and sometimes years after treatment has been completed. Such effects can include physical problems including fatigue and infertility, psychological issues such as mood disorders and anxiety, and secondary cancers (Bloom, 2001; Mullan, 1985, as cited in National Brain Tumor Society, 1989). The cancer survivor, caregivers and perhaps the nurses and general practitioners are left to deal with late effects and other issues of health that arise.

During the extended phase of treatment the responsibility of monitoring for recurrence is no longer the ultimate responsibility of the medical team but falls more to the survivor. Being left to largely self manage can exacerbate the fear of recurrence many survivors

cope with during the extended stage (Allen, Savadati & Levy, 2009). For many, ongoing health anxiety develops and survivors can become hyper-vigilant for signs of potential recurrence (Alfano & Rowland, 2006) and can further perpetuate their distress. Many cancer survivors report the period after treatment is worse than the treatment itself (Hewitt & Ganz, 2006) and this may be due to survivors needing to cope with the effects of cancer and then the changes in the support they receive. Many are not aware of these issues until they need to cope with them, as perhaps illustrated in the following quote:

—After my very last radiation treatment for breast cancer, I lay on a cold steel table hairless, half-dressed and astonished by the tears streaming down my face. I thought I would feel happy about finally reaching the end of treatment, but instead I was sobbing. At the time I wasn't sure what emotions I was feeling. Looking back, I think I cried because this body had so bravely made it through 18months of surgery, chemotherapy and radiation. Ironically, I also cried because I would not be coming back to that familiar table where I had been comforted and encouraged. Instead of joyous I felt lonely, abandoned and terrified. This was the rocky beginning of cancer survivorship for me...” (McKinley, 2000, as cited in Rowland et al., 2008, p. 5101). This quote highlights the mixed emotions and feelings of confusion that survivors can experience.

In addition to the emotional distress experienced during the extended phase, chronic fatigue can also become an issue. Fatigue is reported to be one of the most common and longest lasting side effects among cancer survivors. It can be both caused and aggravated by anaemia, the pain and discomfort of treatment processes, the accumulation of toxicity from cell destruction caused by chemotherapy and radiation treatments. Furthermore, the

practical and emotional challenges that accompany cancer also perpetuate feelings of fatigue (Harpham, 1999; Yasko & Greene, 1989). Fatigue further exacerbates the emotional and practical difficulties experienced by a cancer survivor by negatively impacting on concentration, increasing emotional dysregulation, decreasing memory, increasing malaise and reducing sexual desire. Many psychosocial problems, such as difficulty coping with family dynamics, failure to perform job responsibilities, and reduced interest and ability to engage in social interactions, can also occur as a direct result of fatigue or can be perpetuated by it (Harpham, 1999; Yasko & Greene, 2009). Many survivors report that energy limitations are often more difficult to manage than the other challenges of survivorship. For those survivors that experience a sense of “time running out” and the need to “finish off unfinished business”, chronic fatigue can diminish their ability to do so, thus intensifying their distress (Harpham, 1999). For many patients there is the added sense of guilt that, because of their lack of energy and the associated problems fatigue creates, they are unable to function as they had before and that they may possibly be adding to the burdens upon their families (Alfano & Rowland, 2006).

Sexual dysfunction and body image issues also become more apparent in the extended stage, particularly for those with breast cancer, gynaecological, colorectal and prostate cancers (Alfano & Rowland, 2006; Bloom, 2001). Hormonal therapies may create early menopause or menopausal symptoms in women such as hot flushes, mood swings and vaginal dryness, and for men difficulty getting or maintaining an erection. An inability to achieve orgasm and loss of interest in sex are also common in both genders (Alfano & Rowland, 2006; Kattlove & Winn, 2003). Infertility may also result as the direct effect of

treatment and can impact upon an individual's self-esteem and quality of life during remission (Alfano & Rowland, 2006).

2.4 Coping

Defining coping

Once diagnosed, cancer has the potential to affect nearly every aspect of an individual's life, including the physical, psychological, interpersonal, vocational, and spiritual domains (Aziz, 2007). Coping is a process that we as individuals employ every day. We engage in coping when we feel under stress or want to manage a taxing situation. The term "coping" has been interchanged with words such as adaptation, mastery, resiliency, management and adjustment (Aldwin, 2007). The concept of coping has been linked closely with stress, in that coping involves a process by which a person attempts to restore equilibrium in response to a stressful life event (Dewe, O'Driscoll & Cooper, 2010; Jerlock, Gaston-Johansson, Kjellgren & Welin, 2006). Coping has always been a process through which individuals deal with stress, solve problems and make decisions (Aldwin, 2007) and it is the effort to prevent or diminish threat, harm and loss or to reduce associated distress (Compas et al., 2001).

Lazarus and Folkman (1984) defined coping as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing and that exceed the resources of the person" (p. 141), while Roy and Andrews (1999) viewed coping only as an innate or learnt behavioural response to environmental changes. While Compas (1998) conceptualised coping as purposeful responses to internal and external environmental threats, McHaffie (1992) contends that

coping is an ever-changing process that is not static but that allows individuals to work through situations and events. Therefore, all researchers have pointed out that coping with internal or external stress such as chronic disease, particularly cancer, occurs through a process of using strategies for physical or emotional relief, serenity and equilibrium (Zabalegui, 1999).

The process of coping involves two components, appraisal and coping (Lazarus, 1966). Appraisal is the act of perceiving a stressor and analyzing one's own ability to deal with the stressor. Appraisal can be made in three different conditions: when we have experienced a stressor, when we anticipate a stressor and when we experience a chance for mastery or gain (Lazarus, 1966). Once we appraise a stressful situation we must decide how we will respond or 'cope' with the stressor, either choosing to master it, reduce it or tolerate it. The coping style we engage in is ultimately determined by whether we believe we have the resources to resolve the stressor (Lazarus, 1966).

Dimension of coping strategies

Cognitive theories of coping posit that major life stressors challenge an individual's view of the world and sense of self due to the discrepancy elicited between the information inherent in the stressor and people's positively skewed expectations about the world (Lepore, 2001 as cited in Kernan & Lepore, 2009). The belief that 'bad things do not happen to good people' (Kernan & Lepore, 2009; p. 1177) is challenged when a 'good' person gets cancer and it is this psychological discord that leads to distress and an individual utilizing coping efforts to resolve the discrepancy (Kernan & Lepore, 2009). Previous studies have generally clustered coping using theory based categories and factor

analysis. There are various groups of coping strategies which are classified and some strategies overlap.

Lazarus & Folkman (1984) categorized coping strategies into two groups: *problem focused* (seeking social support, accepting responsibility, using problem-solving and developing action plans) and *emotion focused* (distancing, self-control, escape-avoidance, positive reappraisal). In addition, several previous studies undertook factor analysis and classified coping strategies into two main categories: *positive* and *negative* coping strategies. Kristiansen and colleagues (2007) divided coping strategies into two categories: *adaptive* (acceptance, active coping, planning, religion, emotional support, instrumental support, positive reframing and humor) and *maladaptive* (behavioural disengagement, venting, self-distraction, substance use, self-blame, denial). Yang and colleagues (2008) used factor analysis and labeled coping strategies into two groups: *engagement* (active coping, planning seeking instrumental support and positive reframing) and *disengagement* (denial, alcohol/drug use, behavioural disengagement) whilst Roesch and colleagues (2005) conducted a meta-analytic review and categorized coping strategies into two groups: *approach* (approach/active coping, positive expectancies/optimism coping, self-efficacy, seeking information, seeking guidance/support, self-control, positive reappraisal/reinterpretation, medical compliance, planning, logical analysis, suppression of competing activities, acceptance and problem solving) and *avoidant coping* (avoidant/ passive coping, wishful thinking, denial, behavioural disengagement, self-blame, religion, threat minimization, distancing/distraction, emotional discharge/venting, alcohol/drug use, helplessness and humor). Coping strategies have also been divided into two categories: *active* (acceptance,

emotional support, religion, active coping, planning and positive reframing) and *passive/avoidance* (self distraction, venting, humor, denial, behavioural, denial, behavioural disengagement and alcohol/drug use) coping strategies (Kershaw, Northouse, Kritpracha, Schafenacker & Mood, 2004).

Although coping strategies are categorized in different ways, the meaning of these different conceptualizations is similar. Adaptive, active, problem-focused and approach coping strategies refer to strategies where individuals accept and actively attempt to deal with their situation. Maladaptive, avoidant and disengagement refer to strategies where individuals try to avoid dealing with the problem cognitively and physically distancing themselves from the situation. Adaptive coping is viewed as generally positive and maladaptive coping is viewed as generally negative. However one strategy is not inherently good or bad, depending on the individual's situation and outcomes (Lazarus & Folkman, 1984).

There however appear to be three main coping styles that people employ when attempting to resolve or remove a stressor: problem-focused coping, emotion-focused coping and avoidant coping. Problem-focused coping involves altering or managing the problem that is causing the stress and is highly action focused. Individuals engaging in problem-focused coping focus their attention on gathering the required resources (i.e. skills, tools and knowledge) necessary to deal with the stressor. This involves a number of strategies such as gathering information, resolving conflict, planning and making decisions (Lazarus & Folkman, 1984). Emotion-focused coping can take a range of forms such as seeking social support, acceptance and venting of emotions etc (Carver et al., 1989). Although emotion-focused coping styles are quite varied they all seek to lessen the

negative emotions associated with the stressor, thus emotion-focused coping is action-orientated (Admiraal, Korthagen, & Wubbels, 2000; Folkman & Lazarus, 1980). Both problem and emotion focused responses are generally associated with positive outcomes in cancer patients such as better well-being and quality of life, less psychological distress, and greater growth and in addition previous research has shown that people tend to employ both forms of coping in almost every type of stressful situation (Folkman & Lazarus, 1980, 1985), including when they are specifically confronted with cancer (Bourjolly & Hirschman, 2001; Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992). The third main coping style is avoidant coping. Avoidant coping can be described as cognitive and behavioural efforts directed towards minimizing, denying or ignoring dealing with a stressful situation (Holahan, Holahan, Moos, Brennan, & Schutte, 2005). Although some researchers group avoidant coping with emotion-focused coping the styles are conceptually distinct. Avoidant coping is focused on ignoring a stressor and is therefore passive, whereas emotion-focused coping is active (Admiraal et al., 2000; Holahan et al., 2005).

The coping strategies utilised by women impacts on their adaptation and response to breast cancer (Doumit, Huijter, Kelley et al., 2010) and coping literature predominantly suggests that active coping strategies produce more favourable outcomes compared to passive coping strategies such as avoidance (Kim, Han, Shaw, McTavish & Gustafson, 2010). The strategy of avoidance can extend to communication which can have negative consequences for cancer patients (Donovan-Kicken & Caughlin, 2011). Avoiding talking about breast cancer can impede communication with others thereby limiting social support which in turn can heighten psychological distress (Harrison, McGuire &

Pitceathly, 1995; Northouse, Laten & Reddy, 1995). This strategy may also influence women's cognitions who without communication may be more likely to engage in denial or self-blame (Carver, 1997) and limit gaining perspective and moving towards acceptance of their illness (Pennebaker, 1997). In a quantitative study by Donovan-Kicken and Caughlin (2011) with 140 American women who were undergoing treatment or had recently completed treatment for breast cancer, an online self-guided questionnaire was used to examine coping behaviours and topic avoidance. They found out that not only was topic avoidance associated with higher levels of anxiety and depression but emotional support and self-blame were found to be strong mediators of topic avoidance and psychological distress. Furthermore, acceptance mediated the relationship between topic avoidance and depression with lower levels of acceptance conferring greater avoidance and depression. The authors suggest that topic avoidance may influence coping options that people recognize and pursue. The statistical models used, however, only imply causality and it is plausible that the relationship between these factors works the other way with depression leading to poor coping and avoidance.

Spending time with others can nevertheless be helpful not only as emotional support but as a means of distraction. In a qualitative study investigating coping with cancer in a sample of seven Chinese cancer patients (Chen & Chang, 2012) interviews were analyzed in accordance with grounded theory. A core concept termed "balance process of life fluctuation" was identified encompassing three themes: negative feelings, self-adjustment and self reinterpretation. Negative feelings and emotions were commonly reported from diagnosis to treatment completion and were related to mental distress and loss of physical control. Participants were reported to have found ways to adjust personal beliefs (e.g.

self-encouragement, acceptance) and lifestyles including work schedules, workload and diet with effective coping strategies leading to a greater sense of meaning in life and a positive future perspective. Positive self-reinterpretation was found to be an effective strategy for cancer patients in coping with their illness. However, only five of the seven participants had breast cancer and disease specific differences existed, also certain personal characteristics such as personality could have influenced the way these patients adjusted with the use of effective coping strategies and this was not established.

A previous Chinese study by Li and Lambert (2007) found that in one hundred women with newly diagnosed breast cancer, planning and self-distraction were prominent coping strategies in addition to positive reframing. Positive cognitive restructuring or reframing is an active strategy whereby individuals attempt to view things in a more positive light. Women have described this as the ‘best’ strategy for coping with fear and uncertainty about the future (Manuel et al., 2007). Factors contributing to positive thinking include being physically fit, having good humour and positive self-talk (Drageset et al., 2009). Making changes, social support, physical activity, medication and rest are also well documented active strategies (Manuel et al., 2007). However, Manuel and colleagues (2007) noted that different strategies are best suited to different aspects of women’s breast cancer experience reporting, for example, social support was most helpful for dealing with anger or depression while positive cognitive restructuring was more beneficial for managing future concerns.

Religious approaches to coping were among the most frequently reported strategies by cancer patients in several studies (e.g. Taleghani et al., 2006; Zwingmann, Müller, Körber & Murken, 2008). Having trust that ‘God’ was in control of their illness women became

stronger believers in an after-life concept, less afraid of death (Shaw et al., 2007) and their faith led to hope and a need to cope with whatever ‘God’ had planned for them (Doumit et al., 2010). Moreover, in their qualitative study exploring ten Lebanese women’s experiences of coping with breast cancer Doumit and colleagues (2010) stated that another prominent method of coping was to make comparisons to acceptable chronic illnesses, predominantly diabetes which does not hold the same stigmatizing connotations as breast cancer in Lebanese culture. However, the study did not look at how women with breast cancer cope with diabetes as a co-morbid condition.

Furthermore chronic conditions such as cancer and diabetes appear to be stigmatized and the association of weight loss with HIV/AIDS stigma by people living with diabetes has been reported in the Ghanaian context (de Graft Aikens, 2006) with reports suggesting that some women living with both conditions are abandoned by their partners (de graft Aikens, 2006; Daily Graphic, 2007). This present study will therefore also attempt to address how two common co-morbidities in Ghana, diabetes and hypertension influence how women with breast cancer cope and adjust psychosocially.

Coping and adjustment

Adjustment is a process whereby individuals deal with changes in previous patterns of functioning (Bomar, Denny, & Smith, 2004). Adjustment to cancer is a term used commonly to describe an individual's reaction to the illness and treatment and is often described along a continuum ranging from normal to diagnosable mental disorders, such as anxiety disorder (Brennan, 2001; National Cancer Institute, 2005). It is a significant concept in psychosocial oncology, referring to the ongoing process as the cancer patient

tries to manage distress (Brennan, 2001). Brennan (2001) further states that “adjustment to cancer refers to the psychological processes that occur over time as the individuals, and those in their social world, manage, learn from and adapt to the multitude of changes which have been precipitated by the illness and its treatment”. Factors that contribute to adjustment are disease-derived, personal and social (Holland, 2003; Carver, 2005). Adjustment to cancer is therefore not merely the end point of coping with the global threat of cancer but, rather “an active psychosocial process which may include both positive and negative consequences for the individual”, spanning from personal growth to psychological disorder (Brennan, 2001). Adjustment to breast cancer has also been described as a series of phases related to the disease and its treatment in women in early-stage breast cancer (Carver et al., 1998), pre-treatment (Cimprich, 1999), during treatment (Hoskins, 1997), post-treatment (Cohen et al., 2000), and during long-time survival (Tomich & Helgeson, 2002).

Studies of adjustment to cancer are many and include various cancer populations (Lewis, 1997; Northouse, 1988; Northouse, 1989; Northouse, Mood, Templin, Mellon, & George, 2000; Northouse, Templin, & Mood, 2001; Northouse, Templin, Mood, & Oberst, 1998; Blanchard, Albrecht, Ruckdeschel, Grant, & Hemmick, 1995). Research in breast and other cancers has shown that better adjustment is related to personal characteristics such as older age, higher education, higher income and being retired (Mellon & Northouse, 2001; Northouse, Dorris, & Charron-Moore, 1995; Northouse, Laten, & Reddy, 1995). In a study of women with recurrent breast cancer, Northouse, Laten, and Reddy (1995) examined adjustment in women and found higher levels of emotional distress than in normative samples and higher distress among women with recurrent breast cancer than in

women with newly diagnosed breast cancer. Factors associated with adjustment problems included less education and being currently in treatment particularly combination as anxiety disorder (Brennan, 2001; National Cancer Institute, 2005).

Research has also shown that couples facing breast cancer reported decreased marital and family functioning, uncertainty, and adjustment problems associated with the illness (Northouse et al., 1998) and 35% of patients with recurrent breast cancer suffer from adjustment disorder (Okamura et al., 2000). A long term study which assessed women's coping processes and adjustment during the year following diagnosis in seventy women with early stage breast cancer found that acceptance at diagnosis was found to predict positive adjustment over time whereas avoidance-oriented coping predicted greater fear of cancer recurrence (Stanton, Danoff-Burg & Huggins, 2002).

Research has been able to illustrate the profound and precipitous emotional transformation women experience after a diagnosis of breast cancer (Boehmke & Dickerson, 2006) and since the impact of breast cancer is experienced in every aspect of a woman's daily life (Loveys & Klaich, 1991), including their views of themselves and their relationships (Arman et al., 2002a) these women therefore need to redefine their lives through integrating the meaning of breast cancer (Öhlen & Holm, 2006).

Coping as a mediator

Findings on health-related outcomes are consistent with the conceptualization that coping skills mediate the influence of personal, health-related and environmental factors on health outcomes. For example in a study among women with breast cancer, cognitive avoidance mediated the association between lack of optimism and negative emotions

during the pre-biopsy period (Stanton & Snider, 1993). Further, in a longitudinal study of women with early-stage breast cancer, avoidance coping mediated the link between a partner's unsupportive behavior and subsequent emotional distress (Manne, Ostroff, Winkel, Grana, & Fox, 2005). In another study on the quality of life of men with advanced prostate cancer treated with androgen deprivation therapy and their partners', appraisal (illness/caregiving) and avoidant coping were significant mediators between antecedents variables and QOL for both patients and partners (Newth, 2012).

2.5 Social determinants of breast cancer survival

A significant portion of the research on coping with cancer focuses on the factors that predict the type of coping strategies employed by patients/ survivors. A recent review of the literature on coping with a diagnosis of breast cancer (Al-Azri, Al-Awisi & Al-Moundhri, 2009) summarized factors that can influence coping strategies. Demographic characteristics, educational level, positive thinking and psychosocial support were identified as of importance in determining women's methods of coping.

Predictors of interest in this study are: (a) personal characteristics which include socio-demographic variables (age, socioeconomic status (education); personality (optimism), (b) perceived social support and (c) illness related factors which include psychological distress (anxiety and depression) and medical factors (stage, time since diagnosis, major surgery (i.e mastectomy), co-morbid conditions).

2.5.1 Socio-demographic factors

A set of variables that has been found to pre-dispose individuals to cope in particular ways are socio-demographic characteristics.

Age

According to research, age is the most significant risk factor for developing cancer (Aziz, 2002; Extermann, 2007). Of the demographic variables, age has received the most attention in the breast cancer literature, with reports that younger women have more emotional distress than older women during the first year following diagnosis (Penman et al., 1986; Vinokur, Threatt, Vinokur-Kaplan, & Satariano, 1990) and during the survivor phase of illness (Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998; Vinokur, Threatt, Caplan, & Zimmerman, 1989). Also it has been found that different ages employ different coping strategies for instance older women have been found to have more optimistic coping styles than younger women (Vos, Garssen, Visser, Duijendoorn & de Haes, 2004).

Socio-economic status (education)

Higher socio-economic status has been linked fairly consistently to particular methods of coping, although not with cancer samples (Billings & Moos, 1981; Holahan & Moos, 1987; Menaghan, 1983; Pearlin & Schooler, 1978). Level of education improves cognitive function of people. For example, Billings & Moos (1981) found that better educated respondents relied more on problem focused coping and less on avoidance coping for dealing with daily problems. Ben-Zur & colleagues (2001) found that a high level of education among patients contribute to low emotion-focused coping. They also

suggested that patients with a high level of education may have more ability to understand the situation and use information more effectively. Drageset & Lindstrom, (2005) in their study reported that educated women were better at engaging in positive coping strategies and women who were less educated, single, divorced, or widowed had a greater use of cognitive defences such as denial. Northouse, Dorris, & Charron-Moore, 1995 found that education also has been related to adjustment, with women having less education reporting more adjustment difficulties than women having more education whilst Epping-Jordan et al., (1999) found that less formal education is associated with poorer psychological adjustment, including attempts to cope with the stress of breast cancer by avoiding emotions, thoughts, or information related to the disease.

2.5.2 Personality (Optimism) and coping

Personality has been shown to be predictive of coping strategies (Shaw, 1999). Each person may have their preferred styles based on their personality characteristics. Among the various personality characteristics that have been studied, dispositional optimism, or the tendency to expect positive outcomes, has been most consistently associated with lower symptoms of anxiety and depression and higher quality of life (e.g., Carver et al., 1993; Epping-Jordan et al., 1999).

Research has shown that coping styles may vary based on whether an individual has an optimistic or pessimistic life orientation (Scheier et al., 1986). Optimism and pessimism have received growing attention in recent years for impacting psychological adjustment in cancer (Blank and Bellizzi, 2006; Deimling, Bowman, Sterns, Wagners & Kahana,

2006; Schou, Ekeberg, Sandvik, Hjermsstad and Ruland, 2005; Siagelis, Hagedoorn, Sanderman, van der Zee, Buunk and van den Bergh 2003). Optimists tend to be favourable in their outlook and generally believe that good rather than bad things will happen to them whilst pessimists on the other hand tend to expect the worst and anticipate bad outcomes (Sheier & Carver, 1985). Optimism and pessimism tend to be relatively stable characteristics over both time and context (Robinson- Whelen , Kim, MacCallum, Kiecolt-Glaser, 1997; Shou et al, 2005; Sheier & Carver, 1985; Stiegelis et al, 2003) and have been found to be related to different coping strategies. Optimism has been found to be related to more adaptive coping strategies (eg. Problem focused coping), whilst pessimism has been found to go along with denial and avoiding coping strategies when dealing with distress (Chang, 1998; Shou, Ekeberg, Ruland, Sandvik & Karensen, 2004; Sheier & Carver, 1993). According to Shou et al. (2005) different coping styles may affect a persons' well-being by influencing how individuals' approach, cope and react to critical life events. While more active coping strategies as those displayed by optimists can diminish distress, passive coping strategies as employed by pessimists can enhance feelings of general distress.

A meta-analytic review of dispositional optimism and coping was conducted by Nes and Segerstrom (2006). Their review contained studies with many different populations such as college students, athletes, business executives, cancer patients, and senior citizens. Similar to other researchers, they determined that dispositional optimism was positively related to approach coping strategies and negatively related to avoidance coping strategies.

Psychological and physical functioning related to breast cancer over 4 years of follow-up post-treatment was examined by Helgeson, Snyder, and Seltman (2004). The researchers indicated that approximately half the women in their study demonstrated little change in psychological and physical functioning over the 4-year period. Personal resources (i.e., self-image, optimism, perceived control) and social resources (i.e., social support) were related to better mental and physical functioning. David, Montgomery, and Bovbjerg (2006) investigated the impact of optimism, pessimism, and coping responses on distress for women scheduled for breast cancer surgery. They reported that those scoring high on optimism experienced less distress. Conversely, those who scored high on pessimism experienced more distress. The following coping responses were related to higher distress scores: planning, denial, self-distraction, instrumental support, humour, emotional suppression, venting, self-blame, and substance abuse. Although planning, instrumental support, and venting are generally thought of as positive coping strategies, the authors suggested that in terms of an immediate stressor such as impending surgery, they were not.

In addition to psychological functioning and distress, quality of life has also been investigated in relation to optimism. Friedman et al. (2006) examined optimism, social support, adjustment, and quality of life in Hispanic and African-American breast cancer patients. Dispositional optimism accounted for the most variance in quality of life scores, distress, and mood disturbance. In a study predicting quality of life scores for long-term survivors of breast cancer (5-13 years post-surgery), dispositional optimism predicted long-term quality of life most consistently (Carver, Smith, Petronis, & Antoni, 2006). Recent research by Wimberly, Carver, and Antoni (2008) investigated optimism, social

support and distress related to psychosexual well-being for early stage breast cancer patients. They presented two models: those higher on optimism perceived more social support and scored higher on psychosexual well-being; and those higher on optimism experienced less distress and scored higher on psychosexual well-being.

The current literature on the role of dispositional optimism in coping with breast cancer and resulting health outcomes overwhelmingly suggests that women scoring higher on dispositional optimism fair better in both the short-term and long-term following a breast cancer diagnosis. To the best knowledge of the researcher, no study, however has yet been done in Ghana where an optimistic personality has been investigated in breast cancer survivors.

2.5.3 Spirituality/religiosity, coping and adjustment

The word religion is from the Latin “~~r~~eligare” which means “~~to~~ bind together.” (Gove, 1961). A religion organizes the collective spiritual experiences of a group of people into a system of beliefs and practices. Religious involvement or religiosity refers to the degree of participation in or adherence to the beliefs and practices of an organized religion. Spirituality is from the Latin “~~s~~piritualitas”, which means “~~breath~~.” (Gove, 1961). It is a broader concept than religion and is primarily a dynamic, personal, and experiential process. Features of spirituality include quest for meaning and purpose, transcendence (ie, the sense that being human is more than simple material existence), connectedness (eg, with others, nature, or the divine), and values (eg, love, compassion, and justice) (Emblen, 1992) Even though some people who regard themselves as spiritual do not endorse a formal religion, religious involvement and spirituality are overlapping concepts

(Holland, Kash & Passik, et al., 1998). Experientially, both may involve a search for meaning and purpose, transcendence, connectedness, and values. In this light, religiosity is similar to spirituality. Spirituality may also have communal or group expression; when this expression is formalized, spirituality is more like an organized religion (Fallot, 1998). Because of this overlap, religiosity and spirituality are used interchangeably in this section.

Religion and spirituality are among the most important cultural factors that give structure and meaning to human values, behaviors, and experiences (Lukoff, Lu & Turner, 1995). In fact, most people report having a spiritual life. Surveys of the general population (Gallup, 1990) and of patients (King & Bushwick, 1994; Maugans & Wadland, 1991) have consistently found that more than 90% of people believe in a Higher Being. The World Health Organization definition of palliative medicine emphasizes the psychosocial and spiritual aspects of care (Dein & Stygall, 1997). End-of-life care addresses not only physical symptoms but also psychosocial and spiritual concerns. Terminally ill patients derive strength and hope from spiritual and religious beliefs (Cartwright, 1991; Roberts, Brown, Elkins & Larson, 1997). Indeed, terminally ill adults report significantly greater religiousness (Reed, 1986) and depth of spiritual perspective compared with healthy adults. Greater depth of spiritual perspective is associated with greater sense of well-being (Reed, 1987).

Confronted with chronic or fatal diseases, many patients rely on spiritual and religious issues to cope and spirituality/religiosity can be regarded as an important resource to cope, particularly for patients with cancer (Büssing & Koenig, 2010). In cancer patients, spirituality/religiosity may be beneficial for maintaining self-esteem, providing a sense of

meaning and purpose, giving emotional comfort and providing a sense of hope (Thune-Boyle, Stygall, Keshtgar, Newman & 2006). Studies have shown that spirituality influences people's ability to cope with cancer, pain control, other symptom control and the onset of clinical depression (Baider, Russak & Perry, 1999; Brady, Peterman & Fitchett, 1999; Koenig, Cohen & Blazer 1992; Koenig, George & Peterson, 1998; Nelson, Rosenfeld, Breitbart & Galietta, 2002). Bussing, Ostermann, and Koenig (2007) found that cancer patients often utilize a belief in a higher power and use conventional religious activities to help them cope with their illness.

Despite literature-based evidence, psychological or quality of life based studies regarding adjustment to cancer do not routinely examine spirituality concepts (Efficace & Marrone, 2002). However, spirituality is a common resource people turn to in times of crises (Feher & Maly, 1999; Henri, 2007; Khan & Greene, 2004; Pargament et al., 1998). When a crisis of life threatening magnitude such as a diagnosis of cancer occurs, personal coping responses are tested. Spiritual response to crises or threat is typically seen as a spiritual struggle or conservation (Pargament, 2007). Spiritual beliefs result in feelings of anger or ambivalence which affect adjustment (Landmark et al., 2001) and spiritual struggle is associated with the decreased psychological well-being or increased distress (Gall et al., 2000; Morgan et al., 2006; Zwingmann et al., 2008). In the same studies spiritual conservation was found to be associated with increased psychological well-being or decreased distress. Screening of women to identify those experiencing spiritual struggles (low spiritual levels) and spiritual conservation (high spiritual levels) will give

further insight into the coping style used and how this impacts on psychosocial adjustment to cancer.

Even though limited, research on spirituality has yielded certain findings (Musick, Koenig, Larson & Matthews, 1998). First, religious/spiritual beliefs are important to patients with cancer (Jenkins & Pargament, 1995) because a cancer diagnosis often involves uncontrollable pain and disability, as well as anxiety about the future and mortality (Musick, Koenig, Larson, Matthews, 1998). Religious activities, such as praying and meeting with religious representatives, are prevalent among patients with cancer (Spilka, Ladd & David, 1993) and are often used as coping methods (Raleigh, 1992; Halstead & Fernsler, 1992). A 1991 survey found that 55% of patients with cancer considered religion to be an important part of their lives, while 33% indicated that religion is the most important thing in their lives (Maugans & Wadland, 1991). A second finding was that religious/spiritual beliefs may aid in psychosocial adjustment to cancer (Musick, Koenig, Larson, Matthews, 1998; Jenkins & Pargament 1995) and higher levels of existential and religious beliefs were associated with lower rates of anxiety and depression among patients with cancer. (Kaczorowski, 1989; Fehring, Miller & Shaw, 1997). Moreover, a higher level of spiritual/religious beliefs was associated with higher levels of social and family adjustment (ie, adaptation among family and social environments) (Fernsler, Klemm & Miller, 1999).

Nevertheless, there are three shortcomings of this literature. First, few empirical studies have examined the link between spirituality and psychosocial adjustment to cancer (Musick, Koenig, Larson, Matthews, 1998), additional studies would therefore lend

credence to psychosocial interventions (eg coping skills) that tap the patient's spiritual beliefs to boost psychosocial adjustment. Second, the studies that have been conducted often used narrow definitions of spirituality (Jenkins & Pargament, 1995). Too often, spirituality is defined only as religiosity and measured only by church/synagogue attendance, participation in religious activities, and degree of affiliation with a house of worship (Fitchett & Handzo, 1998). Although such measures are useful, easily assessed, and linked with better psychosocial adjustment (Musick, Koenig, Larson, Matthews, 1998), they represent a simplistic conceptualization that fails to capture the depth and diversity of an individual's personal spiritual belief system. Studies that broaden the definition of spirituality in terms of existential (eg, meaning in life) and religious (eg, awareness of a relationship with a higher being) dimensions are needed (Gioiella, Berkman & Robinson, 1998; Jenkins & Pargament; Fitchett & Handzo, 1998). Finally, it is unclear how spiritual beliefs interrelate with demographic-disease variables which are linked to psychosocial adjustment to cancer (Gioiella, Berkman & Robinson, 1998) and how they can affect the psychosocial adjustment to cancer (Harrison & Maguire, 1994; Stanton & Snider, 1993) through the mediating effect of coping strategies. And in support of this previous research even suggests that such factors do not directly affect psychosocial adjustment but rather, this relationship is mediated by other variables, such as coping style (Schnoll, Harlow, Stolbach & Brandt, 1998).

In light of these shortcomings, this study examined the relationship between a multidimensional measure of spirituality/religiosity and psychosocial adjustment to cancer and the mediating effect of specific coping strategies.

Concepts of spirituality

Spirituality often is overlooked by healthcare providers, even though several studies have identified aspects of spirituality, such as meaning and purpose in life, prayer, and spiritual perspective, as beneficial to patients with cancer (Gall & Cornblat, 2002; Meraviglia, 2002; Taylor, 1993). The concept of spirituality has been operationalized in various ways—spiritual well-being, spiritual awareness, and spiritual health—however, findings using broad spiritual concepts have been inconclusive. Evaluating spirituality using only one measurement may be unrealistic (Meraviglia, 1999). Spirituality, like the physical and psychological dimensions, must be examined by assessing more than one aspect. According to Meraviglia, (1999) spirituality can be defined as experiences and expressions based on a concept analysis. For the purpose of this study the spiritual concepts assessed were faith, peace and meaning, however only the concept of meaning will be discussed detail.

Meaning in life, a concept explored by Frankl (1988), represents the process of finding and fulfilling significance and purpose in one's life regardless of the circumstances. Frankl (1988) outlined three principal ways people can find and fulfill their meaning in life—through creative, experiential, and attitudinal values. Meaning in life can be found by giving to the world through creative activities, such as work and recreation; by taking from the world through experiences and relationships with other people; and by the attitudes adopted toward unchangeable circumstances. Finding meaning through the attitude a person takes toward his or her suffering occurs in unavoidable situations, such as a diagnosis and treatment of cancer. The “Meaning Making Model” posits that efforts at meaning making are essential to adjustment to serious illness by helping patients either

assimilate the illness into their pre-illness global meaning or helping them to change their global meaning to accommodate it (Lepore, 2001). Making meaning of illness involves attempts to integrate one's understanding (appraisal) of the illness together with one's global meaning to reduce the discrepancy between them (Park & Folkman, 1997). For example people may gradually shift their views of their illness in a more positive direction (e.g., Maliski, Heilemann, & McCorkle, 2002) or they may gradually reconsider their life goals or life meaning in light of the illness (Park, 2010).

Meaning making often involves spiritual methods. For example, survivors may try to re-appraise their illness as an opportunity for spiritual growth or come to see God's purpose in it (Cummings & Pargament, 2010). Research indicates that the meanings that survivors assign to their illness predict their coping and subsequent adjustment. For example, in a longitudinal study of survivors of various cancers, the extent to which they appraised their cancer as violating their beliefs in a just world predicted poorer psychological well-being over the course of a year (Park et al., 2008). In another study of young to middle-aged cancer survivors, meaning making in the form of positive re-appraisal led to increases in perceived growth and life meaning, which led to reduced perceptions of the cancer as discrepant from a just world belief. This process was related to better psychological adjustment (Park et al., 2008).

Meanings made by survivors can be changes in spiritual appraisals of one's illness, such as seeing it as an opportunity to grow closer to God or to become more compassionate and patient. Meanings made can also involve global spiritual transformation of one's beliefs and goals. For example, many cancer survivors report feeling closer to God, more

certain of their faith, and more committed to their religion. Many also report behaving more compassionately and finding more spiritual meaning in their relationships with others and themselves (e.g., Cole, Hopkins, Tisak, Steel, & Carr, 2008). Less commonly, survivors may report spiritual decrements as well, such as a diminished spiritual life and a loss of spiritual meaning as a result of their cancer experience (Cole et al., 2008). Spirituality often figures heavily in individuals' efforts to deal with serious illness (Cummings & Pargament, 2010; Koenig et al., 2012) and, can influence many aspects of this process. At diagnosis, individuals' pre-illness spirituality may influence the situational meaning they assign to their illness. For example, a study of patients in treatment for a variety of cancers found that although religious beliefs (e.g., "I believe that God will not give me a burden I cannot carry") did not directly relate to psychological adjustment, those with higher religious beliefs had a higher sense of efficacy in coping with their cancer, which predicted better adjustment (Howsepian & Merluzzi, 2009). In cancer survivors, attributing cancer to an angry or punishing God predicted poorer subsequent adjustment (Exline et al., 2011). They actively question whether God has control in their lives or even whether God exists, often termed "negative religious coping" (Cummings & Pargament, 2010).

Finally, the notion that transformation can arise from suffering is an idea common to many religions including Buddhism, Judaism, and Christianity (Aldwin, 2007). Not surprisingly, then, spirituality and spiritual coping are among the strongest and most consistent predictors of reports of growth (Shaw, Joseph, & Linley, 2005) and the effects of spirituality and spiritual coping strongly predict growth (Park, Edmondson, & Blank,

2009). The most common meaning, made among people with serious illness is stress-related growth, which refers to the positive changes people report experiencing as the result of stressful encounters such as serious illness (Park, 2009). Stress-related growth has been of increasing research interest in recent years (Park, 2009; Sumalla, Ochoa, & Blanco, 2009). Stress-related growth is also referred to as “posttraumatic growth,” “perceived benefits” “adversarial growth,” and “benefit-finding” (Sumalla et al., 2009). Stress-related growth is commonly reported in studies of people with health problems such as cancer, heart disease, and HIV (Leung et al., 2010). Reported positive changes may occur in one’s social relationships (e.g., becoming closer to family or friends), personal resources (e.g., developing patience or persistence), life philosophies (e.g., rethinking one’s priorities), spirituality (e.g., feeling closer to God), coping skills (e.g., learning better ways to handle problems or manage emotions), and health behaviors or lifestyles (e.g., lessening stress and taking better care of one’s self) (Park, 2009). Stress-related growth is thought to arise as people attempt to make meaning of their illness (Rajandram, Jenewein, McGrath, & Zwahlen, 2011). However, perhaps counter intuitively, stress-related growth is inconsistently related to well-being. For example, a study examining reported growth in cancer survivors from pre-surgery to one year later found it unrelated to well-being at any point cross-sectionally although increased growth over time predicted higher levels of well-being (Schwartz, Luszczynska, Boehmer, Taubert, & Knoll, 2006).

2.5.4 Social Support

The term “social support” was coined in the middle of the 20th century but the concept of social support is not new. Darwin declared humans to be social animals and attributed emotions such as sympathy, pleasure, love and satisfaction to this social animal (Darwin, 1952). Survival of the human race according to Darwin was contingent on people’s ability to ‘sympathetically’ co-exist with each other (Darwin, 1952). Scientists have been studying the phenomenon of social integration and interdependence for a long time and various definitions have surfaced after the term ‘social support’ was coined in the 1970s (Cobb, 2001). Cobb in 1976 described social support as awareness by individuals that they are being cared for, loved, esteemed and valued. It is also an acknowledgement that they belong to a network of communication and shared obligation (Lugton, 1997; Lentjes, Jonker, 1985).

According to Hupcey (1998), the concept of social support is best defined in the context of its use; he stated, *“Social support is a multi-faceted concept that has been difficult to conceptualize, define or measure. Although this concept has been extensively studied, there is little agreement among theoreticians and researchers as to its theoretical and operational definition. As a result, the concept remains fuzzy and almost anything that infers a social interaction may be considered social support.”* Although the theoretical concept of social support may be ambiguous and complex, Hupcey concluded that it was possible to operationalize it for research by categorizing it into three facets. The three operational facets of social support as described by Hupcey are: 1) social network and social integration variables; 2) received support and; 3) perceived available support.

Lugton (1977) also conceptualized social support as a multidimensional construct. He opined that social support entailed counting and categorization of degree of individual's social ties alongside a qualitative evaluation of those social ties. He divided social support into two categories: structural and functional support. Based on the work by Hupcey, Lugton and others in the field, social support can be conceptualized broadly as structural or received support and functional or perceived support.

This study was designed to analyze the influence between perceived social support and coping strategies; therefore perceived or functional support among breast cancer survivors was measured. A discussion however, regarding the two categories of social support is given in the text below

Structural/Received Social Support

Structural support quantifies and determines the interconnectedness of existing social relationships. For example, marital status and the dynamics of marital relationship or number of friends and relations or degree of connectedness with friends and relations would be considered in the realm of structural support (Hutchison, 1999.).

Hutchison studied the concept of structural social support from three perspectives: network structure, support functions and the nature of relationships. He described social support in terms of quantity of one's relationships. Structural support includes the number of interpersonal relationships and the extent to which there is interconnectedness between those relationships; however, the degree or quality of interconnectedness of relationships was not described by Hutchison and is not a part of structural support (Hutchison, 1999.).

Received support entails support measured in terms of numbers of individuals available to render support or in other words it is the same as structural support. Received support according to Sherbourne et al., “is confounded with need and may not accurately reflect the amount of support that is available to a person” (Sherbourne & Stewart, 1991).

Functional Support

Recent literature indicates that the concept of functional component of social support addresses the issues of quality vs. the quantity of support available (Cohen & Syme, 1985; Cohen & Wills, 1985; Hutchison, 1999) . This approach emphasizes the functions of interpersonal relationship, such as emotional support, instrumental support, informational support and social companionship.

Functional support is a perceptual paradigm described by Sherbourne and Stewart (1991) as perceived social support which refers to: “the degrees to which interpersonal relationships serve a particular function”. Cohen and Syme as well as Cohen and Wills concluded that an individual’s perception of social support is more important than the support received (Cohen & Wills, 1985; Cohen & Syme, 1985). Sherbourne and Stewart argue that not having received support during a specific period of time does not mean that there is no support available for such individual.

Role of Social support in breast cancer survival

Literature suggests that greater social support is associated with longer survival in women with localized or regional breast cancer (Spiegel, Bloom, Kraemer, & Gottheil, 1989; Waxler-Morrison, Hislop, Mears, & Kan, 1991). A prospective study looking at the

effects of social context on rate of survival from breast cancer found that women with increased support, particularly outside the home, had significantly higher rates of survival at a four year follow-up (Spiegel, Bloom, Kraemer, & Gottheil, 1989). Furthermore, absence of a social support network has been linked to not only a higher incidence of cancer and but also a more rapid course of illness including greater severity in physical as well as psychological morbidity (Peters-Golden, 1982)

Social Support, Coping and Adjustment

Reference to social support is common in the stress and coping literature and refers to support received (e.g. emotional, informational) or the sources of support (friends, family, healthcare professionals) that enhance recipients self-esteem or provide stress related interpersonal aid (Dumont & Provost, 1999 as cited in Kim et al., 2010). The most influential theories regarding social support state that support reduces the effects of stressful events as the supportive actions of others facilitate coping (Thoits, 1986) or that a belief that support is available if needed leads to an appraisal of events as less stressful (e.g. Lakey & Cohen, 2000).

Two models dominate the literature concerning the effects of social support on alleviating stress, the main effects model and the stress buffering model. The main effects model proposes that social support is beneficial irrespective of stress level while the stress buffering model predicts that social support holds less value when stress levels are low given there is less to buffer (e.g. Cohen & Wills, 1985). Support has been found for both models through the adoption of different measures of social support. Support for the main effects model has been found when the number of people in a person's network is

measured, however support for a buffering model has been established when perceived quality and appropriateness of support are measured. In the context of early stage breast cancer multi-level analysis of ninety five women's daily reports of emotional and physical experience and factors relating to spousal support elicited results in accordance with a stress buffering effect for social concerns (Gremore, Baucom, Porter, Kirby, Atkins & Keefe, 2011). However a reverse stress buffering effect was established for emotional and physical concerns whereby the buffering effect of spousal support was attenuated when high levels of breast cancer related emotional and physical concern were reached. Social support has been reported to not only reduce the stress of a breast cancer diagnosis but to also improve emotional well-being in women with breast cancer (e.g. Holland & Holahan, 2003). The final theme ascertained from the phenomenological qualitative study by Doumit and colleagues (2010), was the impact of positive social support from family and work colleagues on the coping process. This was considered to help with acceptance and gave women encouragement to cope.

Social support therefore plays an important role in helping breast cancer patients by fostering the use of a greater proportion of approach coping strategies (Holland & Holahan, 2003). Holland and Holahan (2003) also found that breast cancer patients who perceived high levels of social support made greater use of positive reappraisal and planned problem-solving as their coping strategies which led to these higher levels of emotional well-being. More recently, Kim and colleagues (2010) found data from 231 women to support a mediation model of emotional well-being whereby breast cancer

patient's perceptions of how much social support they received from others influenced their choice of coping strategies and in turn their well-being.

Drageset and Lindstrom (2005) studied the relationship between demographic characteristics, social support, anxiety, coping and defence among 117 women who had undergone breast biopsy. The results showed that social support is strongly connected to instrument-orientation followed by an emotion focused coping style. They also suggested that social support is a coping resource that promotes coping. Also, Landmark and colleagues (2002) also stated that social support influences patients' ability to cope with the strain of living with breast cancer. In contrast lack of social support has an opposite effect. In a group of cancer patients that ranged from newly diagnosed to those who had survived _several years', Dunkel-Schetter et al. (1992) found that the degree of stress appraisal was positively associated with seeking and using social support, and both cognitive and behavioral escape-avoidance. They found that being a breast cancer survivor was associated with seeking and using social support. Social relationships and interpersonal resources available to patients are associated with the course of adjustment to breast cancer. Foremost among these resources is the quality of social support available to women during their treatment and recovery. Emotional support (other individuals' verbal and nonverbal communication of caring and concern for the patient) shows the most consistent relationship to lower distress and higher quality of life. Evidence for beneficial effects of emotional support has been stronger in descriptive studies of naturally occurring support in patients' lives than in studies of the effects of peer-led support groups (Helgeson & Cohen, 1996).

Women may have difficulty relating to people in their social network about their illness which can put strain on their relationships (Gremore et al., 2011). Unsupportive negative behaviours are often reported by cancer patients including problem minimising, forced cheerfulness and insensitive comments (e.g. Dunkel-Schetter, 1984). Such undesired support may lead women to, for instance, view their partners or others as insensitive or patronising (Dehle, Larsen & Landers, 2001) and is associated with poor psychosocial adjustment to breast cancer (Manne, Sherman, Ross, Ostroff, Heyman & Fox, 2004). Despite the significance of social support to both psychological and physical wellbeing, Peters-Golden however found that only (52%), half of the women diagnosed with breast cancer feel that they have necessary social support (Peters-Golden, 1982).

From the above discussion regarding the prevalence of breast cancer and effects of social support on coping and adjustment in women with breast cancer, it is clear that social support as a variable deserves attention in patients with breast cancer. Also structural or received support only measures the number of individuals present in the breast cancer survivor's life. It does not measure the degree of usefulness of available support. Perceived functional support on the other hand is a measure of degree of usefulness of support (Sherbourne & Stewart, 1991). The support structure (or received support) can vary over time for patients suffering from chronic illness such as breast cancer and as Sherbourne and Stewart (1991) pointed out, that not having received support during a specific period of time does not mean that there is no support available for such individual. Therefore, it is important to evaluate not only the structural or received support but also the perception of social support among women with breast cancer in

order to understand the presence and degree of usefulness of support available to these women.

2.5.5 Illness-related Factors

2.5.5.1 Psychological distress (anxiety and depression)

The diagnosis and treatment for breast cancer in women can cause significant psychological distress (Zabora et al., 2001; Massie et al., 2004), and bring about psychological disturbance including anxiety and depression (Pandey et al., 2006; Jacobsen et al., 2008). Psychological distress is defined as a state of emotional suffering characterized by symptoms of depression (Lost interest, sadness, hopelessness, etc) and anxiety (restlessness, feeling tense, etc) (Mirowsky and Ross 2002). Anxiety and depression are the most frequently reported cancer-related symptoms with more than 30% of the women with early breast cancer have depression, anxiety, or both at diagnosis (Burgess et al., 2005). A sizable proportion of patients with cancer exhibit clinically, relevant levels of psychosocial distress (Holland & Rowland, 1998; Miller & Schnoll, 2000; Moyer & Salovey, 1996). Indeed, a cancer diagnosis induces psychosocial distress sufficient to warrant the need for professional intervention in 25% to 33% of patients (Greer, 1994). In recent research among patients who had recently received diagnoses of breast or head and neck cancer or lymphoma, the prevalence of depression was 14% and among patients who had recently received a diagnosis of gastro- intestinal cancer, 17% exhibited clinical levels of anxiety, 21% manifested elevated levels of depression with two thirds reporting intrusive and avoidant thoughts (Nordin & Glimelius, 1997). Close to one third of men with prostate cancer exhibited symptoms of anxiety or depression

sufficient to warrant a clinical referral (Roth, Kornblith, Batel-Copel, Peabody, Scher & Holland, 1998). Among patients who have recently received diagnoses of gynecologic cancer, distress in the form of fears about treatment-related symptoms (63%) and about death (56%) was prevalent (Roberts, Brown, Elkins & Larson, 1997). A prospective study classified 48% of patients who have recently received diagnoses of breast cancer as having an anxiety or depressive disorder (Pinder, Ramirez, Richards & Gregory, 1994). Aass and colleagues (1997) used the HADS to investigate the prevalence of anxiety and depression in 716 cancer patients seen at the Norwegian Radium Hospital. Thirty-one percent of the patients qualified as probable cases of clinical anxiety and 20% as probable cases of depression in this sample of in- and out-patients with various cancer sites and stages of cancer.

Anxiety is mainly related to uncertainty about the diagnosis, side-effects of chemotherapy or radiotherapy treatment, lack of social personal control, progressive physical deterioration and thoughts of near death (Zabalegui, Sanchez & Juando, 2005). Studies performed have reported different levels of anxiety in patients with various types of cancer (Şenler, 2001; Böncü & Aydemir, 2001; Beser & Öz, 2003; Drageset & Lindstrom, 2005; Reuter, Classen & Roscoe et al., 2006;). Patients who are depressed may also have physical symptoms which are difficult to palliate and which may improve as their depression is appropriately treated (Lloyd-Williams, 2001). The reported incidence rates of depression in this patient group vary widely and the reason for this may be the different criteria and methodology that authors use to diagnose depression (Elbi, 2001; Şenler, 2001; Beser & Öz, 2003; Reuter K, Classen CC, Roscoe, et al., 2006;

Ateşçi, Oğuzhanoğlu &, Baltalarlı, 2003; Kadan-Lottick, Vanderwerker, Block, et al., 2005). A number of studies have also reported that depressed patients tend to be less proactive in seeking more aggressive treatments, and have severe symptoms, poor response to systemic therapy, long recovery times and poor outcomes (Walker et al., 1999, Colleoni et al., 2000; Hirschfeld, 2001). Management of depression and anxiety however leads to reduction in disease progression, improvement in survival rates, reduction in healthcare costs and improvement in quality of life (Frick et al., 2007; Satin et al., 2009; Pinguart and Duberstein, 2010).

Coping and Psychological Distress

Patients with breast cancer experience psychological problems after diagnosis and may have their own coping strategies to confront their situation. Past research on coping with cancer has focused on the relationship between specific coping domains and a range of psycho-social outcomes such as anxiety, depression and/or cancer worries. For instance in a study by Ong et al. (1999) no differences in psychological distress were found to be related to the use of either monitoring or blunting coping styles, nor did they find these specific coping styles to be correlated with other QOL outcomes such as role or social functioning.

In a longitudinal study of the relationship between coping styles and psychological distress, Hack and Degnet (2004) found that acceptance/resignation at baseline (six months or less after diagnosis) was associated with depression and anxiety three years later. McCaul et al. (1999) also found that avoidance coping, but not behavioral or cognitive coping was significantly associated with distress at baseline. Specifically,

avoidant coping was significantly associated with both depression and anxiety. Longitudinally, (baseline-four months later) avoidant coping was associated with depression, but not anxiety.

Roussi, Krikeli, Hatzidimitriou and Koutri (2007) found that the coping strategies of patients with breast cancer, such as acceptance and humor are negatively related to distress. However, denial and emotional expression are positively related to distress. They also suggested that multiple coping strategies are related to low levels of distress. Osowiecki and Compas (1999) assessed coping and symptoms of anxiety and depression and they found that problem focused engagement coping is related to lower anxiety/depression symptoms and emotion-focused disengagement coping was related more to anxiety and depression. David, Montgomery and Bovjerg (2006) studied the relationship between coping strategies and levels of distress. The results revealed that coping strategies (greater planning, denial, self-distraction, instrumental support, humor, emotional expression, venting, self-blame and substance use) are related to greater distress.

A study by Saniah and Zainal (2010) aimed to determine the coping strategies among breast cancer patients who had depression and anxiety symptoms during chemotherapy. They found that prevalence for depression was 19.1% and prevalence for anxiety was 24.1%. Patients who were having anxiety symptoms scored significantly higher on denial, behavioural disengagement and venting as their coping strategies compared to patients who were not anxious. Patients with depressive symptoms scored significantly

higher in behavioural disengagement and self-blame as their coping strategies compared to those who were not depressed. They therefore concluded that breast cancer patients undergoing chemotherapy experienced high levels of depressive and anxiety symptoms. However in this study different coping strategies were adopted to cope with their illness, chemotherapy treatment, practical and family problems, emotional and physical symptoms.

Many studies have also looked at how coping styles predict the levels of anxiety and depression in breast cancer patients. From the studies above, it can however be seen that the development of anxiety and depression can also predict the coping strategy adopted by a breast cancer survivor and the resulting level of psychosocial adjustment. Presently, this association has not been studied in Ghanaian breast cancer survivors.

2.5.5.2 Medical factors

Stage of the disease

The stage of a cancer is recorded according to the tumor-node-metastasis (TNM) system. According to the American Joint Committee on Cancer Classification, when a woman is diagnosed with breast cancer, tumors range from Stage I to Stage IV, with the latter being the most advanced cancer with the worse prognosis. In low and middle income countries, substantially more women are found at Stage III and Stage IV tumors on initial diagnosis, which is referred to as late-stage presentation. Stage of breast cancer on initial diagnosis has been found to be one of the most important determinants of successful treatment; therefore, late-stage presentation contributes to high mortality rates in these regions. Cohen (2002) found that patients with primary cancer used more problem-solving and

positive -focused coping strategies than do women with recurrent cancer. Schnoll et al. (1998) examined the divergences in coping styles among breast cancer patients based on disease stage. They found that Stage II patients reported higher levels of a fighting spirit and lower levels of hopelessness/helplessness, anxious preoccupation and fatalism when compared to Stage IV patients. They also found that Stage II patients reported higher levels of positive attitude and vigilant participation. Moreover, they found that disease stage moderated the relationship between coping style and distress, suggesting that it is essential to consider disease stage when assessing the role that coping plays.

Time since diagnosis

Coping is a dynamic and changing process (Lazarus & Folkman, 1984). At different times since diagnosis the patients may have different coping strategies to manage their stress. Dunkel-Schetter et al. (1992) found that the time since diagnosis was positively associated with behavioral escape- avoidance coping. The coping strategies of each person will change over time and it is therefore important to know the specific coping strategy being employed within a particular time period by a cancer survivor.

Co-morbid conditions (Hypertension and Diabetes Mellitus)

Co-morbidity refers to one or more other diseases among people with an index-disease (e.g., cardiovascular disease). The Webster's New World Medical Dictionary (WebMD) defines co-morbidity as the coexistence of two or more disease processes present in anyone being. The complexities of co-morbid conditions can create complications when it comes to managing the treatment of co-morbidities in conjunction with the specialized

treatment of cancer (Balducci & Extermann, 2000; Extermann, 2007). The risk of co-morbidities increases with age, with those over 70 years having on average three co-morbid conditions that affect functioning (Deimling et al., 2009; Extermann, 2007). A Dutch cancer registry found that the prevalence of co-morbidity among incident cancer patients ranged from 12% among patients younger than 45 years to 60% among patients of 75 years or older. Age related health issues such as arthritis, osteoarthritis, rheumatism, blood pressure, heart problems and diabetes are commonly found in older adults and are often co-morbid with cancer (Exterman, 2007).

Co-morbid conditions need constant assessment as they affect risk, detection, progression and treatment of cancer, and place the elderly cancer survivors at further risk of developing additional cancers (Deimling et al., 2009; Extermann, 2007; New Zealand health Information Service, 2005). In a study on the influence of co-morbidities on the overall survival among older women diagnosed with breast cancer it was found that in a US population of older breast cancer patients, individual co-morbid conditions were associated with decreased overall survival and increased mortality. When patients of age 66–74 years were stratified by stage and individual co-morbidity status, patients with each co-morbid condition and a stage I tumor had similar or poorer overall survival compared with patients who had no co-morbid conditions and stage II tumors.

Research indicates that the presence of co-morbidities has a detrimental effect on the quality of life and functioning status of cancer survivors, particularly on women and those in ethnic minorities (Deimling et al., 2009). African Americans have been found to have a higher burden of co-morbid illnesses; some of these like diabetes mellitus, are

associated with increased incidence of various cancers (for example, breast and colorectal). Co-morbid diseases are also known to influence morbidity and mortality. For instance, postmenopausal women with breast cancer and two or more co-morbid conditions are more than twice as likely to die as those with one or none (Nagel, Wedding, Hoyer et al., 2004) and according to Extermann (2007) diabetic patients have increased incidences of colorectal cancer, a greater risk of breast cancer, and at least a twofold increased risk of pancreatic cancer above patients who do not have diabetes mellitus.

Several studies have been undertaken to ascertain whether a relationship exists between co-morbidity and cancer prognosis. The results have been varied depending on the type of morbidity and the type of cancer; however findings indicate that co-morbidity modifies the treatment of older patients and therefore may therefore influence survivorship (Balducci & Extermann, 2000; Hewitt et al., 2003; Repetto, 2003). A number of previous studies have shown that summary measures of co-morbid conditions are associated with decreased overall survival in breast cancer patients. However, less is known about associations between specific co-morbid conditions and their influence on coping in breast cancer patients.

Previous major surgery (mastectomy)

Mastectomy has been the most common treatment procedure for women with breast cancer. A substantial proportion of mastectomy patients develop bio-psychosocial problems and this has been well documented. The impact of mastectomy is more than the impact of breast cancer itself, so women who have undergone a mastectomy tend to face

more bio-psychosocial problems. A mastectomy is a radical approach to an aggressive breast cancer disease which can significantly assault an overall image and self-esteem of a woman because the breast is an important organ in a woman's body, sexuality (Mahapatro and Shubhangi 2005; Jamison 1978). Cancer and cancer therapies can impair body image and sexual health due to changed anatomy, loss of function and body image (Hein, 1991; Jamison 1978; Pistrang, et al, 1999). The patient's pre-morbidity personality and coping strategies can influence the psychological outcome of cancer surgery that can present as stressful life events, severity of pre-operative psychological morbidity, social support available and breast cancer patients extent of the surgery (Mahapatro and Shubhangi 2005). Coping is seen as an important determinant to cancer which can be related to both psychological morbidity and survival time, (Pettingale, et. al. 1985). Body image is also seen as a mental construct or picture that develops from infancy as a result of sensory and motor development and exploration of one's world, (Schilder, et. al. 1935; Jamison, et. al. 1978).

Waters (1998) assessed coping responses of mastectomy women with eight subscales as confrontive coping, distancing, self-controlling, seeking social support accepting responsibility, escape-avoidance, planned problem solving, and positive reappraisal. Thomas and Marks (1995) found that coping strategies can be demonstrated as acceptance and positive life reframing. A recent study of Egyptian mastectomy patients by Ali & Khalil, indicated that coping strategies used by Egyptian mastectomy patients were faith, compliance with medical regimen, seeking information and social support, and self-distraction. Comprehensive researches about post-mastectomy patients' psychosocial problems were done in recent years. Penman et al. (1986) combined cross-

sectional and longitudinal studies to investigate the impact of mastectomy as compared with cholecystectomy or no operation procedure on a total of 1,715 subjects. The results showed that women receiving adjuvant therapy following mastectomy had significantly more bio-psychosocial disturbances such as body image dissatisfaction and feminine self-image concerns than the control groups. She indicated that post-mastectomy women of poorer bio-psychological outcome would have poorer quality social life. Feather & Wainstock (1989) also investigated 456 post-mastectomy patients and indicated that emotional adjustment of post-mastectomy patients should be the growing concern.

There appears to be no documented information on the coping strategies of Ghanaian women diagnosed with breast cancer who have undergone mastectomy. This study seeks to investigate the coping strategies of these women and their adjustment.

2.6 Literature on breast cancer survival in Ghana and limitations

The nature of the disease requires that each community or population must define the characteristics of the disease amongst its people so as to determine the most suitable method of to control the disease and limit mortalities. Based on this a study was done on breast cancer, which described the characteristics of breast cancer patients attending the Komfo-Anokye Teaching Hospital in Kumasi, Ghana by Ohene-Yeboah, (2012). The main emphasis was on identifying only the clinical and pathological characteristics of breast cancer. Most of the patients who were diagnosed with breast cancer in this study were young (peak age 40-49 years) and about a half, (53.3%) of the patients were found to have had no education or only up to primary level. Also over two-thirds (70.9%) of the women were either unemployed or traders or artisans and hence of low socio-economic

status. As low levels of education and lower socioeconomic status have been found to be associated with advanced cancer presentation (Elgali et al., 2010; Vorobio et al., 2001), the study proposed that the improvement in education which will enhance breast cancer awareness and improvement in the general socioeconomic status of the women is likely to lead to a reduction in the number of patients who present to the hospital with advanced breast cancer. Though the researchers looked at the characteristics of the disease itself and variables such as age, education and socioeconomic status, they did not consider the personal characteristics of the individual and other psychosocial determinants which can all influence how the patients cope and therefore even be a reason for their late presentation.

This can be further reiterated in a study on Addressing the impact of health education on breast cancer by Clegg Lamptey et al.(2007). They concluded that there has been no improvement in breast cancer presentation at the KBTH over the past 5–10 years, in spite of breast awareness programmes and patients still present with advanced disease many months after symptoms appear with the 40–49 decade remaining the peak age at presentation. The study also identified a high rate of default among patients (twenty patients (12.7%) stopped attending as soon as they were informed about the diagnosis. Fifteen others (9.5%) started with neo-adjuvant chemotherapy and stopped attending either when there was improvement or when mastectomy was due and six patients (3.8%) defaulted and returned after many months with incurable disease). Further research is therefore needed to address certain factors/determinants (ie. personal characteristics, spiritual, social support, illness related factors) which influence coping and adjustment

and could possibly account for high default rates and once again, the late presentation in breast cancer patients.

The closest research done on coping and psychosocial adaptation in breast cancer patients and factors which can influence coping was by Clegg-Lamprey (2009) on the psychosocial aspects of breast cancer treatment in Ghana. The survivors in the study were women actively engaged in various occupations. Most of the illiterates were involved in trading activities and were bread winners of their families. It is known that, compared to Caucasians, women of African descent develop breast cancer at a younger age (Bullock & Blackwell, 2008; Cegg-Lamprey & Hodasi, 2007; Fregene & Newman, 2005; Petrelli, Cabiddu & Cazzaniga et al., 2008), when they are likely to be actively engaged in income generation. This raises the issue of availability of social support. Literature suggests that greater social support is associated with longer survival in women with localized or regional breast cancer (Waxler-Morrison, Hislop, Mears & Kan, 1991; Spiegel, Bloom, Kraemer, & Gottheil, 1989). A prospective study looking at the effects of social context on rate of survival from breast cancer found that women with increased support, particularly outside the home, had significantly higher rates of survival at a four year follow-up (Spiegel et al., 1989). Furthermore, absence of a social support network has been linked to not only a higher incidence of cancer and but also a more rapid course of illness including greater severity in physical as well as psychological morbidity (Peters-Golden, 1982.). It is therefore important to investigate how social support influences coping and psychosocial adjustment in women with breast cancer.

There is stigma attached to having breast cancer in Ghana as in many other countries. Healthy individuals' assign stigma and avoidance behaviour is directed at cancer patients

(Peters-Golden, 1982). Because of this stigma, many patients keep the diagnosis to themselves and this was further supported in the study as 60% of the women did not know of anyone who had survived breast cancer at the time of their diagnosis.

A combination of factors - stigma of breast cancer, the fact that it is considered fatal, and the fears and misconceptions associated with the disease - is likely to generate a lot of anxiety and fear in patients when they are informed about the diagnosis of breast cancer. In other reports, breast cancer patients go through emotions of denial, feeling of injustice, guilt, failure, betrayal, bewilderment, powerlessness, isolation and doom (Coyler, 2005; & Kaur, 2005). The main reactions of the patients in the study to their diagnosis were fear (terror), shock, devastation, weeping and depression which were an expression of their vulnerability. The main fears expressed by the women were: fear of death (62% of women), fear of mastectomy and associated deformity (30%), and the inability to finance treatment (26%). It is important then, to investigate the various ways patients cope with a diagnosis of breast cancer and the fears associated with the course of the disease, and also to identify the maladaptive coping styles and thereby providing a basis for future coping – skills based interventions and psychosocial interventions.

Even though from the literature review studies/research on coping and psychosocial adjustment in breast cancer, in relation to certain factors is extensive, few studies have however been done in Ghana with breast cancer patients. Currently there is no published study which has collectively addressed the coping styles of patients diagnosed with breast cancer the influence of psychosocial determinants (socio-demographic factors, optimism, social support, spirituality, psychological distress and medical factors) on these coping

styles and the way these patients adjust psychosocially. These determinants and coping styles are important when considering the experience of cancer and breast cancer survival. There is a need for research in these areas to develop a better understanding of the influence of these determinants on coping and the resulting psychosocial adjustment in women with breast cancer.

2.7 Conceptual model

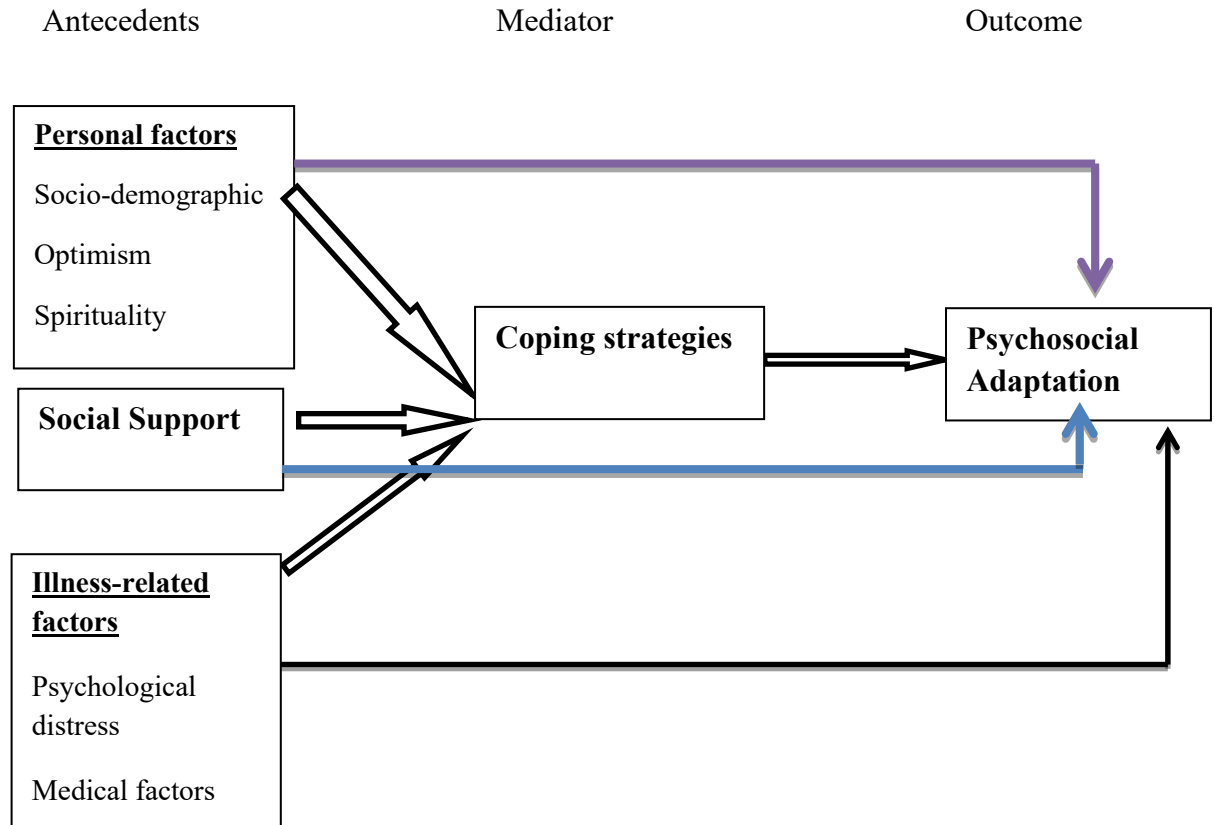


Figure 1: Conceptual Mediation Model for Coping Strategies on Antecedent Factors and Psychosocial Adjustment

2.8 Theoretical framework

The beginning of the twentieth century featured an understanding of health that was dominated by a biomedical perspective, characterized by a reductionist point of view in which health was defined as the absence of illness. This view has long been replaced by a bio- psychosocial model that emphasizes the role played by socio-cultural forces in the shaping of health (and illness) and related psychological experiences (Engel, 1977). In 1948, the WHO defined health as a complete state of physical, mental and social

wellbeing and not merely the absence of disease or infirmity, calling attention to the complexity and multidimensionality of the concept. Adding social well-being to the definition opened the way to conceptualizing the individual as a social being, with health being about more than merely physiological aspects. In psychological approaches to health and illness, individuals are increasingly viewed as a part of a larger network of forces, significantly influenced by their socio-cultural environments (Helman, 2007; Gurung, 2010).

In the years since the early 1980s, coping has been characterized as a complex, multidimensional process that is sensitive both to the environment, and its demands and resources, and to personality dispositions that influence the appraisal of stress and resources for coping. It has been found that certain kinds of escapist coping strategies are consistently associated with poor mental health outcomes, while other kinds of coping such as the seeking of social support or instrumental, problem-focused forms of coping are sometimes associated with negative outcomes, sometimes with positive outcomes, and sometimes with neither, usually depending on characteristics of the appraised stressful encounter (Hagedoorn et al., 2008). Coping is therefore embedded in a complex, dynamic stress process that involves the person, the environment, and the relationship between them. An important motivation for studying coping is the belief that within a given culture certain ways of coping are more or less effective in promoting emotional well-being and addressing problems causing distress. Furthermore information can be used to design interventions to help people cope more effectively with the stress in their lives. Despite the reasonableness of this expectation, the issue of determining coping effectiveness remains one of the most perplexing in coping research (Somerfield &

McCrae, 2000). The contextual approach to coping that guides much coping research states explicitly that coping processes cannot be classified as inherently positive or negative (Lazarus & Folkman, 1984). Instead, the adaptive qualities of coping processes need to be evaluated in the specific stressful context in which they occur. A given coping process may be effective in one situation but not in another, depending, for example, on the extent to which the situation is controllable. Furthermore, the context of coping is dynamic, so that what might be considered effective coping at the outset of a stressful situation may be deemed ineffective at another point in time.

One of the two models used to guide this study was proposed by Lazarus and Folkman (1984). They proposed one of the most comprehensive models of stress and coping known as the Transactional Model of Stress and Coping. This model was developed to examine individual coping and adaptation (Lazarus, 1966; Lazarus & Folkman, 1984; Wenzel et al., 2002). The Transaction Model of Stress and Coping is based on the assumption that stress is a person-situation interaction that depends on the subjective cognitive judgment, arising from interplay between the person and the environment (Mitchell, 2004; Zakowski et al 2001). Any individual faced with either a physical or psychological situation or event performs what is known as primary appraisal. Primary appraisal is an evaluation of an event for its personal meaning. If primary appraisal results in the person identifying the event or circumstance as a harm, loss, a threat or a challenge, then the person experiences stress, if not then the event is benign. If stress is present, a person then performs a secondary appraisal which focuses on possible coping strategies.

This dominant theoretical framework used in coping research has typically approached coping strategies from an individualistic perspective. Within this framework, a breast cancer survivor's coping responses are conditioned by the woman's evaluation of the threat posed by the cancer as well as her perception of the availability of psychological and social resources necessary to meet the threat (Lazarus, 1993). The presumption is that individuals are activists who operate independently of one another and are capable of exerting influence on their environment (Dunahoo et al., 1998; Riger, 1993; Thoits, 1995). Based on the Transactional model of stress and coping, it was therefore hypothesized that antecedent factors such as women's personal characteristics (socio-demographics, optimism, and spirituality), their social resources (social support), and illness-related factors (psychological distress, and medical factors) would influence how women coped with their illness.

The Baron and Kenny Approach (1986) for multi-stage regression was the second model used to guide this study. According to Baron and Kenny (1986) a model is fully mediated if the relationship between the antecedent variables and the outcome variable goes from significant to non-significant when the mediator is entered into the equation. A model is partially mediated when the significant relationship between the antecedent variables and the outcome variable is reduced. In a partially mediated model antecedents could have direct as well as indirect effects on outcomes.

It was hypothesized that coping strategies would have a direct effect on psychosocial adjustment and mediate the relationship between the antecedent factors and psychosocial adjustment. From the conceptual model a full mediation model can be tested, however, because few investigators have examined these relationships, and because few studies

have reported partial mediation (Munkres et al., 1992; Northouse, Caffey, Deichelbohrer, Schmidt, Guziatek-Trojniak, West, Kershaw & Mood, 1999), the possibility of a partially mediated model was also explored.

2.9 Statement of Hypotheses

H1: Personal factors (age, optimism, education, spirituality) will be related to certain coping strategies.

H1a: Younger age groups, high levels of education, high optimism, high levels of spirituality will be positively associated with problem-focused and emotion-focused strategies.

H1b: Younger age groups, high levels of education, high optimism and high levels spirituality will be negatively associated with avoidant coping strategies.

H2: Perceived social support will be significantly associated with coping strategies.

H2a: Highly perceived social support will be positively associated with problem-focused and emotion-focused strategies.

H2b: Low perceived social support will be positively associated with avoidant coping strategies.

H3: Illness-related factors will be related to coping strategies.

H3a: Anxiety and depression will be positively associated with avoidant coping strategies.

H3b: Anxiety and depression will be negatively associated with problem- focused and emotion focused strategies.

H3c: Medical factors of; late stage of disease, time of diagnosis, presence of a co-morbid condition and having undergone a mastectomy will be positively associated with avoidant coping strategies

H3d : Medical factors of; late stage of disease, time of diagnosis, presence of a co-morbid condition and having undergone a mastectomy will be negatively associated with problem- focused and emotion-focused coping strategies.

H4: Coping strategies will have a direct effect on the level of psychosocial adjustment in women diagnosed with breast cancer.

H4a: Problem-focused focused and emotion focused strategies will be positively associated with high levels of psychosocial adjustment.

H4b: Avoidant coping strategies will be positively associated with low levels of psychosocial adjustment.

H5a: Coping strategies will mediate the relationship between the antecedent factors (personal, social support and illness related factors) and psychosocial adaptation.

H5b: There will be a significant relationship between coping and psychosocial adjustment and this relationship will be mediated by spirituality.

H5c: There will be a significant relationship between coping and psychosocial adjustment and this relationship will be mediated by the educational level of the patient.

H6: Optimism and social support will moderate the relationship between coping and psychosocial adjustment.

H6a: Optimism would moderate the relationship between coping and psychosocial adjustment; so that higher optimism would increase psychosocial adjustment more for cancer patients who more often use coping strategies than for those who less often use

coping strategies.

H6b: Social support will moderate the relationship between coping and psychosocial adjustment; so that higher perceived social support would increase psychosocial adjustment more for cancer patients who more often use coping strategies than for those who less often use coping strategies.

H7: Illness-related factors (depression, stage of the disease, mastectomy) will moderate the relationship between coping and psychosocial adjustment.

H7a: Depression will moderate the relationship between coping and psychosocial adjustment.

H7b: Stage of the disease will moderate the relationship between coping and psychosocial adjustment

H7c: Mastectomy will moderate the relationship between coping and psychosocial adjustment.

Operational Definitions

Age: The amount of time during which a person has lived.

Coping: An effort to manage and overcome demands and critical events that pose a challenge, threat, harm, loss or benefit to person.

Problem-focused coping: Problem-solving or doing something to alter the source of the stress.

Emotion-focused coping: Emotion-focused coping can be described as reducing or managing the emotional distress that is associated with the stressor.

Avoidant coping: Avoidant coping can be described as striving to ignore or not dealing with a stressor.

Spirituality: A relationship to something that lies beyond physiological, psychological or social human perception or experience

Meaning: The process of finding and fulfilling a significance and purpose in ones' life regardless of the circumstances.

Optimism: The ability to see the positive side of things rather than the negative.

Social support: awareness by individuals that they are being cared for, loved, esteemed and valued and an acknowledgement that they belong to a network of communication and shared obligation.

Psychological distress: a state of emotional suffering characterized by symptoms of depression and anxiety.

Depression: A state of low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and sense of well-being.

Anxiety: An emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure.

Stage (of disease): Describes the extent of cancer in the body.

Diagnosis: The act of identifying a disease, illness or problem by examining someone or something.

Mastectomy: The surgical removal of all or part of the breast and sometimes associated associated lymph nodes and muscles.

Adjustment: a process whereby individuals deal with changes in previous patterns of functioning.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methods used for the study. The chapter therefore begins with an overview of the design employed, then the population for the study and how the sample was drawn out of the population. Another subsection puts the study in context by describing the area where the study was undertaken, with further subsections addressing, the instruments used for data collection, the procedures employed including ethical considerations and finally, the various statistical techniques used in analyzing the data.

3.2 Research design

A descriptive, correlational, cross-sectional, survey design was used to study the hypothesized relationships. The study took a descriptive approach as it attempted to establish relationships among variables. In line with the quantitative approach research hypotheses were generated for the study and data collected tested using statistical principles. A quantitative correlational design was used as it also attempted to explore the relationship between at least two variables within a given environment (National Radiotherapy Centre). The multivariate correlational technique assessed the degree of relationship between multiple variables (psychosocial determinants, coping strategies and psychosocial adjustment) in breast cancer survivors. Multiple regression techniques allowed the predictive strength of these variables to predict the outcome of psychosocial adjustment.

The present study which was cross-sectional in nature focused on female breast cancer survivors, the factors which influence coping strategies and the coping strategies the survivors used when undergoing treatment. In other words, a cross-sectional design takes a snapshot of participants' views or experiences at the time of data collection and therefore findings from such a study are not as rigorous and sustainable as those from the longitudinal approach, where data are collected over a period of time (Robson, 1996) and given that the present study is part of a programme of study with time constraints the cross-sectional approach was preferred.

The present study also employed the survey design and according to Robson (1996), the term survey refers to the collection of standardized information from a specific population by the use of questionnaires. The survey design was found appropriate for the study as it enabled large standardized data which is suitable for hypotheses testing to be collected using close-ended questionnaires.

3.3 Population

The area chosen for this study is Greater Accra which is the capital city of Ghana. According to O'Leary (2004) a population is the total membership of a defined class of people, objects, or events. Given this definition, the population for the proposed study consisted of females diagnosed with breast cancer and reporting at the National Radiotherapy Centre. There are three radiotherapy centres in Ghana, two are located in the Greater Accra region (of which one is a recently established centre) and one in Kumasi. The reason for choosing the population at the National Radiotherapy Centre was for convenience and apparent ease of data collection. The sample population consisted of

Ghanaian women who had been diagnosed with breast cancer and had undergone or were currently undergoing one, or a combination of treatments for breast cancer.

The response rate for the screened data of 100 respondents was 98%. The average age of the participants was 51.1 years (SD=13.87, range 24-87) which is comparable to a study done by Clegg- Lamptey (2009) on the Psychosocial aspects of breast cancer treatment in Ghana on 89 breast cancer survivors between the ages of 28 and 86 (M=53.7, SD= 11.7). Of the 98 participants, 11.2% had no formal education and eighty-eight (88.8%) had primary (11.2%), junior high (23.5%), senior high (24.5%) or tertiary (29.6%) education. Approximately one-third (31.6%) of the women were single and the remaining two-thirds (68.4%) were married. Most of the women had not undergone a partial, total or bilateral mastectomy (84.7%) and forty (40.8%) of them had co-morbid conditions of either hypertension, diabetes or both. The participants were cancer survivors of 2 months to approximately 32 years (mean 2.6 years) and were either undergoing treatment or had completed their treatment (radiotherapy, chemotherapy or a combination).

Eligibility criteria and selection of participants

Participants were recruited from the National Radiotherapy Centre in Korle-Bu Teaching Hospital, Accra and comprised females diagnosed with breast cancer and reporting at the centre for treatment (radiotherapy, chemotherapy or a combination) or scheduled post-treatment reviews. Women were 18 years or older which removed the element of seeking consent from another party before partaking in the study. It was important that selected participants were willing to partake in the study and had either started or completed radiation therapy/chemotherapy as the study aimed to assess how such patients were

coping and adjusting within these two phases. Ghanaian participants were the only nationality considered as the Radiotherapy centre provides services to patients of varying nationalities from other countries within the West African sub-region and the different cultures and traditions may have influenced their coping strategies and adjustment to breast cancer. This study therefore aimed at studying only Ghanaians.

Some women had been diagnosed with breast cancer but were excluded from the study because they were: (1) women who were newly diagnosed and hence had not received or started any treatment at the time of conducting the study (2) Unwilling to participate in the study and (3) non-Ghanaians.

3.4 Sample size

Past research has shown that social and illness related antecedents account for 42-56% of the variance in psychosocial adjustment (Northouse, Dorris & Charon-Moore, 1995; Northouse, Jeffs, Cracchiolo-Caraway, Lampman & dorris, 1995). A sample size of 98 has a power of .99 to detect a set of 7 variables that account for a total of 45% of the variance in a multiple regression equation (Cohen, 1998). Furthermore a total of 98 subjects has the power of .80 to detect a small/medium size effect (4% of the unique variance) for any of the 7 variables above and beyond all of the other predictors. A sample size of 98 was therefore considered adequate for this study.

3.5 Sampling Method

The general rule for data collection is that participants have to be able to offer their views and opinions in a way that would help to uncover the nature and essence of the phenomenon being investigated (Osborne, 1990). A non-probability purposive sampling technique was used to select the participants. Purposive sampling starts with a purpose in mind and the sample was thus selected to include people of interest and excludes those who do not suit the purpose. This is the most important type of non-probability sampling. Researchers usually rely on their experience, ingenuity and/or previous research findings, to deliberately obtain units of analysis in such a manner that the sample may be regarded as being representative of the relevant population (Welman, Kruger, & Mitchell, 2005). The rationale for selecting this sampling technique for this study was based on the notion that breast cancer is the condition that affects mostly women and furthermore all of the women attending the breast clinic for treatment or reviews at the National Radiotherapy Centre have a confirmed pathological diagnosis (via biopsy) of breast cancer.

In addition maximum variation purposive sampling (a type of non-probability sampling) was chosen so that the spectrum of positions and perspectives in relation to the phenomenon of “coping” (Given, 2008) could be covered. To achieve this, women diagnosed with breast cancer at different stages of treatment (chemotherapy, surgery, radiotherapy) alone or in combination were included in the recruitment strategy along with women who had ended their treatment.

The present study was approved by the Ethics Committee for Humanities (ECH) of the University of Ghana, Legon and conducted from the 7th of April 2014 to the 5th of May 2014. Participants were selected from the Breast clinic which is held on Mondays and

also from those reporting for scheduled treatment and/or reviews throughout the week (Monday-Friday). Participants were asked to complete the informed consent process and were assured of their anonymity and confidentiality in the study. They were made aware of their right to discontinue or withdraw from the study at any time.

To obtain relevant information a questionnaire (demographics and psychological tests) consisting of seven major sections: socio-demographic factors; personality trait; functional social support; anxiety and depression; medical factors (co-morbid conditions); coping style; and psychosocial adaptation, was used. Selected participants were administered the questionnaire lasting not more than 60 minutes at a sitting in a private/secluded area or room with comfortable chairs and a table. Short breaks were allowed to prevent participants from tiring easily due to their condition and to make needed trips to the bathroom. Refreshment (water/soft drink) was also provided when necessary. Participants who were reporting for treatment (radiation, chemotherapy or combination therapy) were encouraged after completing the questionnaire to relax for about 15 minutes before going for their treatment.

In considering the physical and psychological effects of the disease on the patient, the time within which the questionnaire was administered (including the time allowed for breaks) which would also determine when the person received their radiotherapy/chemotherapy dose, it was prudent to engage the service of research assistants who assisted the researcher in administering the questionnaire to more than one patient at the same time and hence avoided keeping many patients waiting for their treatment. Also this allowed for ease of administration of the questionnaire, clarity of understanding the questions by the participant who then gave the most appropriate

answer. The research assistants included two trained medical doctors with research backgrounds in Community and Public Health, who received detailed instructions on how the questionnaire should be administered.

The research assistants were made aware that emotional issues may arise during the course of the interview and hence the need to pay attention to verbal and non-verbal cues which would hint at this. They were required to pay attention to changes in the tone of voice, the content and timing of answers, accompanying facial expression, posture and behaviours that could convey any emotional issues. Four of the participants were overwhelmed with emotion (crying for a short period) during the interview for which appropriate interventions were made by the researcher and therefore there was no need for referrals to be made to a consultant clinical psychologist (at the Psychiatric Department, Korle-Bu Teaching Hospital) for professional assistance. These participants however voluntarily completed the questionnaire.

When needed professional interpreters who are employed by the Radiotherapy Centre to assist in history taking and consultation with their patients assisted in interpretation when a language barrier arose. In such instances seating was arranged so that the researcher/research assistant was the main focus of the patient's attention so as to allow rapport to develop between the participant and the researcher/research assistant. This was achieved by arranging the seating with the interviewer and the interpreter side by side, together facing the participant so that there was very little need for the participant to redirect his gaze and the interpreter was seen to be an extension of the researcher/research assistant and merely interpreted for both parties, accurately reporting all comments made and not entering into spontaneous discussion or questioning.

On completion of the questionnaire the coordinator double-checked each questionnaire to prevent missing data. Participants were assigned a research code number, which appeared on each page of all of their completed questionnaires and personal information (initial of first name and surname) was collected for the purpose of avoiding the same participant being interviewed more than once on subsequent visits to the Centre within the data collection period (as most patients report weekly for radiotherapy and/or chemotherapy) and was kept separately from completed questionnaires. Participant contact information was not required as there would be no follow-ups. The completed questionnaires were kept in a separate locked filing cabinet only accessible to the researcher. Verbal appreciation was expressed to participants on completion of the interview.

3.6 Measures

Demographic Questionnaire

A questionnaire created specifically for the study assessed demographic information (Project Questionnaire). The questionnaire consisted of response options of multiple choice, a checklist, and open-ended items. Variables assessed with this questionnaire were personal characteristics which included socio-demographic variables (age, socioeconomic status (education); structural/received social support (marital status); and medical factors (stage, time since diagnosis, major surgeries (i.e mastectomy), presence of co-morbid conditions (diabetes, hypertension or both).

Age was a continuous variable measured in estimated months since the time of original/first diagnosis with breast cancer up until the month of the study period.

Socio-economic status was assessed based on the educational level. Women were categorized into three categories: the first category consisted of women who had no formal education. The second category consisted of women who had some degree of secondary education; Junior High school (JHS)/Senior High school (SHS) education. The third category was of women who had some level of tertiary education.

Structural or received social support was assessed with only one indicator item, marital status, which consisted of two categories; single or married. Women who were unmarried, separated, divorced or widowed were all considered to be single in status.

Medical factors included stage of the disease, time since diagnosis, major surgeries and co-morbid conditions. The staging of breast cancer was based on the TNM (Tumor Nodes Metastasis) staging as recommended by the National Cancer Institute in the US. Two categories were used, women in the early stage (stage I and II) and women in the late stage (stage III and IV).

Women in the study responded yes or no to any major surgery. The major surgery in this case was only one category with indicators of a partial, total or bilateral mastectomy.

According to the Greater Accra Regional Health Directorate: Annual Report 2007, in the Greater Accra Region, hypertension moved from fourth to become second to malaria as the leading cause of outpatient morbidity in 2007. Also a study conducted by Amoah (2003) in the capital Accra found that the prevalence of hypertension in urban Accra was 28.3% (crude) and 27.3% (age-standardized). Though epidemiological data on the prevalence of diabetes in Ghana is scanty, evidence suggests that it is on the increase. A study by Amoah, Owusu & Adjei in 2002 reported a high prevalence rate of 6.3%. These

two conditions were thus included in the demographic information as possible co-morbidities in cancer patients in this study

The Life Orientation Test-Revised (LOT-R)

The Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) was used to assess optimism. Four items were filler items (e.g., “it’s easy for me to relax”) and six items contributed to the optimism score (e.g., “in uncertain times, I usually expect the best”). Each item was rated on a 5-point Likert scale (0 = “I disagree a lot” to 4 = “I agree a lot”). Summing the responses to the items generates an individual's optimism score. A score between 0-13, 14-18 and 19-24 are taken to indicate low, moderate and high optimism respectively.

An acceptable level of internal consistency was demonstrated by Cronbach’s alpha reported by Scheier et al. (1994) of .78. Test-retest reliability correlations ranged from .56 to .79. Both convergent and discriminant validity have been demonstrated (Scheier et al., 1994).

The original Life Orientation Test (LOT) has been described as the most frequently used measure for assessing optimism and has been deemed a scale of choice for assessing hope and optimism (Steed, 2002). The LOT-R has been used in research with breast cancer survivors (e.g., Schou, Ekeberg, Karesen, & Sorensen, 2008; David et al., 2006).

The Hospital Anxiety Depression Scale (HADS)

The Hospital Anxiety Depression Scale (HADS) was used to report anxiety and depressive symptoms. The instrument was designed for medically ill patients and does not include physical symptoms. It has been validated in patients with cancer. The HADS contains seven items that assess anxiety and seven items that assess depression rated on a four-point Likert scale (0 to 3). HADS-A or HADS –D score of 0-7 was defined as a non-case, 8-10 as a borderline case and > 11 as a case. A validation study on the Malay version of HADS by Fariza (2003) revealed that sensitivity is 92.3% and specificity is 90.8% for depression at 8/9 cut-off points whereas as for anxiety portion, the sensitivity is 90.0% and specificity is 86.2% at 8/9 cut-off points.

FACIT-Sp 12

The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp-12) is a questionnaire that measures spiritual well-being in people with cancer and other chronic illnesses. Cancer patients, psychotherapists, and religious/spiritual experts provided input on the development of the items. (FACIT-Sp-12) is a Likert-type scale consisting of 12 multiple-choice questions (Cella, n.d.). This instrument was chosen because it was specifically designed for use in oncology patients. The instrument is comprised of two subscales; one measures the role of faith in illness, and the other assesses peace and meaning in life (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002). Possible responses to the 12 questions assessing spiritual well-being include 0= not at all, 1= a little bit, 2= somewhat, 3= quite a bit, 4= very much. Higher scores indicate a higher degree of spiritual well-being. Reliability was evaluated with internal

consistency coefficients. The alpha coefficients were 0.87 for the entire scale, 0.81 for the meaning/peace subscale and 0.88 for the faith subscale (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002). The FACIT-Sp-12 has been translated and linguistically validated in 15 languages and has been used in dozens of studies examining the relationships among spiritual well-being, health, and adjustment to illness. It was validated with a large, ethnically diverse sample and has been successfully used to assess spiritual well-being across a wide range of religious traditions, including those who identify themselves as “spiritual yet not religious.” Positive correlations between FACIT-Sp and the Functional Assessment of Cancer Therapy General, and the Profile of Mood States have evaluated validity of this instrument. The correlation between the role of faith in illness subscale and the peace and meaning in life subscale was 0.54 ($p=0.0001$) (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002).

Medical Outcome Studies Social Support (MOS SS) survey

Perceived social support was measured using the Medical Outcome Studies Social Support (MOS SS) survey. This measure of perceived social support was constructed by Sherbourne & Stewart (1991) and captures four dimensions of perceived social support. These dimensions are derived from qualitative assessment of social ties and the degree to which these ties are linked to serve a particular function. The dimensions include emotional/informational support, tangible support, affectionate support and positive social interaction (Sherbourne & Stewart, 1991); For the 4 dimensions there are a total of 19 items.

The measure was evaluated and found to be valid and reliable to assess perceived social support (Sherbourne, Michael, Wells & Croghan, 2004; Sherbourne & Stewart, 1991). Sherbourne et al., concluded that the 19-item scale had high convergent and discriminant validity to determine perceived social support in four dimensions.

The social support measure was also found to be empirically distinct from other measures of physical and mental health. The authors found that the reliability of the item scales was also found to be stable over a period of one year. Sherbourne and Stewart found that the MOS SS survey was easy to administer to chronically ill patients since the items were designed specifically to be short, simple and easy to understand and restricted to one idea in each stem.

Each item in the survey had 5 corresponding answer categories. Subscale scores sum the responses checked for the relevant items; scores are then transformed into a 0 -100 scale for each subscale using a standard approach recommended by the RAND Corporation (2004-2011), with higher scores indicating more support

To determine scores for each subscale and a total score for perceived availability of social support using the RAND scoring system, the following steps were used:

1. Average score of each subscale was obtained.
2. Minimum and maximum scores in each category were 1 and 5 respectively
3. Each subscale was transformed to a scale of 0-100 by using the following formula:

$$\{(average\ score - minimum\ possible\ score) / (maximum\ possible\ score - minimum\ possible\ score)\} \times 100$$

A total score is calculated from the calculated from the mean of the subscale scores.

The resulting perceived social support was thus used as the key predictor variable in this study. Lower scores showed lower perception of social support and higher scores demonstrated higher perception of available social support (Sherbourne & Stewart, 1991).

Brief COPE (Coping Orientation of Problem Experience Inventory)

Brief COPE scale will be used to assess coping scale. It contains 28 items and is rated by the four-point Likert scale, ranging from “I haven’t been doing this at all” (score one) to “I have been doing this a lot” (score four). In total, 14 dimensions are covered by this scale. These are self- distraction (items 1 and 19), active coping (items 2 and 7), denial items 3 and 8), substance use (4 and 11), use of emotional support (items 5 and 15), use of instrumental support (items 10 and 23), behavioural disengagement (items 6 and 16), venting (items 9 and 21), positive reframing (items 12 and 17), planning (items 14 and 25), humour (items 18 and 28), acceptance (items 20 and 24), religion (22 and 27) and self-blame (items 13 and 26). Every dimension has two items.

Some sample questions include —I take action to try to make the situation better,|| —I use alcohol or other drugs to help me get through it,|| and —I make jokes about it.|| Each item asked participants to rate on a 5-point Likert scale ranging from 1 (I don’t do this at all) to —5|| (I do this a lot). The coping dimensions were divided into three major categories: The 14 subscales were then classified into 3 higher order subscales (broad coping categories): Emotion-focused coping (substance use, use of emotional support, venting, positive reframing, humor, acceptance, religion, and self-blame), problem-focused coping

(active coping, use of instrumental support and planning), and avoidant coping (distraction, denial, and behavioral disengagement) as categorized previously by Wilson, Pritchard, and Revalee (2005).

Problem-focused coping can be described as problem-solving or doing something to alter the source of the stress, while emotion-focused coping can be described as reducing or managing the emotional distress that is associated with the stressor. Avoidant coping can be described as striving to ignore or not dealing with a stressor.

To determine scores for total overall coping scores summation of all scores of individual subscales was done. Similarly summation of the scores based on the Likert scale for each of the three subscales also computed. Higher overall coping scores showed a high usage of coping mechanisms and higher scores on individual subscales showed that participants tended to use that particular coping subscale more.

In a sample of Hurricane Andrew survivors, the Cronbach's alphas of the inventory reported to range from .50 (venting) to .90 (substance use). Except subscales of Venting, Denial, and Acceptance, the reliabilities of all other subscales exceeded values of .60 (Carver, 1997). The COPE inventory has demonstrated discriminant and convergent validity (Carver et al., 1989).

Brief COPE scale has also been translated to Malay and validated.

The Psychosocial Adjustment to Illness Scale (PAIS)

This is a 46-item multiple domain, semi-structured interview designed to assess the quality of a patient's psychosocial adjustment to a current medical illness or the sequelae of a previous illness. With slight variations in format, the PAIS may also be used to

measure the nature of spouses', parents' or other relatives' adjustment to the index patient's illness, or their perceptions of the patients' adjustment to his/her own illness.

The PAIS measures psychosocial adjustment to illness in terms of 7 primary domains of adjustment; The Health Care Orientation section consists of eight items that assess the nature of the individual's health care posture and whether it will facilitate or impede adjustment to the illness and its treatment. The Vocational Environment section is comprised of six questions designed to measure the impact of the medical illness on job performance, job satisfaction, and vocational adjustment. Vocation is defined as work, school, or home. Adjustment in the Domestic Environment is measured by eight items designed to assess illness-related adaption problems that arise in the home or family environment. Sexual Relationship adjustment is measured by a six-item section designed to assess changes in the quality of sexual behavior or relationship that result from the illness or its aftermath. The Extended Family Relationship section uses five items designed to measure difficulties or disruption in relationships with the patient's extended family that arise as a result of the illness. Social Environment is assessed by six items that determine the impact of the illness on the patient's current social and leisure time activities. It considers both interest and activity in individual, family, and social behaviors. Psychological Distress is measured by a section consisting of seven items designed to gauge dysphoric thoughts and feelings that accompany the patient's illness or are related to the illness or its sequelae. Included are items related to anxiety, depression, hostility, self-esteem, body image problems, and guilt. For each question in this scale, there are four options, which are descriptive phrases that indicate different levels of adjustment. Participants are asked to choose the answer that best describes their

experience. By assigning each item a score from 0 to 3, participant responses are quantified. Every response indicating impairment in the patient's quality of life since diagnosis is assigned a score of 3, while an improvement or lack of change is assigned 0. In PAIS scale, low scores indicate a "good psychosocial adjustment", whereas high scores indicate a "poor psychosocial adjustment". In PAIS, scores below 35, between 35-51 and over 51 are taken to indicate "good psychosocial adjustment," "fair psychosocial adjustment," and "poor psychosocial adjustment" respectively. On the PAIS, scale direction is alternated on every other item to help reduce position response biases. In three published studies internal consistency reliability estimates (Co-efficients) for the domain scores of the PAIS were: .63-.80; .68-.93; and .47-.85. Inter-rater reliability coefficients for the PAIS interview ranged from .74-.86 and .33-.82 in two published studies, with coefficients for the PAIS Total Adjustment Score being .86 and .83 respectively. Validation of the PAIS has been extensive. Studies of convergent, predictive and construct validity, as well as confirmation of dimensional structure, have been reviewed thoroughly in Derogatis & Derogatis (1990) and Derogatis & Fleming (1996).

3.7 Data analysis

Data from this research was analyzed using version 16 of the SPSS.

Hypothesis H1, H2 and H3 were analyzed using Standard Multiple Regression in order to find out whether the various antecedents significantly the coping predicted the coping strategies. Hypothesis H4 was analyzed using multiple hierarchical regression analysis to explore the extent to which coping strategies significantly predicted psychosocial adjustment. Hypothesis H5 was tested for mediation using the Baron and Kenny Model (1986) for hierarchical multiple regression. This showed the mediating effect of the antecedent variables on the relationship between coping and psychosocial adjustment.

Hypothesis H6 and H7 were tested the moderating effect of the antecedents with non-significant mediation effects on the relationship between coping and psychosocial adjustment using hierarchical moderated regression.

CHAPTER FOUR

RESULTS

4.1 Introduction

The results section deals with the presentation of findings and includes hypotheses testing based on the data collected. The study was aimed at exploring coping and adjustment among cancer patients. It also initially intended to explore the mediating effects of coping strategies on the relationship between personal factors, social support as well as illness-related factors and psychosocial adjustment. All analyses were performed using SPSS. Data for the current study were gathered from self-reported surveys of selected cancer patients from Korle- Bu Teaching Hospital. Analyses were based on screened data of 98 patients out of a total of 100 representing 98% response rate. The analyses is in two main parts namely; preliminary analysis and hypotheses testing. In the first part, the Preliminary analysis deals with summaries of the entire data into an interpretable form in addition to the descriptive analyses. This is followed by statistical tests of the hypotheses proposed, in the second part.

4.2 Preliminary Analysis

Preliminary analyses including descriptive statistics and tests of normality are conducted to check whether the assumptions for the use of parametric statistical tests are met. Parametric tests were mainly used for the analyses of the research data in the study. Parametric tests make assumptions about ratio or interval scale of measurement, normality of distribution, homogeneity of variances and independent errors or residuals (Creswell, 2005). These assumptions ensure that the samples used in a study have the

same characteristics as the population of concern. They consequently place constraints on the interpretation of research findings and strengthen inferences drawn about the population on the basis of samples. The present study tested for normality and homogeneity. Skewness and kurtosis were used to test normality. According to Tabachnick and & Fidell (2001) indices within ± 2 is acceptable; indicating that no transformations of the data are needed for statistical analysis to be conducted.

In the first part of the preliminary analyses were frequencies of the demographic characteristics of the entire sample followed by the descriptive statistics. This is presented in Table 1 below:

Table 1: Frequency Distribution of Demographic Characteristics of Respondents (n=98)

Demographic Variables	N	Percentages (%)
Educational level		
No educ.	11	11.2
Primary	11	11.2
JHS	23	23.5
SHS	24	24.5
Tertiary	29	29.6
Marital status		
Single	31	31.6
Married	67	68.4
Partial/total/bilateral mastectomy		
No	83	84.7
Yes	15	15.3
Co-morbid conditions		
No	58	59.2
Yes	40	40.8

The next preliminary analysis was the descriptive results of the key study variables including the skewness, kurtosis, reliabilities of key study variables and expected minimum and maximum scores.

Table 2: Summary of descriptive statistics, skewness, kurtosis and Cronbach Alpha for key variables and their subscales in the study (n=98)

Variables	Mean	SD	Skewness	Kurtosis	Alpha (α)	Min	Max
Spirituality	40.92	5.67	-.71	.10	.93	22.00	48.00
Meaning	13.89	2.58	-1.37	1.56	.83	4.00	16.00
Faith	15.35	1.67	-1.29	-.19	.85	6.00	16.00
Peace	11.86	3.33	-.34	-.98	.93	4.00	16.00
Social support	82.94	19.32	-1.31	1.71	.94	3.91	100.00
Informational/emot.	81.96	22.95	-1.62	1.55	.91	.00	100.00
Tangible	79.08	30.80	-1.51	.99	.92	.00	100.00
Affectionate	89.54	20.04	-1.25	1.18	.91	.00	100.00
Positive social int.	81.18	23.90	-.57	1.39	.91	.00	100.00
Overall coping	72.28	9.28	-.57	1.15	.67	46.00	96.00
Problem-focused	18.53	4.46	-1.06	.45	.87	6.00	24.00
Emotional	40.89	5.18	-.08	-.07	.62	28.00	55.00
Avoidant	12.86	3.12	.17	-.64	.60	6.00	20.00
Optimism	18.21	3.70	-.26	-.42	.60	9.00	24.00
Anxiety	5.40	4.80	.83	.10	.77	.00	21.00
Depression	7.95	3.64	.29	.21	.62	.00	19.00
Psychosocial Adjustmnt	34.19	20.40	1.10	1.46	.90	6.00	109.00

From Table 2 above the average scores for the key variables are worth noting. With a maximum score of 48.00 for spirituality and an average score of 40.92 (SD=5.67) it indicates that most respondents have high spirituality. Apart from anxiety (M=5.40, SD=4.80) and depression (M=7.95, SD= 3.64) which were lowly reported by respondents, all other variables like social support, coping, optimism and psychosocial adjustment were highly reported. **It must be noted that higher scores on the psychosocial adjustment scale indicate poor adjustment whilst lower scores reflect better adjustment.**

The final step in the preliminary analysis was the computation of Pearson Product Moment Correlations Coefficient (r) among demographic and key continuous study variables. This is in line with the assumption that at least there should be a relationship between the predictor and criterion variable before mediation or moderation analysis can be performed (Field, 2005).

Table 3: Correlation Matrix for key study variables including personal/demographic factors

Variables	Spirity.	Social support	Coping	Optimism	Anxiety	Dep	Adjustmnt
Age	-.07	-.01	-.14	.37**	-.15	-.19*	-.21*
Educational level	.30**	.26**	.30**	-.07	.12	-.09	-.31**
Marital status	.17*	.15	.29**	-.04	-.07	.02	.02
Stage of disease	-.37**	-.17*	-.16	-.11	.15	.22*	.37**
Duration of diagnosis	.14	.02	.06	-.09	-.06	.12	.01
Mastectomy	-.19*	-.16	-.21*	.06	-.03	.15	.14
Co-morbidity	-.16	.16	-.18*	.19*	-.02	-.07	-.14
Spirituality	-	.43**	.25**	.09	-.23*	-.23*	-.41**
Social support	-	-	.48**	.23*	-.04	-.31**	-.33**
Overall Coping	-	-	-	.10	.04	-.22*	-.22*
Optimism	-	-	-	-	-.14	-.13	-.34**
Anxiety	-	-	-	-	-	.49**	.43**
Depression	-	-	-	-	-	-	.58**
Psychosocial adj	-	-	-	-	-	-	-

** = $p < .01$, * = $p < .05$, age, duration of diagnosis, and educational level (numeric), marital status (0=single/divorced/widowed, 1=married), stage of disease (early=0, late=1), mastectomy (no =0, yes=1), co-morbid condition (no=0, yes=1), Spirity= Spirituality, Dep.=Depression, Adjustmnt= Psychosocial Adjustment

From the correlation matrix above, the correlation coefficient between two key study variables is worth noting. Age significantly related positively with optimism ($r = .37$, $p < .01$) but negatively with depression ($r = -.19$, $p < .05$) and psychosocial adjustment ($r = -.21$, $p < .05$). Therefore, age increases with optimism but higher age is linked to less

depression and better psychosocial adjustment for the cancer patients. Higher level of education was also linked with higher spirituality ($r = .30, p < .01$), social support ($r = .26, p < .01$), more coping strategies ($r = .30, p < .01$) and better psychosocial adjustment ($r = -.31, p < .01$). Compared with unmarried cancer patients, married patients tended to have more coping strategies ($r = .29, p < .01$). Stage of disease was positively related with depression ($r = .22, p < .05$) and psychosocial adjustment ($r = .37, p < .01$); indicating that those in later stages of the disease were more depressed and poorly psychologically adjusted. Stage of disease however related negatively with spirituality ($r = -.37, p < .01$) and social support ($r = -.17, p < .05$); indicating that cancer patients in later stage of the disease were less spiritual and had less of a social support base. Duration of diagnosis did not relate with any of the key variables. Co-morbidity related negatively with coping ($r = -.18, p < .05$) but positively with optimism ($r = .19, p < .05$). Thus, patients with co-morbid diseases tended to have less coping strategies but were more optimistic. Patients undergoing mastectomy were found to be less spiritual ($r = -.19, p < .05$) and had less coping strategies ($r = -.21, p < .05$) compared with those who had not undergone mastectomy. Spirituality was found to correlate highly with social support ($r = .43, p < .01$), coping ($r = .25, p < .01$), anxiety ($r = -.23, p < .01$), depression ($r = -.23, p < .01$) and psychosocial adjustment ($r = -.41, p < .01$). Thus, spirituality increased with social support, coping and psychosocial adjustment but decreased with anxiety and depression. Social support significantly related positively with coping ($r = .48, p < .01$) and optimism ($r = .23, p < .01$); indicating that the more the patients perceived support, the higher their coping and optimism levels. Social support however related negatively with depression ($r = -.22, p < .05$); whilst it increased with psychosocial adjustment ($r = -.22, p < .05$).

Optimism correlated negatively with psychosocial adjustment ($r = -.34, p < .01$) indicating that optimism increased the adjustment of the patients. Finally, anxiety, depression and psychosocial adjustment were positively related implying that anxiety and depression significantly reduced the psychosocial adjustment of the patients. Thus, patients with high anxiety and depression tended to have poorer psychosocial adjustment.

4.3 Hypothesis Testing

The study sought to investigate how personal, socio-demographic and illness-related factors help cancer patients cope with psychological distress and psychosocially adjust. Hypotheses one through to three were tested using standard regression in order to find out whether personal factors like age, optimism, education and spirituality, social support, illness-related factors like depression, anxiety, and medical factors (i.e. late stage of disease, time of diagnosis, presence of a co-morbid condition and having a mastectomy) significantly predict coping strategies. Hypothesis four however, explored the extent to which coping predicted psychosocial adjustment significantly. Hypothesis five tested the mediating effect of some of the factors listed above on the relationship between coping and psychosocial adjustment; hence hierarchical regression was conducted using Baron and Kenny's (1986) procedures. The final hypothesis tested the moderating effect of some of the non-significant mediation effects on the same relationship using hierarchical moderated regression.

Hypothesis One

The first hypothesis explored the extent to which personal factors like age, optimism, education and spirituality predicted coping strategies among the cancer patients. This was done to find out the unique contribution of each of these variables in explaining coping strategies often used by cancer patients. It was stated as:

H1: Personal factors (age, optimism, education, spirituality) will be related to certain coping strategies.

H1a: Younger age groups, high levels of education, high optimism, high levels of spirituality will be positively associated with problem-focused and emotion-focused strategies.

H1b: Younger age groups, high levels of education, high optimism and high levels of spirituality will be negatively associated with avoidant coping strategies.

Table 4: Results of Standard Multiple Regression Analyses for Personal Factors (age, educational level, optimism and spirituality) as Predictors of Coping Strategies

Criterion/Predictors	Unstandardized coefficient		Standardized coefficient				
Overall Coping	B	SE	Beta (β)	p	F	R ²	Adj R ²
				.01	3.75*	.14	.10
Constant	55.25	7.99					
Age	-.08	.07	-.13				
Educational level	1.62	.73	.23*				
Optimism	.38	.26	.15				
Spirituality	.25	.17	.16				
Problem-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.00	5.99*	.21	.17
Constant	11.35	3.69					
Age	-.09	.03	-.29*				
Educational level	.57	.34	.17				
Optimism	.21	.12	.17				
Spirituality	.16	.08	.21*				
Emotion-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.16	1.69	.07	.03
Constant	31.26	4.64					
Age	.04	.04	.11				
Educational level	.70	.42	.18				
Optimism	.16	.15	.11				
Spirituality	.07	.10	.08				
Avoidant-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.27	1.30	.21	.17
Constant	12.64	2.81					
Age	-.03	.03	-.14				
Educational level	.35	.27	.15				
Optimism	.01	.09	.01				
Spirituality	.02	.06	.03				

* $p < .05$, age, educational level, optimism and spirituality (numeric)

On the composite coping scores, only educational level ($\beta = .23$, $p = .03$) was a significant predictor; but the entire model was a significant predictor [$F_{(4, 97)} = 3.75$, $p = .007$] explaining about 14% of the variance in overall coping. Age however, significantly predicted problem-focused coping ($\beta = -.29$, $p = .01$); indicating that age is a significant contributing factor in determining how patients often use problem-focused coping. The

negative relationship means that older patients less often use that coping strategy. One major outcome was that spirituality also significantly predicted problem-focused coping ($\beta = .21$, $p = .04$). None of the sub-dimensions of spirituality significantly predicted problem-focused coping and no other personal factor significantly predicted either emotional or avoidant coping. Therefore, the hypothesis as stated was partially supported, i.e. educational level negatively predicted overall coping whilst age and spirituality predicted problem-focused coping.

Hypothesis Two

The second hypothesis explored the extent to which social support predicted coping strategies. This was done to find out the variance accounted for by social support in explaining coping strategies often used by cancer patients.

H2: Perceived social support will be significantly associated with coping strategies.

H2a: Perceived social support will be positively associated with problem-focused and emotion-focused strategies.

H2b: Perceived social support will be positively associated with avoidant coping strategies

The results are presented in Table 5.

Table 5: Results of Standard Multiple Regression Analyses for Social support (informational, tangible, affectionate and positive social interaction) as Predictors of Coping Strategies

Criterion/Predictors	Unstandardized coefficient		Standardized coefficient				
Overall Coping	B	SE	Beta (β)	p	F	R ²	Adj R ²
				.00	8.91	.28	.25
Constant	52.54	3.95					
Overall social support	.23	.04	.48*				
Emotional/informatn.	.15	.07	.38*				
Tangible	.00	.03	.01				
Affectionate	.00	.07	.01				
Positive Social. Int.	.01	.06	.20				
Problem-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.00	5.80	.20	.17
Constant	12.18	2.00					
Overall social support	.09	.02	.38*				
Emotional/informatn.	.05	.03	.27				
Tangible.	.02	.02	.12				
Affectionate	-.05	.04	-.23				
Positive Social. Int.	.01	.03	.07				
Emotion-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.00	8.91	.28	.25
Constant	28.10	2.16					
Overall social support	.12	.02	.47*				
Emotional/informatn.	.07	.03	.31*				
Tangible	-.03	.02	-.15				
Affectionate	.07	.03	.28*				
Positive Social. Int.	.03	.03	.15				
Avoidant-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.00	8.91	.28	.25
Constant	12.26	1.53					
Overall social support	.02	.02	.11				
Emotional/informatnal	.02	.02	.13				
Tangible.	.01	.01	.09				
Affectionate	-.03	.02	-.21				
Positive Social. Int.	.02	.02	.13				

* $p < .05$, n=98

The table above examined the extent to which social support predicted coping strategies and revealed that overall social support and its subscales significantly predicted overall coping [$F_{(4, 97)} = 8.91, p = .000$] explaining about 28% of the variance in overall coping. Thus, the outcome has confirmed that the extent to which coping strategies are used by cancer patients is to some extent dependent on the social support base of the patient. Only emotional/informational support significantly predicted overall coping ($\beta=.38, p=.02$); indicating that emotional support has a greater influence on how often patients use coping. It was only overall support that significantly predicted problem-focused coping ($\beta=.31, p=.02$). Again, emotional/informational support ($\beta=.31, p=.01$) and affectionate support ($\beta=.28, p=.03$) significantly predicted emotional-focused coping but none of the sub-dimensions of social support significantly predicted avoidant-focused coping. Therefore, the hypothesis as stated was partially supported, i.e. overall social support, emotional/informational and affectionate social support predicted coping to some degree.

Hypothesis Three

The third hypothesis explored the relationship between illness related factors and coping strategies. It was stated that:

H3: Illness related factors will be related to coping strategies.

H3a: Anxiety and depression will be positively associated with avoidant coping strategies.

H3b: Anxiety and depression will be negatively associated with problem- focused and emotion focused strategies.

H3c: Medical factors; late stage of disease, time of diagnosis, presence of a co-morbid condition and having undergone a mastectomy will be positively associated with avoidant coping strategies.

H3d: Medical factors; late stage of disease, time of diagnosis, presence of a co-morbid condition and having undergone a mastectomy will be negatively associated with problem- focused and emotion-focused coping strategies.

These analyses are presented in Tables 6 and 7.

Table 6: Results of Standard Multiple Regression Analyses for Anxiety and Depression as Predictors of Coping Strategies

Criterion/Predictors	Unstandardized coefficient		Standardized coefficient				
Overall Coping	B	SE	Beta (β)	p	F	R ²	Adj R ²
				.02	4.04	.08	.06
Constant	76.64	2.20					
Anxiety	.38	.22	.20				
Depression	-.81	.29	-.32*				
Problem-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.17	1.81	.04	.02
Constant	19.18	1.08					
Anxiety	.19	.11	.20				
Depression	-.21	.14	-.17				
Emotion-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.00	5.80	.11	.09
Constant	44.47	1.21					
Anxiety	.10	.12	.10				
Depression	-.52	.16	-.37*				
Avoidant-focused	B	SE	Beta (β)	p	F	R²	Adj R²
				.48	.73	.02	.00
Constant	12.99	.76					
Anxiety	.09	.08	.14				
Depression	-.08	.10	-.09				

The table above examined the extent to which anxiety and depression predicted coping strategies and revealed that even though only depression ($\beta = -.32$, $p = .01$) significantly predicted overall coping the model was significant [$F_{(3, 97)} = 4.04$, $p = .021$] explaining just about 8% of the variance in overall coping. Thus, depression reduced how often cancer patients used coping strategies. Anxiety however did not significantly predict any of the coping strategies. Depression again significantly predicted emotional coping ($\beta = -.37$, $p = .00$); indicating that depression decreased the extent to which cancer patients used problem-focused coping. Thus, the hypothesis stated Anxiety and depression will be negatively associated with problem-focused and emotion focused strategies was partially supported.

The outcome on medical factors of the patients as predictors of coping strategies as presented in Table 7 below, shows that only patients who have undergone mastectomy have lower overall coping ($\beta = -.22$, $p = .04$). None of the models for the coping strategies was significant; indicating that the medical factors explored did not have significant influence on the coping strategies the patients adopt. Thus, it was only mastectomy as a medical factor that predicted problem-focused coping.

Table 7: Results of Standard Multiple Regression Analyses for Medical Factors as Predictors of Coping Strategies

Criterion	Unstandardized coefficient		Standardized coefficient	p	F	R ²	Adj R ²
Overall Coping	B	SE	Beta (β)				
Constant	74.42	3.06		.26	1.36	.06	.02
Stage of disease	-.86	2.05	-.04				
Duration of diagnosis	.02	.03	.05				
Comorbid conditions	-1.81	1.91	-.10				
Mastectomy	-4.99	2.63	-.20				
Problem-focused	B	SE	Beta (β)	p	F	R²	Adj R²
Constant	20.27	1.45		.09	2.05	.08	.04
Stage of disease	-.29	.97	-.03				
Duration of diagnosis	-.01	.02	-.07				
Comorbid conditions	-1.49	.91	-.17				
Mastectomy	-2.66	1.25	-.22*				
Emotional-focused	B	SE	Beta (β)	p	F	R²	Adj R²
Constant	39.95	1.72		.41	1.00	.04	.00
Stage of disease	.45	1.15	.04				
Duration of diagnosis	.01	.02	.08				
Comorbid conditions	.741	1.07	.07				
Mastectomy	-2.34	1.48	-.16				
Avoidant-focused	B	SE	Beta (β)	p	F	R²	Adj R²
Constant	14.19	1.02		.18	1.62	.07	.03
Stage of disease	-1.01	.68	-.15				
Duration of diagnosis	.01	.01	.13				
Comorbid conditions	-1.05	.64	-.17				
Mastectomy	.00	.88	.00				

* $p < .05$, stage of disease and duration of diagnosis (numeric), comorbidity (1=yes, 0=no), mastectomy (1=yes, 0=no).

Hypothesis Four

The fourth hypothesis explored the extent to which coping strategies predicted psychosocial adjustment. This examined how each of the coping strategies explained psychosocial adjustment for cancer patients. It was stated as:

H4: Coping strategies will have a direct effect on the level of psychosocial adjustment in women diagnosed with breast cancer.

Using Standard Multiple Regression, the results are presented in Table 8 below:

Table 8: Results of Standard Multiple Regression Analyses for Coping Strategies as Predictors of Psychological Adjustment

Predictors	Unstandardized coefficient		Standardized coefficient	p	F	R ²	Adj R ²
	B	SE	Beta (β)				
				.03	4.98	.07	.04
Constant	65.72	17.29					
Overall Coping	-.49	.22	-.22*				
Problem-focused	-1.09	.52	-.32*				
Emotion-focused	-.39	.41	-.10				
Avoidant-focused	.37	.73	.06				

* $p < .05$, dependent variable = Psychological Adjustment

From the table above, the model predicting psychosocial adjustment was significant [$F_{(3, 97)} = 4.98, p = .030$] explaining about 7% of the variance in psychosocial adjustment. The unique contribution of overall coping was significant ($\beta = -.22, p = .04$) and in addition, problem-focused coping ($\beta = -.32, p = .00$) also significantly predicted psychosocial adjustment. This implied that coping accounted for a significant increase in psychosocial adjustment. Therefore, the hypothesis which stated that ‘Coping strategies will have a direct effect on the level of psychosocial adjustment in women diagnosed with breast cancer’ was partially supported by the data.

4.4 Mediation Analysis

The conceptual model of the study initially posited that the reason why antecedent factors such as personal, social support, optimism and illness related factors are related with psychosocial adjustment may be as a result of the coping strategies adopted by the cancer patients. According to Baron and Kenny (1986), it is mediation that explains why a predictor and criterion variable are related. However, the mediation analyses rather indicated that it was the personal, social support and illness related factors that mediated the relationship between coping/coping dimensions and psychosocial adjustment. In this same vein, it was thus proposed to find out how through mediation analyses:

- The relationship between coping and psychosocial adjustment is explained by spirituality.
- The relationship between coping and psychosocial adjustment is explained by optimism.
- The relationship between coping and psychosocial adjustment is explained by socio-demographic factors such as age, educational level and marital status.
- The relationship between coping and psychosocial adjustment is explained by illness-related factors such as anxiety, depression duration of diagnosis, stage of cancer, co-morbidity and type of treatment.

Mediation analyses were conducted to satisfy the above objectives following the four steps proposed by Baron and Kenny (1986). According to them, first, the predictor variable must correlate with the outcome variable. This is achieved by using Y as the outcome variable in a regression equation and X as a predictor. This step establishes that

there is an effect that may be mediated (Path A'). Secondly, predictor variable (X) must correlate with the mediator (M) (Path B'). This step involves treating the mediator as if it were an outcome variable. The first and second assumptions were achieved by observing a correlation matrix for the variables. The third step involves showing that the mediator relates with the outcome variable (Path C'). The final step in this process attempts to establish that the mediating variable completely mediates the predictor-outcome relationship. The effect of the predictor variable on the outcome variable controlling for the mediating variable should be zero. The third and final steps involved a hierarchical regression in order to control for the mediator. Only the final two steps are reported in this section because the first two steps were already established. However, mediation effects could not be established for optimism, age, marital status and any illness-related factors because their relationships with the predictor and criterion variables did not meet the above assumptions.

Mediation effects of spirituality on the relationship between Coping and Psychosocial Adjustment

Hypothesis 5a

There will be a significant relationship between coping and psychosocial adjustment and this relationship will be mediated by spirituality.

Table 9: Mediation Effects of Overall Spirituality on the relationship between Overall Coping and Psychological Adjustment

Source	Overall Spirituality (Mediator)	
	Model 1(β)	Model 2(β)
Overall Coping (Predictor)	-.22*	-.13
R ²	.05	.18
R ² change		.13
Adjusted R	.04	.16
F-Change		15.32

*= $p < .05$, Complete mediation effect is in **BOLD**.

Results from Table 9 above show that overall spirituality significantly mediated between overall coping and psychosocial adjustment. Thus, controlling for the effect of overall spirituality, overall coping scores were no longer a significant predictor of psychosocial adjustment $b = -.29$, $t_{(96)} = -1.36$, $p = .18$. A Sobel test conducted confirmed a complete mediation in the model ($z = -2.10$, $p = .02$).

The diagram below is a summary of the mediation model for the effect of spirituality on the relationship between coping and psychosocial adjustment.

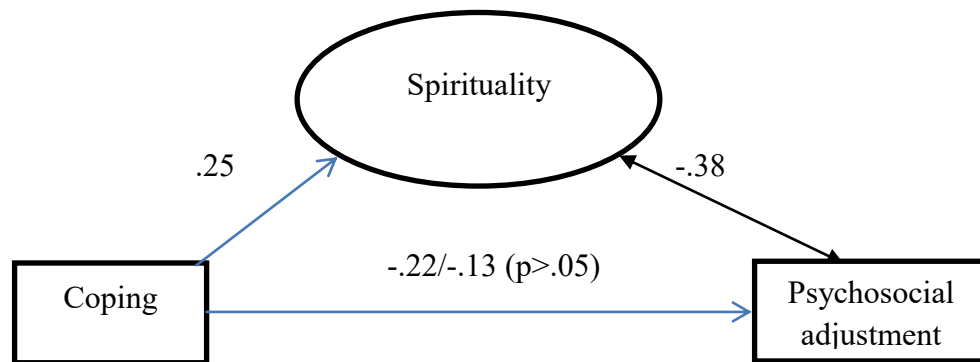


Fig. 2: Mediation model for coping, spirituality, and Psychosocial adjustment based on Sobel test.

Having obtained significant outcome for the composite scores, the various sub-scales were examined. It was found out that the ~~–meaning~~” subscale completely mediated the relationship between problem-focused coping and psychosocial adjustment whilst the ~~–peace~~” subscale only partially mediated. But the Sobel test only confirmed full mediation of the ~~–meaning~~” subscale of spirituality ($z = -1.60, p = .05$) whilst the partial mediation of the ~~–peace~~” subscale was not significant ($z = -1.09, p = .14$). Partial mediation maintains that the mediating variable accounts for some, but not all, of the relationship between the independent variable and dependent variable. This outcome implied then that there is no significant effect of ~~–peace~~” on the relationship between the problem-focused coping and psychosocial adjustment.

Table 10: Mediation Effects of spirituality subscales on the relationship between coping subscales and psychosocial adjustment

Source	Meaning		Faith		Peace	
	Model 1(β)	Model 2(β)	Model 1(β)	Model 2(β)	Model 1(β)	Model 2(β)
Problem-foc.	-.24*	-.18 n.s	-	-	-.24*	-.20*
R ²	.06	.09	.06	.08	.06	.18
R ² change		.04		.02		.12
Adjusted R	.05	.07	.05	.06	.05	.16
F-Change		3.66		1.86		14.38

* = $p < .05$, Complete mediation effects are in **BOLD**.

The diagram below is a summary of the mediation model for the effect of the ~~–meaning~~” subscale of spirituality on the relationship between problem-focused coping and psychosocial adjustment.

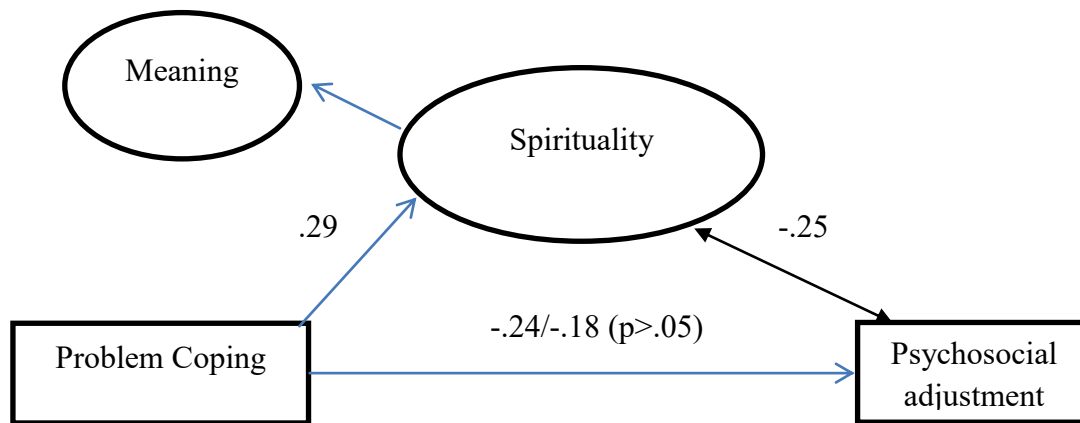


Fig. 3: Mediation model for problem-focused coping, meaning, spirituality and Psychosocial adjustment

Mediation effect of Educational Level on the relationship between Coping and Psychosocial Adjustment

Hypothesis 5b

There will be a significant relationship between coping and psychosocial adjustment and this relationship will be mediated by the educational level of the patient.

Table 11: Mediation Effects of Educational level on the relationship between Coping and Psychological Adjustment

Source	Educational level (Mediator)	
	Model 1(β)	Model 2(β)
Overall Coping (Predictor)	$-.22^*$	$-.14$ n.s
Problem-focused	$-.24^*$	$-.16$ n.s
R^2	.06	.12
R^2 change		.06
Adjusted R	.04	.09
F-Change		6.74

*= $p < .05$, Complete mediation effect is in **BOLD**.

Results from Table 11 above show that, educational level significantly mediated between overall coping, as well as problem-focused coping and psychosocial adjustment. Thus, controlling for the effect of educational level, overall coping scores were no longer a significant predictor of psychosocial adjustment $b = -13$, $t_{(96)} = -1.41$, $p = .16$. A Sobel test conducted confirmed complete mediation of educational level ($z = -1.98$, $p = .02$) on the relationship. Again, educational level completely mediated the relationship between problem-focused coping and psychosocial adjustment ($z = -1.96$, $p = .03$). Inspection of the results show that the effect of problem-focused coping on psychosocial adjustment was completely eliminated when educational level was held constant $b = -16$, $t_{(96)} = -1.63$, $p = .16$.

The diagram below is a summary of the mediation model for the effect of educational level on the relationship between coping and psychosocial adjustment.

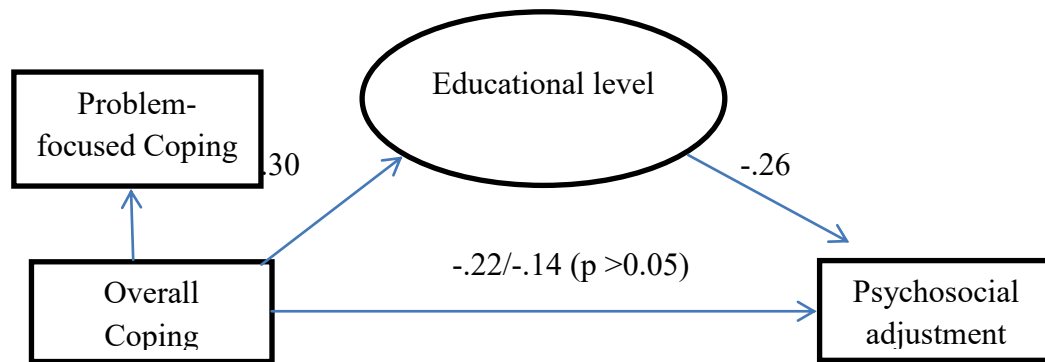


Fig. 4: Mediation model for coping (problem-focused), educational level and psychosocial adjustment based on the Sobel test.

4.5 Moderation Effects of Optimism, Social Support and some Illness-related Factors on the Coping-Psychosocial Adjustment Relationship

The study further explored moderation effects of optimism, social support and some illness-related factors that met the assumptions of Baron and Kenny's (1986) mediation analysis. Overall social support, stage of cancer and type of treatment met the criteria for moderation analysis. The procedures proposed for moderation analyses were that firstly, the independent and moderator variables were centered or standardized using the standardization procedures by Aiken and West (1991). Standardization is a linear transformation method which eliminates problems associated with multi-collinearity and using standardized co-efficients allows for a common scale with which to evaluate the contribution of each of the independent variables, these standardized coefficients can also be compared in terms of magnitude, for instance if one of the independent variables has a standardized coefficient larger than another then it is more likely to predict the outcome variable more effectively. Standardization was achieved by subtracting the mean value for a variable from each score for that variable (Dawson, 2013). Next, the interaction terms were created. This was performed by multiplying the centered independent and moderator variables. However, for illness-related factors which were dummy coded, there was no need to center them. In a hierarchical regression analyses, centered independent variables were entered in the first step, the main factors acting as moderators were entered in the second step and the interaction terms were entered in the third and final step. When a significant effect is obtained in the third step, there is a significant moderation effect. Results are presented corresponding to each of the factors acting as moderators. Since it was only problem-focused coping that met the assumptions as stated,

all analyses included the composite scores as well as that particular subscale of the coping scale. The hypotheses were generally stated as:

6a: Optimism will moderate the relationship between coping and psychosocial adjustment; so that higher optimism would increase psychosocial adjustment more for cancer patients who more often use coping strategies than for those who less often use coping strategies.

6b: Social support will moderate the relationship between coping and psychosocial adjustment; so that higher perceived social support will increase psychosocial adjustment more for cancer patients who more often use coping strategies than for those who less often use coping strategies.

7: Illness-related (stage of the disease, mastectomy) factors will moderate the relationship between coping and psychosocial adjustment

The moderation effect of optimism on the coping-psychosocial adjustment relationship is presented in Table 12 below:

Table 12: Results of Moderator Regression Analyses for Psychosocial adjustment as a Function of Coping and Optimism^a

Predictors	<i>Psychosocial Adjustment</i>		
	β	R^2	ΔR^2
Moderator analyses			
Step 1			
Overall coping	-.22**		
Problem-focused coping	-.24	.06	
Step 2			
Overall coping	-.19**		
Problem-focused coping	-.22**		
Optimism	-.32**	.14	.10**
Step 3			
Overall coping	-.09 ^{ns}		
Problem-focused coping	-.23**		
Optimism	-.33**	.20	.08**
Overall coping×Optimism	.29**		
Probl-foc.coping×Optimism	.23**		

^a n = 98** $p < .05$ ^{ns} = not significant

As indicated in previous results, coping and optimism separately predicted better psychosocial adjustment. This hypothesis was intended to find out whether coping will interact with optimism to influence psychosocial adjustment. From Table 12 above, the moderating effect of optimism on the relationship between coping and psychosocial adjustment was significant ($t = 2.99$, $p < .05$). Thus, a significant moderation occurred as the effect of coping on psychosocial adjustment decreased more significantly with the addition of the moderator factor, optimism. The moderation model explained about 7% of the variance in psychosocial adjustment. Thus, as predicted the increasing effect of coping on psychosocial adjustment is dependent on whether the cancer patient has high, moderate or low optimism. Optimism plays a buffering role (where increasing the

moderator would decrease the effect of the predictor on the outcome) in the relationship between coping and psychosocial adjustment. The graph in Fig 5 (See Appendices) indicates that higher coping is associated with low psychosocial adjustment scores (better adjustment) under conditions of higher optimism whereas higher psychosocial adjustment scores (poorer adjustment) is associated with lower coping under conditions of lower optimism. Therefore, the hypothesis that *‘Optimism would moderate the relationship between coping and psychosocial adjustment; so that higher optimism would increase psychosocial adjustment (lower adjustment scores) more for cancer patients who more often use coping strategies than for those who less often use coping strategies’* was supported.

The moderation effect of social support on the coping-psychosocial relationship is presented in Table 13 below:

Table 13: Results of Moderator Regression Analyses for Psychosocial adjustment as a Function of Coping and Social Support^a

Predictors	<i>Psychosocial Adjustment</i>		
	β	R^2	ΔR^2
Moderator analyses			
Step 1			
Overall Coping	-.22**	.05	
Step 2			
Overall Coping	-.09 ^{ns}		
Social Support	-.29**	.11	.09**
Step 3			
Overall Coping	-.06 ^{ns}		
Social support	-.17 ^{ns}	.17	.14**
Overall Coping×Social Support	.26**		

^a n = 98

** $p < .05$

^{ns} = not significant

The results presented in Table 13 indicated a significant interaction term for coping and social support on psychosocial adjustment ($t=2.45$, $p=.016$). A complete moderation occurred indicating that social support is a significant moderator. The moderation model explained about 17% of the variance in psychosocial adjustment. Social support predicted psychosocial adjustment significantly over and above the effects of the separate factors, $\Delta R^2=.14$, $F(1, 94) = 6.01$, $p=.016$. These outcomes implied that the relationship between coping and psychosocial adjustment is dependent on the level of social support of the patient. Again, social support played a buffering role in the relationship between coping and psychosocial adjustment. Thus, higher coping is associated with low psychosocial adjustment scores (better adjustment) under conditions of higher social support whereas a higher psychosocial adjustment score (i.e. poorer adjustment) is associated with lower coping under conditions of lower social support (See Fig 6 in Appendices)

One main illness-related factor found to moderate the relationship was depression. This is presented in the table below:

Table 14: Results of Moderator Regression Analyses for Psychosocial adjustment as a Function of Coping and Depression^a

Predictors	<i>Psychosocial Adjustment</i>		
	β	R^2	ΔR^2
Moderator analyses			
Step 1			
Overall coping	-.22**	.04	
Step 2			
Overall coping	-.10 ^{ns}		
Depression	.55**	.33	.29**
Step 3			
Overall coping	-.04 ^{ns}		
Depression	.53**	.39	.07**
Overall coping×depression	-.27**		

^a n = 98** $p < .05$ ^{ns} = not significant

The results above indicated a significant interaction for coping and depression on psychosocial adjustment ($t = -3.23$, $p = .002$). Again, a complete moderation occurred as the effect of coping on psychosocial adjustment increased with the addition of the moderator, depression. The moderation model explained only about 7% of the variance in psychosocial adjustment. The interaction model predicted psychosocial adjustment significantly over and above the effects of the separate factors, $\Delta R^2 = .07$, $F(1, 94) = 10.45$, $p = .002$. These outcomes implied that the relationship between coping and psychosocial adjustment is dependent on the level of depression experienced by the patient, depression however plays an enhancing role in the relationship between coping and psychosocial adjustment. Thus, higher coping is associated with low psychosocial adjustment scores (better adjustment) under conditions of lower depression whereas higher psychosocial adjustment scores (poorer adjustment) are associated with lower coping under conditions of higher depression (See moderation graph for Depression in

Appendices).

One of the medical factors that significantly moderated the relationship between coping and psychosocial adjustment was the stage of cancer. It was predicted that coping would increase psychosocial adjustment more significantly for late stage patients than for early stage patients. This result is presented in Table 15

Table 15: Results of Moderator Regression Analyses for Psychosocial Adjustment as a Function of Coping and Stage of cancer^a

Predictors	<i>Psychosocial Adjustment</i>		
	β	R^2	ΔR^2
Moderator analyses			
Step 1			
Coping	-.22**	.05	
Step 2			
Coping	-.20**		
Stage of cancer	.32**	.15	.10**
Step 3			
Coping	.83**		
Stage of cancer	.31**		
Coping×Stage of cancer	-1.09**	.28	.13**

^a n = 98

** p < .05

^{ns} = not significant

The results presented in Table 15 indicated a significant interaction term for coping and stage of disease on psychosocial adjustment ($t = -4.09$, $p = .00$). Therefore, a significant moderation occurred as the effect of coping on psychosocial adjustment increased more significantly with the addition of the stage of cancer for the patient. In effect, the moderation model explained a significant variance in psychosocial adjustment (13%). Thus as predicted, the decreasing effect of coping on psychosocial adjustment is dependent on whether the patient is in early or late stage of cancer. Thus compared with

patients in early stage, those in late stage with higher coping strategies appeared to have higher psychosocial adjustment scores (poorer adjustment). This supports the nature of the interaction that the positive effect of coping on psychosocial adjustment was stronger for those in early stage than those in late stage (see Fig 8 in Appendices). Simply put, early stage cancer patients compared with late stage patients had lower psychosocial adjustment scores (i.e. better adjustment) as their coping strategies also increased.

The moderating effect of the type of treatment on coping and psychosocial adjustment was investigated. It was expected that coping would increase psychosocial adjustment differently for patients who had undergone mastectomy than those who had not. The following table summarizes the moderating effect of type of treatment.

Table 16: Results of Moderator Regression Analyses for psychosocial adjustment as a Function of coping and type of mastectomy^a

Predictors	<i>Psychosocial Adjustment</i>		
	β	R^2	ΔR^2
Moderator analyses			
Step 1			
Coping	-.94**	.88	
Step 2			
Coping	-.92**		
Mastectomy ^b	.04**	.88	.001**
Step 3			
Coping	-.80**		
Type of treatment	.03 ^{ns}		
Coping× Mastectomy	-.13**	.88	.001**

^a n = 98

^cMastectomy (dummy i.e. 1=Mastectomy, 0=No mastectomy)

**
 $p < .05$

^{ns} = not significant

Again, mastectomy moderated between coping and psychosocial adjustment ($t=-4.10$, $p=.00$). It was observed that a significant moderation occurred as the effect of coping on psychosocial adjustment increased more significantly with the addition of the patient having undergone mastectomy. Thus as predicted, the decreasing effect of coping on psychosocial adjustment is dependent on whether the patient had undergone mastectomy or not. Thus compared with patients' without a mastectomy, those with mastectomy and with higher coping strategies appeared to have higher psychosocial adjustment scores (poorer adjustment). This supports the nature of the interactive graph presented below. The positive effect of coping on psychosocial adjustment was stronger for those non- mastectomy patients as compared to those who had undergone mastectomy (see Fig 9 in Appendices). Simply, patients who had undergone mastectomy compared with those who had not, had lower psychosocial adjustment (i.e. better adjustment) with increasing use of coping strategies.

4.6 Summary of Findings

Seven main hypotheses were tested. The following conclusions are made based on the results:

- Age, educational level and spirituality as personal factors significantly predicted coping strategies of cancer patients. Whilst educational level predicted overall coping, age and spirituality predicted problem-focused coping.
- Social support significantly predicted coping strategies with overall social support and emotional support predicting overall coping. Additionally,

Emotional/affectionate and affectionate social support predicted emotion-focused coping.

- Illness factors like depression predicted less use of coping strategies significantly but anxiety did not significantly predict coping strategies.
- Except for type of treatment which predicted emotion-focused coping, no medical factor predicted any other coping strategies.
- Coping predicted psychosocial adjustment significantly, showing that more use of coping strategies led to better psychosocial adjustment (lower adjustment scores)
- Spirituality significantly mediated between coping and psychosocial adjustment; showing that the positive effect of coping on psychosocial adjustment is dependent on spirituality. Whilst the “meaning” subscale mediated completely between problem-focused coping and psychosocial adjustment the “peace” subscale did not significantly partially mediate the relationship.
- Educational level also significantly mediated between overall coping, problem-focused coping and psychosocial adjustment.
- Optimism and social support significantly moderated between coping and psychosocial adjustment in that more coping strategies enhanced psychosocial adjustment more for cancer patients who had higher optimism and social support than those with lower optimism and social support.
- Depression also moderated between coping and psychosocial adjustment in that higher coping was associated with higher psychosocial adjustment scores (poorer adjustment) under conditions of higher depression whereas lower psychosocial

adjustment scores (better adjustment) were associated with lower coping under conditions of lower depression.

- Stage of cancer moderated between coping and psychosocial adjustment in that early stage cancer patients compared with late stage patients had lower psychosocial adjustment scores (i.e. better adjustment) as their coping strategies also increased.
- Finally, mastectomy also moderated between coping and psychosocial adjustment; thus patients who had not undergone mastectomy had lower psychosocial adjustment scores (better adjustment) under conditions of higher coping than those who had undergone a mastectomy.
- Based on the results of the study, the proposed conceptual model was revised and presented with specific reference to the main significant findings in the figures below:

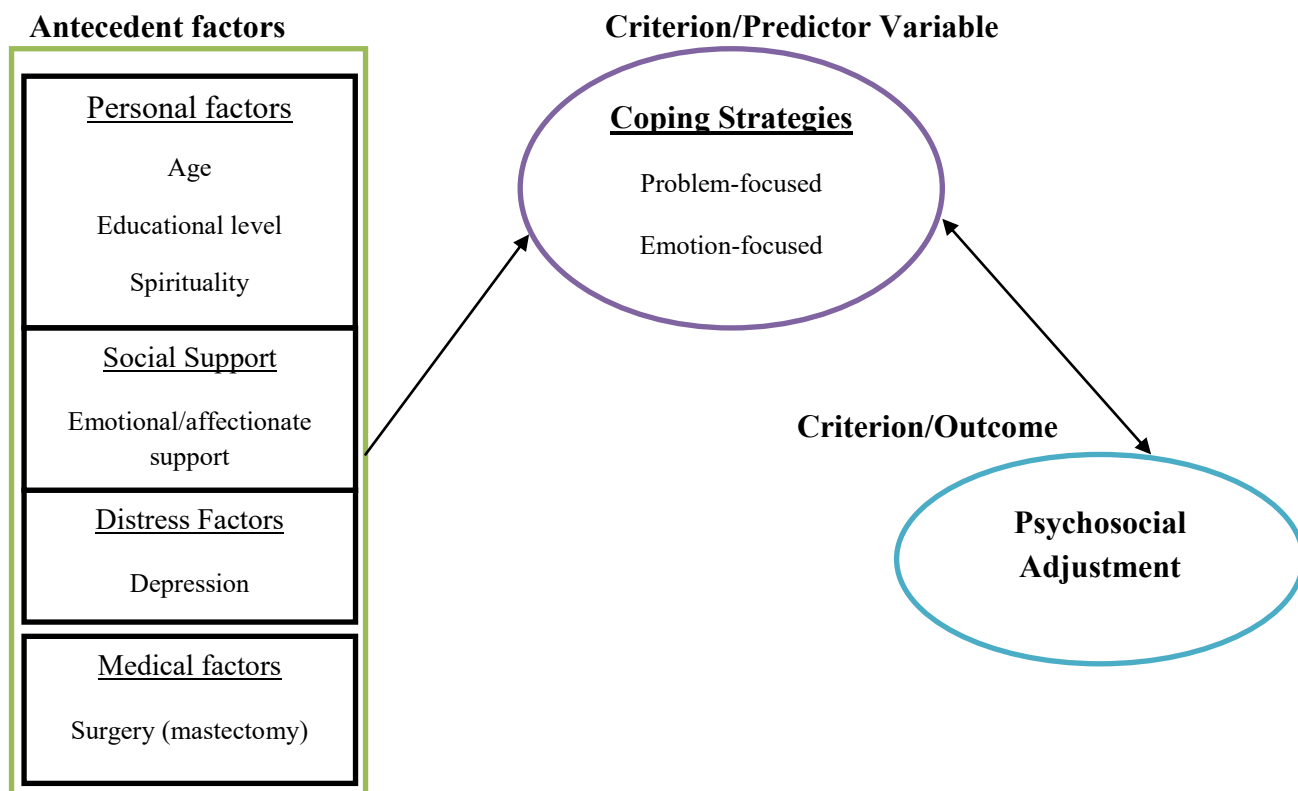


Figure 10: A Revised Model for the Hypothesized Relationships among antecedent factors and consequent variables.

The diagram below is a summary of the mediation model as observed.

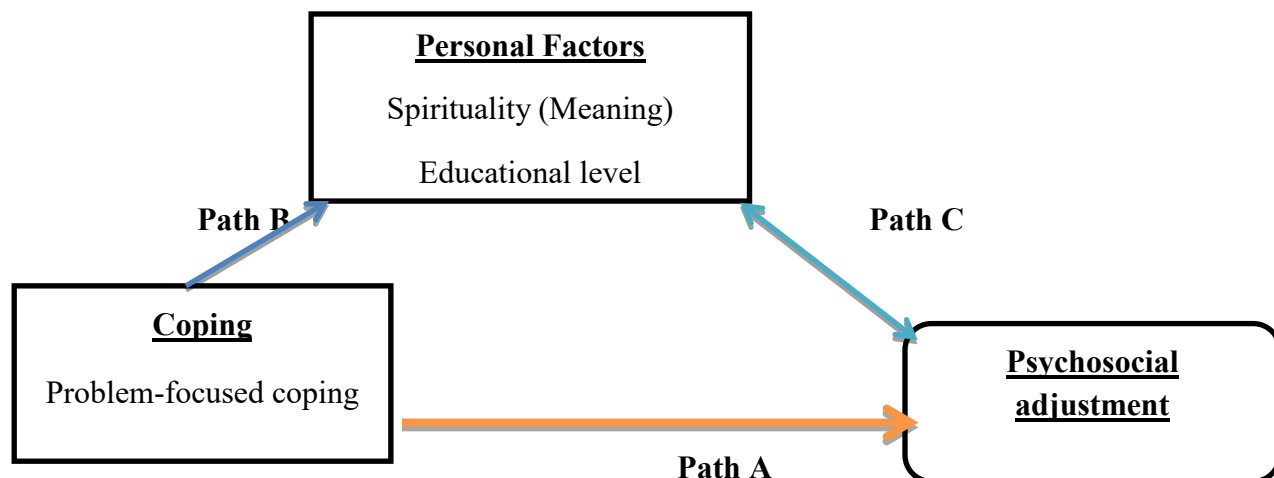


Figure 11: Revised Mediation model for Spirituality and educational level on the relationship between coping and psychosocial adjustment.

The following diagram is a summary of the moderation model as observed.

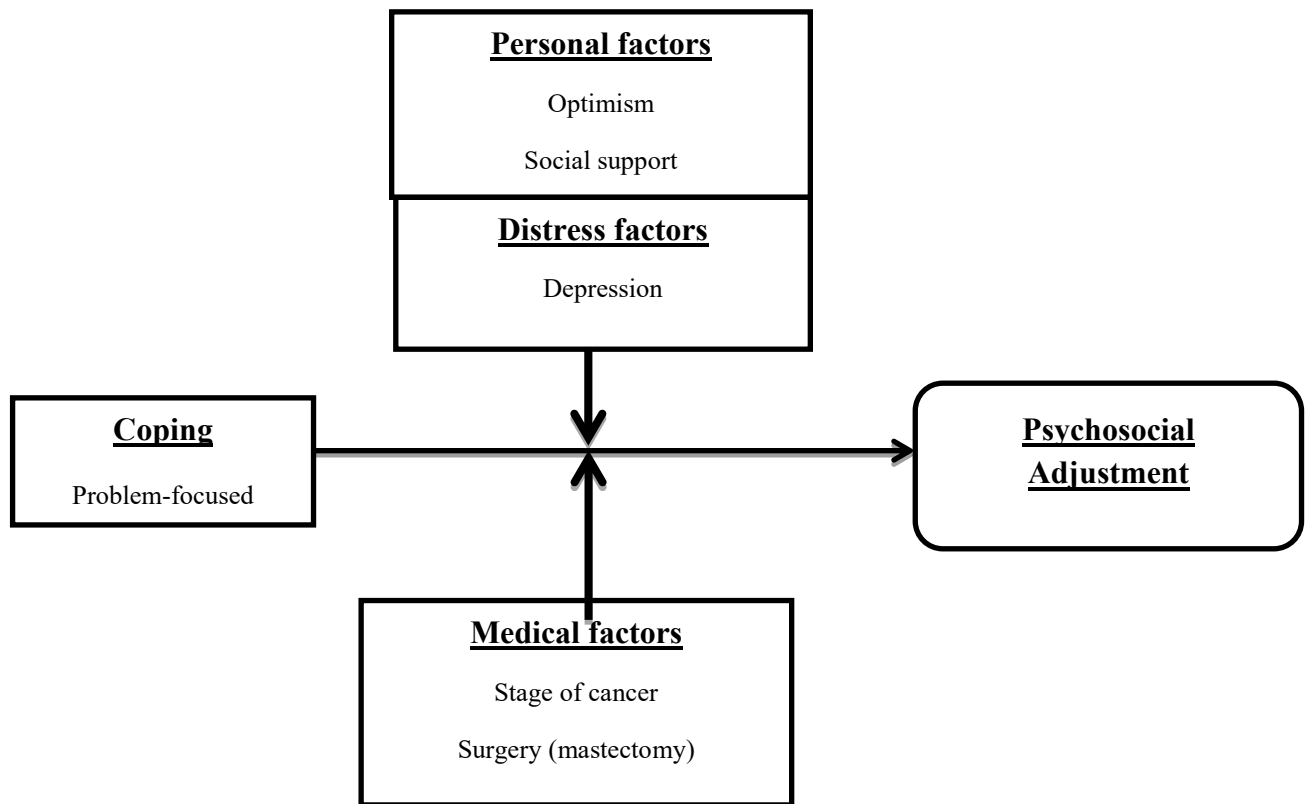


Figure 12: New moderation model for personal, distress and medical factors on the relationship between coping and psychosocial adjustment

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This study examined coping and psychosocial adjustment amongst breast cancer patients. Specifically, it aimed at finding how personal factors, social support and illness-related factors influence coping and psychosocial adjustment for these patients. Furthermore, it explored the mediating role of some personal factors on the relationship between coping and psychosocial adjustment as well as the moderating role of some of the personal factors, social support and illness-related factors on the relationship between coping and psychosocial adjustment.

The study found personal factors such as age, educational level and spirituality to be related to the coping strategies adopted by cancer patients. It indicated that whilst highly educated patients had higher overall coping scores, older cancer patients less often used problem-focused coping. Also, patients who were highly spiritual more often used problem-focused coping.

Overall social support related positively with overall coping, showing that patients who perceived higher social support were more likely to use coping strategies. It was further revealed that only emotional/informational support related positively with emotion-focused coping.

Illness distress factors like anxiety and depression and their relationship with coping showed that depression related negatively with overall coping. Thus, more depressed

cancer patients less often used the coping strategies. Depression again, predicted less use of emotion-focused coping.

Results on the relationship between medical factors and coping showed that only cancer patients who had undergone mastectomy less likely adopted problem-focused coping. No other medical factor related significantly with coping strategies.

In addition, a significant negative relationship between coping and psychosocial adjustment was obtained; with only problem-focused coping relating negatively with it. This negative relationship meant that coping accounted for a significant increase in psychosocial adjustment.

Other significant findings of the study were that spirituality mediated completely between coping and psychosocial adjustment. It further revealed that only the “meaning” component of spirituality mediated between problem-focused coping and psychosocial adjustment. On the other hand, educational level fully mediated between both overall coping and problem-focused coping and psychosocial adjustment.

The study revealed the moderation effect of some of the key variables in the relationship between coping and psychosocial adjustment. It was found out that optimism, social support, depression, stage of cancer and surgery (mastectomy) undertaken by the patient moderated the relationship. It was noted that moderation effects were found for the relationship between overall coping, problem-focused coping and psychosocial adjustment.

The key findings are discussed in this chapter followed by a discussion of the contributions and limitations of the current study, also recommendations for future research, implications for practice and conclusion are also discussed. The findings are discussed with reference to the objectives of the study and how they relate to literature in the discipline as well as their implications in the socio-cultural context.

5.2 Discussion of Findings

Relationship between Personal Factors and Coping among Cancer Survivors

The results of this study provide empirical evidence to support the hypothesis of a significant relationship between personal characteristics and coping among cancer survivors. The literature on cancer survivorship has been replete with factors such as socio-demographic characteristics, personality factors, psychosocial support, illness-related factors such as psychological distress and medical factors as important, in determining cancer survivors' coping strategies (Al-Azri et al., 2009). The socio-demographic characteristics like age and education were explored in this study. Age was noted to be a risk factor for cancer and the present finding on age and coping revealed that older cancer patients are less likely to use problem-focused coping compared with younger patients.

It must be noted however, that unlike previous studies which linked age at diagnosis to coping, the present finding is limited to only the age of the survivor. The results however are only presumptuous of the fact that older women have the higher probability of developing cancer and therefore on this basis, it could be argued that majority of those

who have cancer would become long-term survivors. Research has also shown that cancer survivors continue to experience diminished psychosocial adjustment and/or social life disruption, even decades after diagnosis and initial treatment (Bloom, 2002). While long-term survivors do not typically face most of the stressors associated with diagnosis and treatment in the post-treatment phase, they however continue to face the uncertainties that survivorship brings, and many also in addition continue to have cancer/treatment related symptoms. These stressors may continue to generate unhealthy coping responses, which in turn may affect the mental health of long-term survivors. The finding that older patients use problem-focused coping less often suggests that long-term survivors have lost hope and are no longer optimistic about their situation and thus are less likely to make any attempts to find solutions to resolve their condition or the stress associated with it. They see themselves as not capable of amending their condition; except probably with the assistance of the medical professionals who have the skill to treat the condition. But, cancer survivorship goes beyond the medical treatment; hence until the patient is able to feel capable of being in control of things, coping has little to offer in cancer survivorship. This is why there is then a need for incorporating other psychosocial interventions as part of the holistic management of the cancer survivor.

Educational level was also found to influence the coping styles of cancer patients. Results revealed that highly educated women tended to use more coping strategies but the outcome did not significantly reveal which coping strategies are used more often depending on the education of the patient. Nevertheless, it was shown that education predicted emotion-focused coping a little more than problem-focused and avoidant coping but these outcomes were not significant; hence there is a limit to how these are

interpreted. This is inconsistent with the findings of Ben-Zur & colleagues (2001) who found that higher level of education among patients contributed to low emotion-focused coping and Huizink (2002) who indicated that education has a positive role on using problem oriented coping in women. In the present study however no significant effect was found for the influence of educational level on the various coping strategies except for the composite coping score. This outcome therefore suggests that survivors with a higher level of education may have the ability to understand the situation and use information more effectively (Ben-Zur et al., 2001) than those of a lower educational standard. Meanwhile, most studies linking higher socio-economic status to particular methods of coping have been done but not with cancer samples, hence this outcome is revealing of the impact education has on coping for cancer survivors in Ghana.

Optimism, regarded as the tendency to expect positive outcomes, and also as a personality which tends to be a relatively stable characteristic over both time and context (Robinson- Whelen, Kim, Mac Callum, Kiecolt-Glaser, 1997; Shou et al, 2005; Sheier & Carver, 1985; Stiegelis et al, 2003), was not significantly related with any of the coping strategies. This non-significant outcome is contradicts many previous studies. For instance, optimism has been found to be related to more adaptive coping strategies such as problem focused coping (Shou et al., 2004; Sheier & Carver, 1993). Shou et al. (2005) stated that different coping styles may affect well-being by influencing how individuals' approach, cope and react to critical life events. Therefore, whilst more active coping strategies, as those displayed by optimists can diminish distress, passive coping strategies employed by pessimists can enhance feelings of general distress. The present findings did complement these previous studies to some extent, except that they did not achieve

statistical significance though optimism predicted active coping strategies like problem-focused and emotion-focused coping more than avoidant coping. In the Ghanaian context since optimism alone did not sufficiently influence coping for breast cancer survivor this is suggestive of other personal and socio-cultural factors that could have interacted to influence their coping abilities and levels.

Finally, spirituality was found to relate significantly with problem-focused coping. Spirituality, defined as a broader concept of religiosity is regarded as one of the most important cultural factors that gives structure and meaning to human values, behaviors and life experiences (Lukoff, et al., 1995). With spirituality then as an individual and social source of support, it is expected that survivors who are highly spiritual would be able to cope better or use more coping strategies than those who are less spiritual. Research has proven that when confronted with chronic diseases, many patients rely on spiritual issues to cope (Büssing & Koenig, 2010). Other studies have suggested that in cancer patients, spirituality may be beneficial for maintaining self-esteem, providing a sense of meaning and purpose, giving emotional comfort and providing a sense of hope (Thune-Boyle et al., 2006). More importantly it has been postulated that spirituality increases reliance on problem-solving strategies (Pargament et al., 1992). This study therefore confirmed that spirituality is an important determinant of how cancer patients go about finding solutions to their cancer condition and how they also deal with the stress that comes with the condition. In this vein, their sense of spirituality guides their resolve to either alter the stressor by direct action or help them appraise the condition as amendable and therefore learn new skills or develop new standards of behaviour.

Relationship between Social Support and Coping among Cancer Survivors

The outcome on the relationship between social support and coping revealed that overall social support predicted overall coping with emotional/informational and affectionate social support predicting emotion-focused coping. This is consistent with findings from Drageset and Lindstrom (2005) who studied the relationship between demographic characteristics, social support, anxiety, coping and defense among 117 women who had undergone breast biopsy. The results showed that social support is strongly connected to emotion focused coping.

The study explored perceived social support in the sense that both the quality and the quantity of available support the survivor perceives have the tendency to influence the coping strategies adopted. Perceived support is a function of interpersonal companionship such as emotional/informational support, instrumental/tangible support, affectionate support and social companionship. Social support has been reported to not only reduce the stress of a breast cancer diagnosis but also improve emotional well-being in women with breast cancer (Holland & Holahan, 2003). Research suggests that greater social support is associated with longer survival in women with breast cancer, implying that those with greater support are more likely to adopt more active coping strategies. This is probably why they have a longer survival rates compared with those who have less social support. Furthermore, absence of a social support network has been linked not only to a higher incidence of cancer but also a more rapid course of illness including greater severity in physical as well as psychological morbidity (Peters-Golden, 1982).

Social support is a common factor in the stress-coping literature. The most influential theories regarding social support state that support reduces the effects of stressful events,

since the supportive actions of others facilitate coping (Thoits, 1986) and also that a belief that support is available if needed, leads to an appraisal of events as less stressful (Lakey & Cohen, 2000). Furthermore, the cognitions we make of things also influence our perception of social support. The mere thinking or perception that significant others are available and willing to provide help or support when needed is in itself stress relieving thereby leading to better coping. The impact of positive social support from family and work colleagues on the coping process helps with acceptance and gives the survivors encouragement to cope (Doumit et al., 2010).

This stress buffering effect of social support could have influenced the participants' responses. In general terms, the behaviour one engages in during times of distress can also inform one's decision in perceiving whether social support is existent or not in their social networks. Even just coming to terms with reality that problems exist and doing something to relieve oneself without relying on any other person is in itself enough to make one perceive social support. Tapping on one's own resources without relying on others and doing what one is interested in doing are all likely to increase coping.

Relationship between Illness-related factors and Coping among Cancer Survivors

The study further explored the association of distress and medical factors with coping amongst cancer patients. Psychological distress factors such as anxiety and depression which were examined revealed that only depression related negatively with overall coping as well as emotional coping. In fact, the relationship of anxiety with coping was rather positive but not significant statistically and thus, anxiety compared with depression was not so severely reported by the patients to influence their coping strategies. It could also mean that anxiety associated with cancer did not necessarily and sufficiently affect how patients adopt coping strategies. Nevertheless, the management of distress factors related to cancer leads to adoption of more active coping strategies and reduction in disease progression, improvement in survival rates, reduction in healthcare costs and improvement in quality of life (Frick et al., 2007; Satin et al., 2009; Pinquart & Duberstein, 2010). Results indicated that depression led to decreased use of emotion-focused coping strategies. This outcome is to some extent consistent with the findings of Osowiecki and Compas (1999) who found that problem- focused engagement coping is related to lower anxiety/depression symptoms and emotion-focused disengagement coping was related more to anxiety and depression. The resultant implication is that consistent with literature, highly depressed patients tend to be less proactive in seeking more aggressive treatments, and have severe symptoms, poor response to systemic therapy, long recovery times and poor outcomes compared with less depressed cancer patients (Hirschfeld, 2001).

The results of the association of medical factors such as stage, time since diagnosis, co-morbidity and previous major surgery (mastectomy) with coping showed that except for

those who had mastectomy which related negatively with problem-focused coping, no other medical factor related significantly with coping and any of its subscales. The finding that stage of cancer did not relate significantly with coping is inconsistent with Cohen's (2002) finding that patients in early stage of cancer (Stage I and Stage II) used more problem-solving and positive -focused coping strategies than do women with late stage cancer (Stage III and Stage IV). But the results based on this present sample suggest that it is not the stage of cancer of the patient *per se* that determines their coping. In a similar vein, time since diagnosis alone did not influence coping strategies of cancer patients. This outcome is not in support of previous studies which posited that coping is a dynamic and changing process and at different times since diagnosis may have differing effects on how coping strategies are adopted to manage stress (Dunkel-Schetter et al., 1992). Co-morbidity, defined as the coexistence of two or more disease processes present in anyone being was also found in the literature to relate with how patients cope with the treatment of co-morbidities as well as the specialized treatment of cancer (Balducci & Extermann, 2000; Extermann, 2007). The present results however did not find any significant influence of co-morbidity on coping for cancer patients. Thus, the evidence gathered did not sufficiently support any significant influence of co-morbidity on coping. More evidence is therefore warranted.

The present evidence on the association of women who had undergone mastectomy with problem-focused coping indicated a negative association; implying that mastectomy patients compared with patients who did not undergo mastectomy tended to adopt problem-focused coping less often. Indeed, other studies (e.g. Mahapatro et al., 2005; Schilde et al., 1935; Jamison et al., 1978) linked post mastectomy to some coping

strategies but none explored the strategies of problem-focused, emotion-focused and avoidant coping. Survivors already are faced with a high social pressure, based on prejudices and stereotypes of this illness (e.g. suffering, dying, loneliness, dependence, no cure, loss of hair, loss of breast, etc). Therefore, the present finding that survivors who have undergone a mastectomy adopt problem-focused coping less often stands to confirm the pre-occupation with many bio-psychosocial problems associated with mastectomy. The primary appraisal of the situation leaves them with no chance to be able to handle it on their own. At the secondary appraisal level, they also lack the necessary skills to attempt to find solutions to resolve the problem causing their stress as well as to manage the stress. This therefore serves as a platform for coping interventions such as teaching survivors problem-solving coping skills.

Relationship between Coping and Psychosocial Adjustment among Cancer Survivors

The relationship between coping and psychosocial adjustment among cancer patients in this study showed that the more often coping strategies are used it enhanced psychosocial adjustment. This is because adjustment is enhanced when patients are able to adopt effective coping mechanisms to manage the situation. More importantly, it was expected that emotional coping which involves actively processing and expressing emotions would enhance adjustment and health status for the patients. However, it was only problem-focused coping which involves trying to deal with the cause of their problem that actually increased psychosocial adjustment significantly for the patients. Problem-focused coping

has planning, active coping and use of instrumental support as sub-dimensions and in a study by Li and Lambert (2007), they found that in one hundred women with newly diagnosed breast cancer used planning as one of the prominent coping strategies. In addition making changes, social support, physical activity, medication and rest are also well documented active coping strategies (Manuel et al., 2007). According then to Folkman and Lazarus (1984) it involves taking control, information seeking, and evaluating the pros and cons. Most people do this by finding out information on the problem and learning new skills to manage the problem. Problem-focused coping is aimed at changing or eliminating the source of the stress and so it is possible that its effective use could have adequately increased the adjustment level for the patients.

Also consistent with the literature, problem-focused coping is linked to better health outcomes, whereas emotion-focused coping is possibly related to poor health outcomes (Ogden, 2000). In the present study, results showed that breast cancer patients adopting problem-focused coping in particular and coping in general show significantly lower levels of depression (see Table 3). The outcomes are partially consistent with the findings of Stanton and colleagues (2000) which reveal that women's use of coping through emotional expression following primary treatment for breast cancer is associated with decreased distress, increased vigour, improved self-perceived health status, and fewer medical appointments for morbidities related to cancer.

Mediating Effects on the Coping-Psychosocial Adjustment Relationship

The Mediating roles of Spirituality and Educational level on the Coping-Psychosocial Adjustment Relationship

It was found out that the relationship between coping and psychosocial adjustment was mediated by spirituality and the educational level of the cancer patient. This mediating effect provides a more powerful conceptual model and theoretical framework that has high predictive and explanatory ability enabling a better understanding of how coping increases psychosocial adjustment. In this context, according to the mediation hypothesis (Baron & Kenny, 1986), patients' coping strategies to manage their condition is indirectly related to their spirituality on one hand and their level of education on the other in order to increase their psychosocial adjustment. This simply means that, their coping strategies are not only directly associated with better psychosocial adjustment but through the indirect effect of increased spirituality and higher educational status. Similarly, if they less often adopt coping strategies and hence have reduced psychosocial adjustment, the indirect effect of higher spirituality or education acts to increase psychosocial adjustment.

Apart from previous studies which have found personal resources to protect psychological health for cancer patients despite the stress associated with it, this outcome has buttressed the need for improvement in other psycho-socio-spiritual factors in order to enhance their adjustment. To the best of the researcher, no specific previous study has reported a mediation effect of spirituality and educational status of cancer survivors in Ghana. These outcomes however, support previous studies like Schnoll and colleagues (1998), who reported the protective effects of personal factors such as demographic-

disease variables like age, education, resilience, optimism etc. to be linked to quality of life, psychological health, psychological adjustment or patient subjective well-being. Thus spirituality is an essential element of person-centered care and a critical factor in the way patients with cancer cope with their illness from diagnosis through treatment, survival, recurrence and dying (Puchalski, 2012). Studies have indicated a significant relationship between spirituality and quality of life. The “meaning making” model posits that efforts at “meaning making” are essential to adjustment to serious illness by helping patients either assimilate the illness into their pre-illness global meaning or helping them to change their global meaning to accommodate it (Lepore, 2001). Spirituality therefore, in its broadest sense speaks to the “meaning” patients find in their lives especially during times of stress, illness and dying. Illness can trigger deep existential issues that could in turn trigger profound suffering and distress. Hence spirituality which according to Kandasamy, Chaturvedi and Desai (2011) plays a critical role in patients’ coping mechanisms to cancer, treatment and survivorship and has the tendency to facilitate better psychosocial adjustment. How then and why does spirituality and education account for the relationship between coping and psychosocial adjustment for women with cancer in the present context?

The logic that supports the expectation that spirituality and education in particular would be related to coping and psychosocial adjustment is derived from the previous researches reviewed. Undoubtedly, the diagnosis of cancer has a strong impact on the individual as well as the family. It influences every aspect of life. Emotional turmoil, role interruption, changes in communication models, ways of living, and existential concerns related to suffering and death are part of the cancer experience. Research suggests that women with

breast cancer experience these intense psychological effects at the time of initial diagnosis, through the course of treatment, and into survivorship (Butler et al., 2003; Wai Ming, 2002). It is therefore essential to identify various avenues for coping and managing the entire cancer experience. The cancer coping literature is replete with outcomes, that personal factors are critical in the coping-psychological adjustment dyad.

Specific to spirituality, the arguments are advanced to explain the mediating role of spirituality in the relationship between coping and psychosocial adjustment among cancer patients, in that people who experience cancer may question how a ‘powerful spiritual being’ could allow it to occur, and therefore they become less spiritual or deny the existence of a divine creator. To further reiterate this, cancer survivors attributing cancer to an angry or punishing God predicted poorer subsequent adjustment (Exline et al., 2011). They actively question whether God has control in their lives or even whether God exists, often termed “negative religious coping” (Cummings & Pargament, 2010), whilst for others, it leads to an intense spiritual growth in a bid to re-establish a sense of “meaning” thereby becoming more spiritual. For example, a study of patients in treatment for a variety of cancers found that although religious beliefs (e.g., “I believe that God will not give me a burden I cannot carry”) did not directly relate to psychological adjustment, those with higher religious beliefs had a higher sense of efficacy in coping with their cancer, which predicted better adjustment (Howsepian & Merluzzi, 2009).

Psychologists have begun to consider the potential role of traumatic experiences on the victim's spirituality as well as the role personal and spiritual faith might have in recovery from stresses. Research has found that spirituality and spiritual coping are among the strongest and most consistent predictors of reports of growth (Shaw, Joseph, & Linley,

2005) and their effects have been found to strongly predict growth (Park, Edmondson, & Blank, 2009). Stress-related growth is also referred to as “post-traumatic growth,” “perceived benefits,” “adversarial growth,” and “benefit-finding” (Sumalla et al., 2009) and is commonly reported in studies of people with health problems such as cancer, heart disease, and HIV (Leung et al., 2010). Stress-related growth is thought to arise as people attempt to make meaning of their illness (Rajandram, Jenewein, McGrath, & Zwahlen, 2011).

Based on the conceptualization of spirituality as involving both personal and social experience, empirical research has looked at the functional value of spirituality to coping and wellbeing or psychosocial adjustment specifically from three perspectives. It considered spirituality as a coping mechanism against negative events, as a form of social support, and as providing meaningfulness in life. All these aspects of spirituality are potentially relevant for mediating the psychological effects of the cancer experience. To the cancer patients, spirituality helps them find hope, gratitude, and positivity in their cancer experience. Their spirituality is a source of strength that helps them cope, find meaning in their lives, and make sense of the cancer experience as they recover from treatment. Spiritual well-being has been associated with lower levels of distress and greater quality of life across life expectancy prognoses (Laubmeler, Zakowski & Bair, 2004). Spirituality can therefore be a resource of strength for patients.

It is evidently clear that spirituality and other socio-demographic variables are of fundamental importance to most patients. It therefore stands to reason that from the cancer experience, patients who have more personal resources to cope would be more adjusted and have positive affective reactions and would therefore have better

psychological wellbeing than those who have less resources. This supports the Transactional Model of Stress and Coping, in that the antecedent factors such as women's personal characteristics (socio-demographics, optimism, and spirituality), their social resources (social support), and illness-related factors (psychological distress, medical factors) would influence how they cope with their illness, leading to enhanced psychosocial adjustment. Because studies have rarely examined other intervening variables in the relationship between coping and psychosocial adjustment especially among cancer patients in Ghana, this result deserves special attention as it confirms that the strength of spirituality and education of the women completely explained the process by which their coping strategies influence their psychosocial adjustment. Therefore there is the need to test for further indirect effects within the context.

Moderating Effects on the Coping-Psychosocial Adjustment Relationship

One point of departure from the original model of the study was the finding that personality, distress and medical factors moderated the relationship between coping and psychosocial adjustment. Moderation establishes when or under what conditions a predictor variable influences a dependent variable whilst mediation, which was originally proposed, establishes how or why a relationship between a predictor variable and the dependent variable exists (Kim, Kaye & Wright, 2001). These factors include optimism, social support, depression, stage of cancer and type of surgery. These outcomes are discussed in preceding sections.

The Moderating Roles of Optimism and Social Support on the Coping-Psychosocial Adjustment Relationship

The present study found optimism and social support, often referred to as protective factors or resources, moderating the relationship between coping and psychosocial adjustment. This implied that the extent to which cancer patients are able to cope with the cancer experience including diagnosis, surgery and survivorship and are therefore able to be better adjusted psychosocially is heavily under the condition that these resilient factors, viz; optimism and social support are high. Research (e.g. Irvine, Brown, Crooks, Roberts & Browne, 1991; Rock, 2010) indicates that roughly one-third of breast cancer patients report continual psychological distress, briefly, one year post-diagnosis; hence it is important to understand who is at a higher risk of less, formal adjustment. The above mentioned outcome therefore suggested that there are factors related to differences in adjustment among breast cancer patients, and two well-researched resilient factors, optimism and social support were found to significantly account for some of these differences in adjustment of cancer patients.

As a psychosocial resource social support may foster resilience, thus making room for optimal levels of adjustment. This implies that social support may be a precursor to other positive and protective events, including the development of effective personal control, social networks, and the ability to take advantage of critical turning points and opportunities throughout the cancer experience (Kim et al., 2010). Studies suggested that lower levels of social support for cancer patients account for deleterious effects, leading to other co-morbid conditions (Peters-Golden, 1982).

The Moderation Role of Depression on the Coping-Psychosocial Adjustment Relationship

Depression also moderated between coping and psychosocial adjustment; implying that coping increased psychosocial adjustment when depression was lower in the cancer patients than when it was higher. Studies have noted that anxiety and depression are the most frequently reported cancer-related symptoms with more than 30% of women with early breast cancer having depression, anxiety, or both at diagnosis (Burgess et al., 2005). Whilst anxiety did not significantly moderate the relationship, depression which was highly reported by the respondents moderated the relationship for the cancer patients sampled. In simple terms, the positive effect of coping in increasing psychosocial adjustment is reduced when the patient experiences depression. Research shows that many women adapt different coping strategies to deal with the physical and psychological challenges of the disease (Hack & Degner, 2004; Lauver, Connolly-Nelson & Vang, 2007; Manuel et al., 2007) and as supported by this study, coping with cancer is affected by whether the women were depressed or not. These findings suggest that the majority of the variance in psychosocial adjustment in breast cancer can be attributed to the coping styles adopted. More studies are however needed to further clarify the interaction between coping and depression on the health outcomes for cancer patients.

The Moderation Roles of stage of cancer and surgery (mastectomy) on the Coping-Psychosocial Adjustment Relationship

The outcome that some medical factors like stage of cancer and previous surgery moderated the relationship between coping and psychosocial adjustment is consistent

with literature. The stage of cancer is noted to be one of the most important key determinants of successful treatment and survivorship. Therefore, the finding that stage of cancer moderated between coping and psychosocial adjustment, showed that early stage patients had lower psychosocial adjustment scores (indicating better adjustment) even as their coping strategies increased, which further buttressed the importance of the stage of cancer. As reported earlier, the stage of cancer alone did not predict coping for the cancer patients, but in this instance, it interacted with coping to influence psychosocial adjustment. The early stages of cancer fall within the acute stage of survivorship and this is a ‘_busy time’ that includes treatment, often in the form of surgery, followed by repeat or additional treatments that may be invasive and painful. Research indicates that while most cancer survivors view their experience of cancer in both negative and positive terms, there is a general agreement that the most stressful stage, physically and psychologically is the acute stage (Bowman et al., 2003). Therefore it is not surprising that the early stage survivors had higher coping and this is in support of the findings of Cohen (2002) who found that patients with primary cancer i.e. early stage tend to use more coping strategies and hence were better adjusted.

The other outcome of cancer patients who had undergone mastectomy and had lower psychosocial adjustment even under conditions of lower coping compared to those who had no previous surgery, also lends credence to the fact that the impact of mastectomy is much more than the impact of breast cancer itself, in that, women who have had a mastectomy face more bio-psychosocial problems than women without a mastectomy. As indicated earlier, mastectomy can impair body image and sexual health due to change in anatomy, loss of function and body image. This is in support of other previous studies

like Penman et al, (1987) who showed that women receiving therapy following mastectomy had significantly more bio-psychosocial disturbances such as body image dissatisfaction and feminine self-image concerns than even the control groups. They indicated that post-mastectomy, women of poorer bio-psychological outcome would have poorer quality social life.

5.3 Limitations of the Study

The current study provides new information about spirituality, optimism, social support, depression, anxiety and psychosocial adjustment in cancer patients, but these findings need to be viewed within the particular circumstances of this study. First, this study included a single assessment. The use of a single assessment prohibits inferences about causality or the relationships between these variables over time. For example, the correlational study design makes it impossible to determine whether optimism influenced psychosocial adjustment or vice versa. Second, it is important to note that all of the variables were assessed using written self-report measures that were completed during a single assessment, and this raises possible concerns over common method bias in the estimation of the hypothesized relationships (Podsakoff, MacKenzie, Jeong-Yeon Lee & Podsakoff, 2003). Third, like the majority of studies examining these variables in cancer patients, only breast cancer patients were enrolled. It is not clear whether these findings can be generalized to Ghanaian men, patients with other diseases, or patients with more advanced disease. Further study with a longitudinal design may provide a solution to this issue. Also overall, women reported high levels of adjustment, social support, and

optimism, which may limit the generalization of these findings to more distressed patients.

In addition, sampling bias might not have been completely avoided. The patients were sampled from Korle Bu Teaching Hospital, which is a top class hospital in Ghana. These patients often have a relatively higher socio-economic status than those from smaller hospitals or clinics in the country and may not be able to afford the treatment offered, considering the fact that cancer drugs and the surgery involved is expensive. Such a sample might not represent patients with breast cancer in the general population well. Finally, with regards to the instruments used though they had a high reliability coefficient, they could not cover all the life experiences of cancer patients. Thus there might have been loss of some of the information which additional qualitative methods could have unearthed. Despite these limitations, the sample size of this study is relatively large; complete and exact data were collected and analyzed and hence the study established some amount of internal validity. All in all this study contributes to the dyad literature by identifying additional factors influencing psychosocial adjustment for cancer patients.

5.4 Contributions and Implications for Future Research

The study was able to establish mediating and moderating roles of personal, distress and medical factors in the association between coping and psychosocial adjustment for women with breast cancer in Ghana. The study provided a theoretical and practical basis for further studies into coping and adjustment for this group of women. A review of the literature revealed that little attention has been given to the issues in the Ghanaian socio-cultural context. Thus, some practical and potential strategies for improving quality of

life in general for such a population may have been overlooked. The current theoretical model however forms a basis for similar studies in other cultural settings.

Research into coping and psychosocial adjustment among cancer patients and the associated psychological impact has significant practical implication to psychosocial oncology. Research has indicated a strong relationship to personal and socio-demographic characteristics and psychosocial adjustment (Wang et al., 2012; Stiegelis et al., 2003). This research is important in informing the risk and resilience relating to the cancer experience so as to offer appropriate coping strategies for future generations. Research such as this lends important information that can be used to develop better intervention programs relating to improved lifestyle for adults who have been diagnosed with the illness. The outcomes of the current study also offer an intervention model in clinical practice. The strong correlations of age, educational level, the stage of cancer, spirituality, optimism, social support, depression, anxiety and coping with psychosocial adjustment stimulate questions for future research. Further explorations of these relationships and the mechanisms by which they influence psychosocial adjustment and well-being for cancer patients will form the foundation on which to design psychosocial screening tools and interventions for them.

Studies are needed to describe the relationship among these variables at other points in time along the cancer trajectory, such as the time of cancer recurrence and its associated co-morbidities. The findings in longitudinal studies that these antecedent variables (i.e. age, educational level, stage of cancer, spirituality, optimism, social support, depression, anxiety and coping) during the initial phases predicts psychosocial adjustment later in the post-cancer treatment survivorship period should be explored in patients with cancers

other than breast cancer. If this relationship is confirmed, then interventional studies using other psychosocial therapies to bolster well-being, should be designed and tested.

5.5 Implications for Practice

The result in this study that age, educational level, stage of cancer, spirituality, optimism, social support, depression, anxiety and coping did predict psychosocial adjustment in cancer patients emphasizes the importance, of nurses and other caregivers of cancer patients having a heightened awareness for patients who display characteristics that are associated with a decreased level of resilient factors and an increase in distress factors. Patients who consistently express low expectations for a positive outcome in the future or who demonstrate use of passive coping strategies, such as avoidant coping, require further psychosocial assessment, early intervention, and possibly referral to mental health professionals for on-going support and treatment.

Evaluation of a survivor's sense of spirituality, optimism and social support, may also provide another avenue by which to assess their coping, given the significant correlation between these factors and coping and the finding that coping significantly predicted psychosocial adjustment in this study.

5.6 Recommendations for Future Research

Future research could address this study's limitations through the use of cross-sectional surveys that employ self-assessment in addition to other convergent non-self-report measurement. For instance, participants could be followed throughout the early stages of a cancer diagnosis using self-reports, in addition to independent ratings to obtain longitudinal information about the variables underlying their adjustment during a window

of time. The use of mixed research methods in addition to using a questionnaire could also be employed in order to gain more insight into the nature of psychosocial adjustment. Furthermore, advanced statistical analyses involving other mediators and moderators could shed more light onto the mechanisms through which other socio-demographic and psychosocial factors impact their adjustment and suggest what relationships might exist for these variables. Future research could investigate the complex and interwoven contextual and personality variables related to coping for this peculiar population.

This work contributes to the literature of psychological health for cancer patients and strengthens the fact that personal variables have a potential impact on, and should be included in, the models of adjustment and interventions for cancer patients.

Due to the difficulty in covering a wider regional and geographical area in researches (in order to accommodate the characteristics that may pertain to particular geographical areas), effort must be made to either raise money or funding must be made more accessible to researchers in this area, so that prospective researchers can travel to all the regions in Ghana. This would provide national evidence for enhancing intervention and prevention.

5.7 Conclusion

The study used a cross-sectional survey method approach to investigate coping and psychosocial adjustment among cancer patients and how these are influenced by personal factors, social support, and ill-related factors. About 98 cancer patients were conveniently sampled from the Korle-Bu Teaching Hospital in Accra, Ghana. The results revealed almost all key variables of the study including of age, educational level, stage of cancer,

spirituality, optimism, social support, depression, anxiety and coping were significantly related with psychosocial adjustment. Whilst educational level and spirituality mediated between coping and psychosocial adjustment, optimism, social support, depression and medical factors like stage of cancer and previous surgery of mastectomy moderated between coping and psychosocial adjustment. The implication of these outcomes is that coping is associated with these factors to influence the adjustment of the patients to a certain degree.

In summary, the findings suggest that both optimism and social support are associated with better adjustment, and they enhance the positive relationship between coping and psychosocial adjustment. On the other hand, depression is associated with poorer adjustment and it buffers the positive relationship between coping and psychosocial adjustment. As the study involved cancer survivors in the treatment and post-treatment phases and research suggests that because the number of cancer patients living beyond treatment continues to grow, factors related to post-treatment adjustment are increasingly important (Aziz & Rowland, 2002). The factors that contribute to adjustment in Ghanaian cancer survivors needs additional studies, since findings from Korle-Bu samples may not adequately generalize to other patient populations. Experiences which are unique to individual patients may also have an important impact on adjustment, different from other patients. Therefore additional research with a nationally representative sample is needed to improve understanding of the factors that contribute to positive outcomes for Ghanaian cancer survivors.

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APPENDICES

APPENDIX A: MODERATION GRAPHS

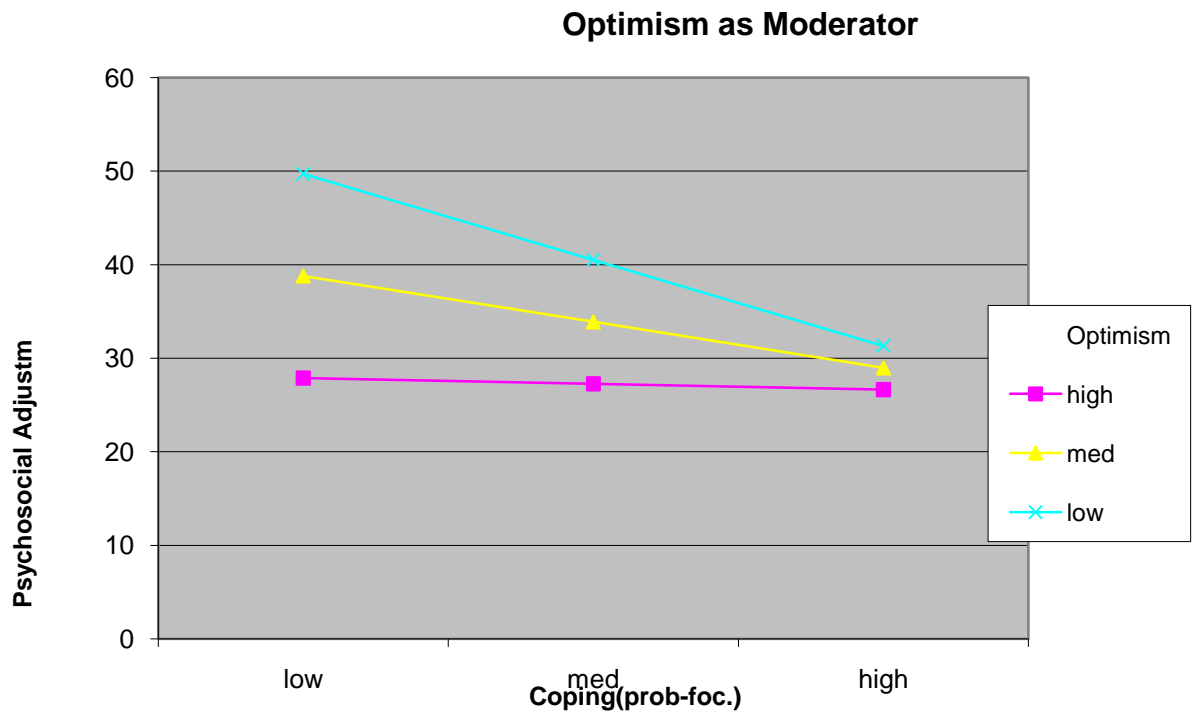


Fig. 5: Moderation Graph for Optimism

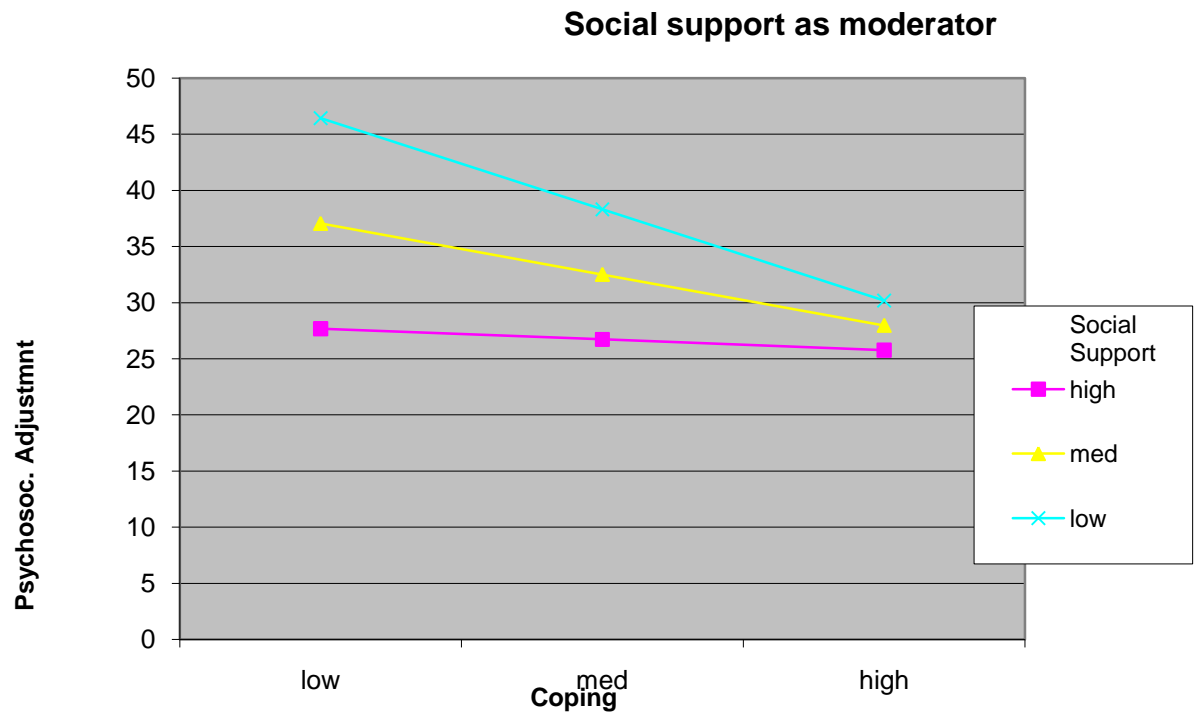


Fig.6: Moderation Graph for Social support

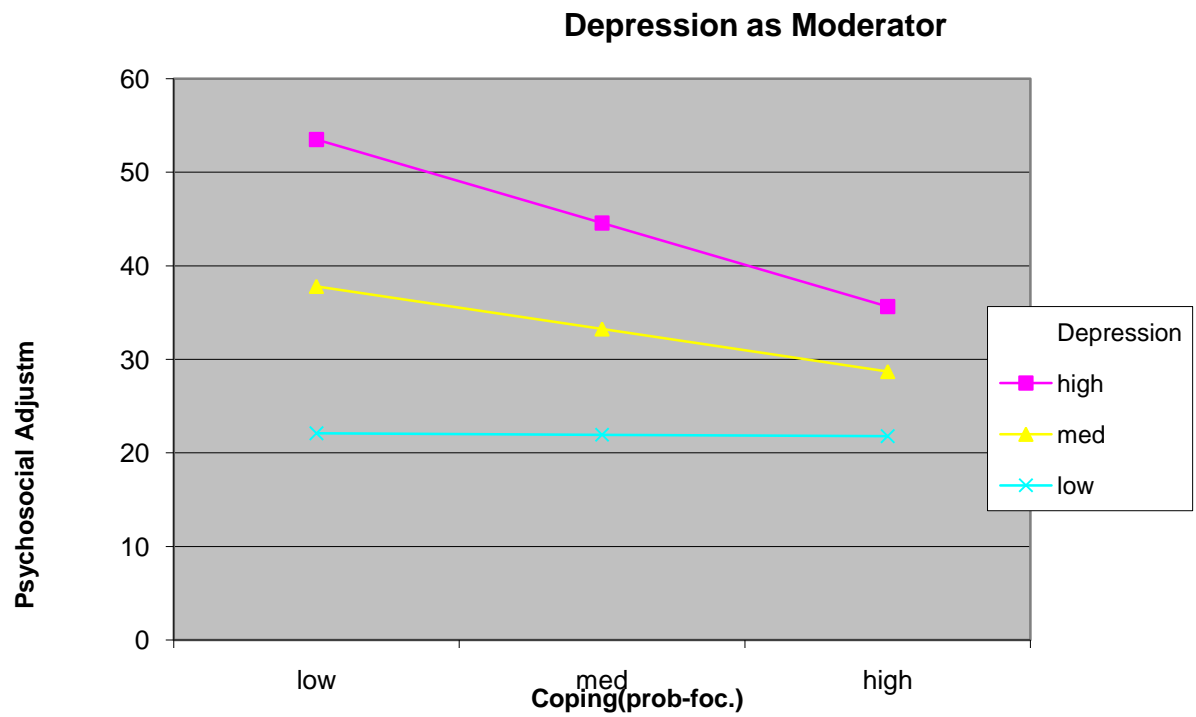


Fig.7: Moderation Graph for depression

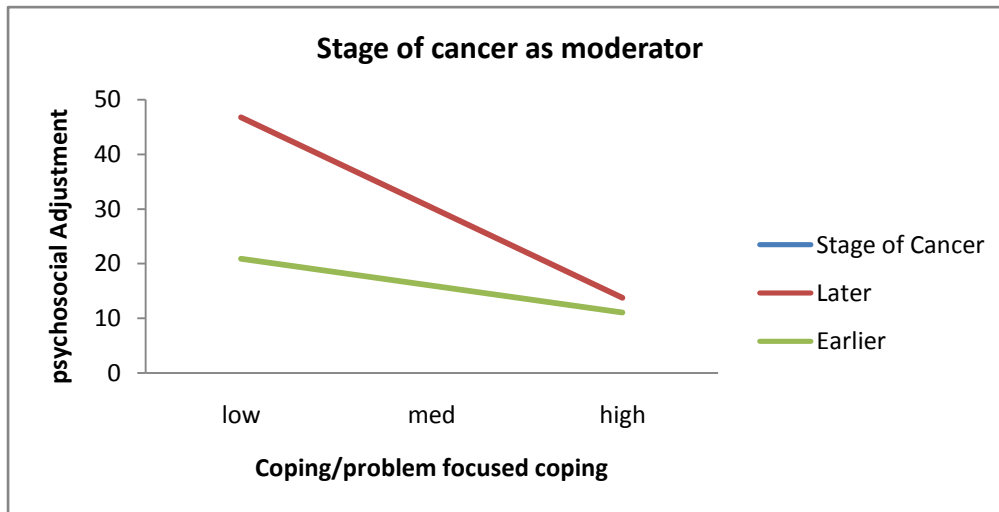


Fig.8: Moderation Graph for stage of cancer

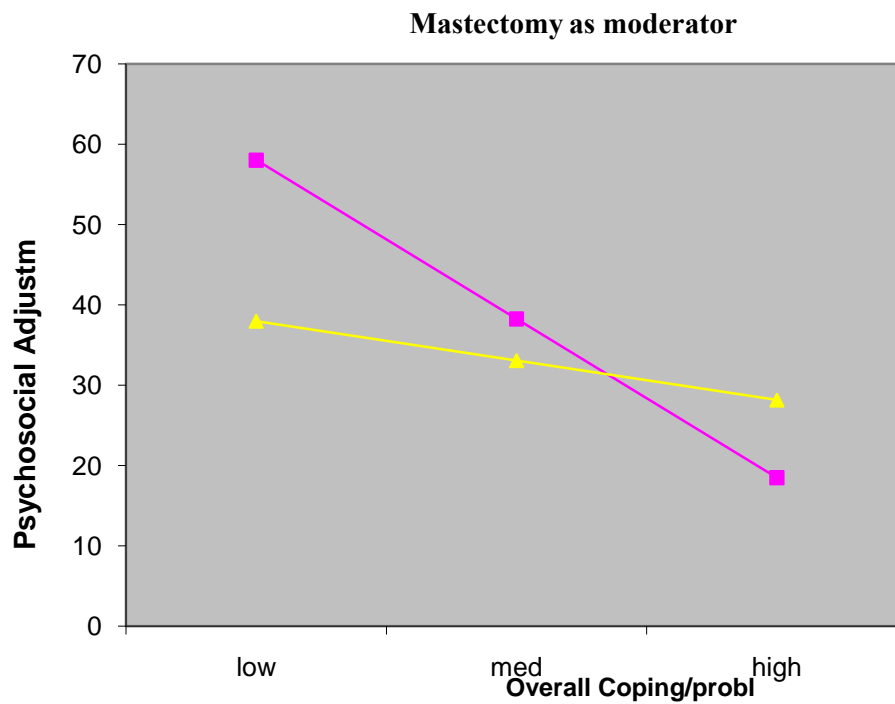


Fig.9: Moderation Graph for mastectomy

APPENDIX B

ETHICAL COMMITTEE FOR HUMANITIES (ECH)

APPROVAL LETTER (To be attached)

CONSENT FORM

UNIVERSITY OF GHANA



Official Use only

Protocol number

OFFICE OF RESEARCH, INNOVATION AND DEVELOPMENT

Ethics Committee for Humanities (ECH)

PROTOCOL CONSENT FORM

Section A- BACKGROUND
INFORMATION

Title of Study:	PSYCHOSOCIAL DETERMINANTS OF BREAST CANCER SURVIVAL: A STUDY AMONG BREAST CANCER PATIENTS
Principal Investigator:	MARCELLINE NAAEDER PSYCHOSOCIAL DETERMINANTS OF BREAST CANCER
Certified Protocol Number	

Section B– CONSENT TO PARTICIPATE IN RESEARCH

PURPOSE OF THE STUDY

It is important to describe women's experiences of health, illness, coping and adjustment.

Women with breast cancer are faced with many demanding challenges different from initial diagnosis and treatment. Whilst breast cancer is an incurable disease in most cases, some women will live for years or even decades with their illness. Women with recurrent breast cancer are not only challenged in terms of coping with changes in health and progressive experiences of illness, they also have to comprehend, manage and enhance meaning in life while living with a persistent threat, as well as creating new ways of interacting with families and significant others.

The purpose of the study is to examine the effect of personal factors, social support and illness related factors on the coping strategies used by women diagnosed with breast cancer and how these women adjust psychosocially.

Expected Duration for participation

Prior to receiving your radiotherapy session you will be administered the questionnaire within a 60 minute period. The expected duration will also account for short breaks to the bathroom, times when the need arises for refreshment with water or a soft drink. Also due to the nature of your condition you may tire easily and require a short rest, room will be allowed for ample time for you to understand questions posed during the interview and the give the appropriate answers.

Procedure/Methods

A sample size of 100 will be used. Patients will be recruited from the National Radiotherapy Centre in Korle-Bu Teaching Hospital Accra and will comprise females diagnosed with breast cancer and reporting at the centre for treatment (radiotherapy).

To participate in the study the following criteria should be satisfied (inclusion criteria). The participant should : (1) be 18 years and above (2) be reporting for radiotherapy/chemotherapy or post-treatment reviews (as the study aims to assess how patients undergoing or who have undergone treatment are coping and adjusting) (3) be willing to partake in the study and (4) be a Ghanaian (as the Radiotherapy centre provides services to patients of different nationalities from countries within the West African sub-region).

Participants who are excluded from the study are those who have not undergone any form of radiotherapy or chemotherapy before, unwilling participants and non-Ghanaians.

The study will be a quantitative correlational design because it attempts to explore the relationship between at least two variables within a given environment (National Radiotherapy Centre). The multivariate correlational technique will be employed to assess the degree of relationship between multiple variables and multiple regression techniques which will allow the predictive strength of the variables in predicting the outcome to be assessed.

Sampling refers to the process used to select a portion of the population for study. Non-probability sampling will be used. This will be done by the purposive sampling technique. Specifically, purposive sampling technique is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research.

Participants will be selected from the Breast clinic which is held on Mondays and also from those reporting for scheduled treatment throughout the week (Monday-Friday).

Prior to radiation therapy selected patients will be administered a questionnaire lasting not more than 60 minutes at a sitting in a private/secluded and area or room with comfortable chairs and a table. Short breaks will be allowed to prevent participants from tiring easily due to their condition and to make needed trips to the bathroom. Water or a soft drink will also be provided when necessary. Participants will be encouraged after completing the questionnaire to relax for about 15 minutes before going for their treatment.

To obtain relevant information the questionnaire (demographics and psychological tests) consisting of seven major sections: socio-demographic factors; personality trait; social support; anxiety and depression; medical factors (co-morbid conditions); coping style; and psychosocial adaptation/adjustment, will be administered.

In considering the physical and psychological effects of the disease on the patient, the time within which the questionnaire is administered (including the time allowed breaks)

which will also determine when the person receives their radiotherapy dose, it is prudent to engage the service of two research assistants who assist the researcher in administration of the questionnaire to more than one patient at the same time and hence avoid keeping many patients waiting for their treatment. Also to this will allow for ease of administration of the questionnaire, clarity of understanding the questions by the patient who can then give the most appropriate answer. The research assistants are two trained medical doctors with research backgrounds in Public and Community, who will have received detailed instructions on how the questionnaire should be administered.

The research assistants will be made aware that emotional issues may arise during the course of the interview and the need to pay attention to verbal and non-verbal cues which will hint at this. They will be required to pay attention to changes in the tone of voice, the content and timing of answers, accompanying facial expression, posture and behaviours that can convey any emotional issues. Appropriate referrals will then be made to a consultant clinical psychologist (at the Psychiatric Department, Korle-Bu Teaching Hospital) for professional assistance.

When needed professional interpreters who are employed by the Radiotherapy Centre to assist in history taking and consultation with their patients will assist in interpretation when a language barrier arises. Seating will be arranged so that the researcher/research assistant is the main focus of the patient's attention so as to allow rapport to develop between the patient and the clinician. This can be achieved by arranging the seating with the interviewer and the interpreter side by side, together facing the patient so that there is very little need for the patient to redirect his gaze and the interpreter is seen to be an extension of the researcher/research assistant and merely interprets for both parties,

accurately reporting all comments made and not entering into spontaneous discussion or questioning.

Verbal appreciation will be expressed to participants on completion of the interview.

Benefits and risks associated with the study

The benefits of this study will basically be to add more knowledge to the already existing literature in breast cancer care of patients within the clinical setting for health care professionals with the hope of improving the physical care of patients, provide a basis for future based psychosocial interventions (eg. Coping skills based interventions such as cognitive reappraisal, problem solving techniques etc.) and create awareness for the need of clinical psychologist in cancer care in Ghana.

Participants as a result of their physical condition and persistent side effects from previous treatments may experience bouts of fatigue and/discomfort which may be exacerbated during the administration of the questionnaire.

Confidentiality

All possible means will be used to protect the anonymity and confidentiality of research participants by avoiding leaving of traces in the report which may lead to identification of participants and also in the dissemination of results, names of participants will not be documented on the questionnaire and names will not be disclosed even if per chance they are mentioned during the interview to the researcher or the assistants. The researcher and two assistants will have access to the questionnaires during the time of conducting the interview, completed questionnaires will however be solely in the care of the researcher.

Compensation

This study will not offer any compensation. Verbal appreciation will be expressed following the completion of the interview for your time and efforts.

Withdrawal from the study

Your participation in this study is voluntary and you are at liberty at any at any point in time during the study to withdraw your participation without any adverse effects or negative consequences to you, neither will you be penalized for your withdrawal from the study.

Any information which becomes available pertaining to the study and will lead to your willingness to participate or withdraw from this study will be communicated to you and your legal representative in a timely manner to allow you make an informed decision concerning your participation. As much as your participation is valuable and appreciated in this study, failure to complete the interview will result in your termination from the study.

You have every right to raise any questions, queries or concerns you may have with regards to consenting to this study: Valued participant your willingness to participate in this study is very much appreciated.

Kindly indicate your consent by signing below.

CONTACT FOR ADDITIONAL INFORMATION

For answers to any questions about the research and whom to contact in case of any research-related injury, kindly call any of the following numbers below:

Student Researcher – Marcelline Naaeder # 020 630 0950

1st Supervisor – Prof. S. A Danquah # 026 519 1590

2nd Supervisor – Dr. Paul Doku # 050 830 3917

Section C- VOLUNTEER
AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

Name of Volunteer

Signature or mark of volunteer

Date

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Name of witness

Signature of witness

Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Name of Person who Obtained Consent

Signature of Person Who Obtained Consent

Date _____

APPENDIX C

RESEARCH QUESTIONNAIRE USED

PARTICIPANT DEMOGRAPHIC FORM

1. AGE _____
2. EDUCATIONAL LEVEL
☐ None ☐ Junior High School (JHS)
☐ Primary School ☐ Senior High School(SHS)
☐ Tertiary
3. MARITAL STATUS
☐ Single (unmarried/divorced/widowed) ☐ Married (spouse/partner)
4. MEDICAL FACTORS
 - a) Stage
☐ I ☐ II ☐ III ☐ IV
 - b) Time since diagnosis _____ days.
 - c) Major surgeries
Mastectomy ☐ yes ☐ no
(partial /total/bilateral)
5. CO-MORBID CONDITIONS
☐ None ☐ Hypertension ☐ Diabetes ☐ Both

LIFE ORIENTATION TEST-REVISED

Instructions

Please answer the following questions about yourself indicating the extent of your agreement using the following scale.

- [0] Strongly disagree
- [1] Disagree
- [2] Neutral
- [3] Agree
- [4] Strongly Agree

Be as honest as you can throughout and try not to let your responses to one question influence your response to other questions. There are no right or wrong answers'.

1. In uncertain times, I usually expect the best _____
2. It's easy for me to relax _____
3. If something can go wrong for me it will _____
4. I am always optimistic about my future _____
5. I enjoy my friends a lot _____
6. It's important for me to keep busy _____
7. I hardly ever expect things to go my way _____
8. I don't get upset too easily _____
9. I rarely count on good things happening to me _____
10. Overall, I expect more good things to happen to me than bad. _____

HOSPITAL ANXIETY AND DEPRESSION SCALE

Each of the following items says something relating to psychological distress. Please answer the following questions about yourself by indicating the most appropriate response.

	Yes definitely	Yes sometimes	No, not much	No, not at all
1. I wake early and then sleep badly for the rest of the night.				
2. I get very frightened or have panic feelings for apparently no reason at all.				
3. I feel miserable and sad.				
4. I feel anxious when I go out of the house on my own.				
5. I have a good appetite.				
6. I get palpitations, or sensations of _butterflies' in my stomach or chest.				
7. I have a good appetite.				
8. I feel scared or frightened.				

9. I feel life is not worth living.				
10. I still enjoy the things I used to.				
11. I am restless and can't keep still.				
12. I am more irritable than usual.				
13. I feel as if I have slowed down.				
14. Worrying thoughts constantly go through my mind.				

BRIEF COPE

Instructions

Each of the following items says something about a particular way of coping.

Please answer the following questions about yourself indicating the extent of your agreement using the following scale.

1 = I haven't been doing this at all

2 = I've been doing this a little bit

3 = I've been doing this a medium amount

4 = I've been doing this a lot

	Not at all	A little bit	A medium amount	A lot
1. I've been turning to work or other activities to take my mind off things.				
2. I've been concentrating my efforts on doing something about the situation I'm in.				
3. I've been saying to myself this "this isn't real".				
4. I've been using alcohol or other drugs to make myself feel better.				
5. I've been getting emotional support from others.				
6. I've been giving up trying to deal with it.				
7. I've been taking action to try and make the situation better.				
8. I've been refusing to believe that it has happened.				
9. I've been saying things to let my unpleasant feelings escape.				
10. I've been getting help and advice from other				

people.				
11. I've been using alcohol or other drugs to help me get through it.				
12. I've been trying to see it in a different light, to make it seem more positive.				
13. I've been criticizing myself.				
14. I've been trying to come up with a strategy about what to do.				
15. I've been getting comfort and understanding from someone.				
16. I've been giving up the attempt to cope.				
17. I've been looking for something good in what is happening.				
18. I've been making jokes about it.				
19. I've been doing something to think about it less, such as watching TV, reading, daydreaming, sleeping or shopping.				
20. I've been accepting the reality of the fact that it has happened.				

21. I've been expressing my negative feelings.				
22. I've been trying to find comfort in my religion or spiritual beliefs.				
23. I've been trying to get advice or help from other people about what to do.				
24. I've been learning to live with it.				
25. I've been thinking hard about what steps to take.				
26. I've been blaming myself for things that happened.				
27. I've been praying or meditating.				
28. I've been making fun of the situation.				

FACIT-Sp 12 Questionnaire

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 past 7 days.

	Not at all	A little bit	Some- what	Quite a bit	Very much
1. I feel peaceful					
2. I have a reason for living.					
3. My life has been productive					
4. I have trouble feeling peace of mind					
5. I feel a sense of purpose in my life					
6. I am able to reach down deep into myself for comfort					
7. I feel a sense of harmony within myself					

8. My life lacks meaning and purpose					
9. I find comfort in my faith or spiritual beliefs					
10. I find strength in my in my faith or spiritual beliefs					
11. My illness has strengthened my faith or spiritual beliefs.					
12. I know that whatever happens in my illness things will be okay.					

Not at all = 0

A little bit = 1

Somewhat = 2

Quite a bit = 3

Very much = 4

PSYCHOSOCIAL ADJUSTMENT TO ILLNESS SCALE-R

INSTRUCTIONS

The present form contains questions concerning the effects that your illness has had on you. I am interested in knowing what effects it has had on your relationships and your ability to perform at home and on your job. Also I would like to know about effects on family and personal relationship. Other questions concern its effects on your social and leisure time activities, and how you have felt emotionally.

In answering each question, please put a check mark in the box alongside the answer that best describes your experience. Please answer all the questions and try not to skip any. If none of the answers to a question match your experience exactly, please choose the answer that comes closest to the experience you had.

The time I would like you to refer to is the past 30 days, including today. Answer each question in terms of what your experience has been like during this time frame. In the event you are presently a patient in the hospital, please report your experiences for the 30 days before entering the hospital.

Some questions on the form assume that you are married and have a steady partner you are close to. Other questions ask about family relationship. If these questions do not apply to you because you are unmarried, or you have no family or partner, please leave them blank. Try to answer all the questions that apply to you, however.

Section ii asks questions about your job performance. If you have either a full-time or a substantial part-time employment, please answer the questions in terms of your job. If

you are primarily a student, answer in terms of your school work. If you are a housewife, answer as though housework, neighbours, etc are your work environment

I appreciate the time it has taken you to complete this form. If you have any questions about the form, please ask.

PAIS-R

Health care orientation

1. Which of the following statements best describes your usual attitude about taking care of your health?

☐ (a) I am very concerned, and pay close attention to my personal health.

☐ (b) Most of the time I pay attention to my healthcare needs.

☐ (c) Usually, I try to take care of health matters but sometimes I just don't get around to it.

☐ (d) Healthcare is something I just don't worry too much about.

2. Your present illness probably requires some special attention and care on your part. Would you please select the statement below that best describes your reaction.

☐ (a) I do things pretty much the way I always have done them and I don't worry or

take any special considerations for my illness.

☐ (b) I try to do all the things I am supposed to do to take care of myself, but I
lots of

times I forget or I am too tired or busy.

☐ (c) I do a pretty good job taking care of my present illness.

☐ (d) I pay close attention to all the needs of my present illness and do
everything I

can do to take care of myself.

**3. In general, how do you feel about the quality of medical care today and the
doctors who provide it?**

☐ (a) Medical care has never been better, and the doctors who give it are doing
an

excellent job.

☐ (b) The quality of medical care available is very good but there are some
areas that

could stand improvement.

☐ (c) Medical care and doctors are just not of the same quality they once were

☐ (d) I don't have much faith in doctors and medical care today.

**4. During your present illness you have received treatment from both doctors
and medical staff. How do you feel about them and the treatment you have
received from them?**

[] (a) I am very unhappy with the treatment I have received and don't think the staff

has done all they could have done for me.

[] (b) I have not been impressed with the treatment I have received, but I think it's

probably the best they can do.

[] (c) The treatment has been pretty good on the whole, although there have been a

few problems.

[] (d) The treatment and the treatment staff have been excellent.

5. When they are ill, different people expect different things about their illness, and have different attitudes about being ill. Could you please check the statement below which comes closest to describing your feelings.

[] (a) I am sure I am going to overcome the illness and it's problems quickly and get

back to being my old self.

[] (b) My illness has caused some problems for me, but I feel I will overcome them

Fairly soon, and get back to the way I was before.

[] (c) My illness has really put a great strain on me, both physically and mentally, but I am

trying very hard to overcome it, and feel sure that I will be back to my old self one of these days.

☐ (d) I feel worn out and very weak from my illness, and there are times when I don't

Know if I am really ever going to be able to overcome it.

- 6. Being ill can be a confusing experience, and some patients feel that they do not receive enough information and detail from their doctors and medical staff about their illness. Please select a statement below which best describes your feelings about this matter.**

☐ (a) My doctor and the medical staff have told me very little about my illness even

though I have asked more than once.

☐ (b) I do have some information about my illness but I feel I would like to know more

☐ (c) I have a pretty fair understanding about my illness and feel that if I want to know

More I can always get the information.

☐ (d) I have been given a very complete picture of my illness, and my doctor and the medical staff have given me all the details I wish to have

- 7. In an illness such as yours, people have different ideas about their treatment and what to expect from it. Please select one of the statements below which best describes what you expect about your treatment.**

☐ (a) I believe my doctors and medical staff are quite able to direct my treatment and

Feel it is the best treatment I could receive.

☐ (b) I have trust in my doctor's direction of my treatment, however, sometimes I have doubts about it.

☐ (c) I don't like certain parts of my treatment which are very unpleasant, but my doctors tell me I should go through it anyway.

☐ (d) In many ways I think my treatment is worse than the illness, and I am not sure it is worth going through with it.

8. In an illness such as yours, patients are given different amounts of information about their treatment. Please select a statement from those below which best describes information you have been given about your treatment.

☐ (a) I have been told almost nothing about my treatment and feel left out about it.

☐ (b) I have some information about my treatment, but not as much as I would like to

have.

☐ (c) My information concerning my treatment is pretty complete, but there are one

or two things I still want to know.

☐ (d) I feel my information concerning treatment is very complete and up-to date.

SECTION II

(1) Has your illness interfered with your ability to do your job (schoolwork)?

☐ (a) No problems with my job

☐ (b) Some problems, but only minor ones

☐ (c) Some serious problems

☐ (d) Illness has totally prevented me from doing my job

(2) How well do you physically perform your job (studies) now?

☐ (a) Poorly

☐ (b) Not too well

☐ (c) Adequately

☐ (d) Very well

(3) During the past 30 days, have you lost any time at work (school) due to your illness?

☐ (a) 3 days or less

☐ (b) 1 week

☐ (c) More than 2 weeks

(4) Is your job (school) as important to you now as it was before your illness?

☐ (a) Little or of no importance to me now

☐ (b) A lot less important

☐ (c) Slightly less important

☐ (d) Equal or greater importance than before

(5) Have you had to change your goals concerning your job (education) as a result of your illness?

☐ (a) My goals are unchanged

☐ (b) There has been a slight change in my goals

☐ (c) My goals have changed quite a bit

☐ (d) I have changed my goals completely

(6) Have you noticed any increase in problems with your co-workers (students, neighbours) since your illness?

☐ (a) A great increase in problems

☐ (b) A moderate increase in problems

☐ (c) A slight increase in problems

☐ (d) None

SECTION III

**(1) How would you describe your relationship with your husband or wife
(partner, if not married) since your illness?**

☐ (a) Good

☐ (b) Fair

☐ (c) Poor

☐ (d) Very poor

**(2) How would you describe your general relationships with other people you
live with (e.g. children, parents, aunts, etc.).**

☐ (a) Very poor

☐ (b) Poor

☐ (c) Fair

☐ (d) Good

**(3) How much has your illness interfered with your work and duties around the
house?**

☐ (a) Not at all

☐ (b) Slight problems, easily overcome

☐ (c) Moderate problems, not all of which can be overcome

☐ (d) Severe difficulties with household duties

(4) In those areas where your illness has caused problems with your household work, how has the family shifted duties to help you out?

☐ (a) The family has not been able to help out at all

☐ (b) The family has tried to help but many things are left undone

☐ (c) The family has done well except for a few minor things

☐ (d) No problem

(5) Has your illness resulted in a decrease in communication between you and members of your family?

☐ (a) No decrease in communication

☐ (b) A slight decrease in communication

☐ (c) Communication has decreased, and I feel somewhat withdrawn from them

☐ (d) Communication has decreased a lot, and I feel very alone

(6) Some people with an illness like yours feel they need help from other people (friends, neighbours, family, etc) to get things done from day-to-day. Do you feel you need such help and is there anyone to provide it?

☐ (a) I really need help but seldom is anyone around to help me

☐ (b) I get some help, but I can't count on it all the time

☐ (c) I don't get all the help I need all of the time, but most of the time help is there
when I need it

(7) Have you experienced any physical disability with your illness?

- ☐ No physical disability
- ☐ A slight physical disability
- ☐ A moderate physical disability
- ☐ A severe physical disability

(8) An illness such as yours can sometimes cause a drain on the family finances; are you having any difficulties meeting the financial demands of your illness?

- ☐ (a) Severe financial hardship
- ☐ (b) Moderate financial problems
- ☐ (c) A slight financial drain
- ☐ (d) No money problems

SECTION IV

(1) Sometimes having an illness can cause problems in a relationship. Has your illness led to any problems with your husband or wife (partner, if not married)?

- ☐ (a) There has been no change in our relationship

- ☐ (b) We are a little less close since my illness
- ☐ (c) We are definitely less close since my illness
- ☐ (d) We have serious problems or a break in our relationship since my illness

(2) Sometimes when people are ill they report a loss of interest in sexual activities. Have you experienced less sexual interest since your illness?

- ☐ (a) Absolutely no sexual interest since illness
- ☐ (b) A marked loss of sexual interest
- ☐ (c) A slight loss of sexual interest
- ☐ (d) No loss of sexual interest

(3) Illness sometimes causes a decrease in sexual activity. Have you experienced any decrease in the frequency of your sexual activities?

- ☐ (a) No decrease in sexual activities
- ☐ (b) Slight decrease in sexual activities
- ☐ (c) Marked decrease in sexual activities
- ☐ (d) Sexual activities have stopped

(4) Has there been any change in the pleasure or satisfaction you usually experience from sex?

- ☐ (a) Sexual pleasure and satisfaction have stopped
- ☐ (b) A marked loss of sexual pleasure or satisfaction
- ☐ (c) A slight loss of sexual pleasure or satisfaction

☐ (d) No change in sexual satisfaction

(5) Sometimes an illness will cause interference in a person's ability to perform sexual activities even though the person is still interested in sex. Has this happened to you, and if so to what degree?

☐ (a) No change in my ability to have sex

☐ (b) Slight problems with my sexual performance

☐ (c) Constant sexual performance problems

☐ (d) Totally unable to perform sexually

(6) Sometimes an illness will interfere with a couple's normal sexual relationship and cause arguments and problems between them. Have you and your partner had any arguments like this, and if so, to what degree?

☐ (a) Constant arguments

☐ (b) Frequent arguments

☐ (c) Some arguments

☐ (d) No arguments

SECTION VI

(1) Have you had as much contact as usual (either personally or by telephone) with members of your family outside your household since your illness?

☐ (a) Contact is the same or greater since the illness

☐ (b) Contact is slightly less

☐ (c) Contact is markedly less

☐ (d) No contact since the illness

(2) Have you remained as interested in getting together with these members of your family since your illness?

☐ (a) Little or no interest in getting together with them

☐ (b) Interest is a lot less than before

☐ (c) Interest is slightly less

☐ (d) Interest is the same or greater

(3) Sometimes, when people are ill, they are forced to depend on members of the family outside their household for physical help. Do you need physical help from them, and do they supply the help you need?

☐ (a) I need no help or they give me all the help I need

☐ (b) Their help is enough, except for some minor things

☐ (c) They give some help but not enough

☐ (d) They give me little or no help even though I need great help

(4) Some people socialize a great deal with members of their family outside their immediate household. Do you do much socializing with these family members, and has your illness reduced such socializing?

☐ (a) Socializing with them has been pretty much eliminated

☐ (b) Socializing with them has been reduced significantly

☐ (c) Socializing with them has been reduced somewhat

☐ (d) Socializing with them has been pretty much unaffected, or (I have never done much socializing of this kind)

(5) In general, how have you been getting along with these members of your family recently?

☐ (a) Good

☐ (b) Fair

☐ (c) Poor

☐ (d) Very poor

SECTION VI

(1) Are you still interested in your leisure time activities and hobbies as you were prior to your illness?

- ☐ (a) Same level of interest as previously
- ☐ (b) Slightly less interest than before
- ☐ (c) Significantly less interest than before
- ☐ (d) Little or no interest remaining

(2) How about actual participation? Are you still actively involved in doing those activities?

- ☐ (a) Little or no participation at present
- ☐ (b) Participation reduced significantly
- ☐ (c) Participation reduced slightly
- ☐ (d) Participation remains unchanged

(3) Are you interested in leisure time activities with your family (i.e playing cards & games, taking trips, going swimming, etc) as you were prior to your illness?

- ☐ (a) Same level of interest as previously
- ☐ (b) Slightly less interest than before
- ☐ (c) Significantly less interest than before
- ☐ (d) Little or no interest remaining

(4) Do you still participate in those activities to the extent you once did?

- ☐ (a) Little or no participation at present
- ☐ (b) Participation reduced significantly
- ☐ (c) Participation reduced slightly
- ☐ (d) Participation remains unchanged

(5) Have you maintained your interest in social activities since your illness (eg. social clubs, church groups, going to the movies, etc)?

- ☐ Same level of interest as previously
- ☐ Slightly less interest than before
- ☐ Significantly less interest than before
- ☐ Little or no interest remaining

(6) How about participation? Do you still go out with your friends and do those things?

- ☐ (a) Little or no participation at present
- ☐ (b) Participation reduced significantly
- ☐ (c) Participation reduced slightly
- ☐ (d) Participation remains unchanged

SECTION VII

(1) Recently, have you felt afraid, tense, nervous, or anxious?

☐ (a) Not at all ☐ (b) A little bit ☐ (c) Quite a bit ☐ (d) Extremely

(2) Recently, have you felt sad, depressed, lost interest in things, or felt hopeless?

☐ (a) Extremely ☐ (b) Quite a bit ☐ (c) A little bit ☐ (d) not at all

(3) Recently have you felt angry, irritable, or had difficulty controlling your temper?

☐ (a) Not at all ☐ (b) A little bit ☐ (c) Quite a bit ☐ (d) Extremely

(4) Recently, have you blamed yourself for things, felt guilty, or felt like you have let people down?

☐ (a) Extremely ☐ (b) Quite a bit ☐ (c) A little bit ☐ (d) Not at all

(5) Recently, have you worried much about your illness or other matters?==

☐ (a) Not at all ☐ (b) A little bit ☐ (c) Quite a bit ☐ (d) Extremely

(7) Recently, have you been feeling down on yourself or less valuable as a person?

☐ (a) Extremely ☐ (b) Quite a bit ☐ (c) A little bit ☐ (d) Not at all

(8) Recently, have you been concerned that your illness has caused changes in the way you look that make you less attractive?

☐ (a) Not at all ☐ (b) A little bit ☐ (c) Quite a bit ☐ (d) Extremely