UNIVERSITY OF CAPE COAST

PSYCHOLOGICAL CAPITAL AND ILLNESS PERCEPTION AS PREDICTORS OF HEALTH-RELATED QUALITY OF LIFE OF PATIENTS WITH BREAST CANCER

ENOCH ASMAH

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BY

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Thesis submitted to the Department of Education and Psychology of the Faculty of Educational Foundations, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Philosophy degree in Clinical Health Psychology

JANUARY, 2024

DECLARATION

Candidate's Declaration

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

Candidate's Signature:……..Date:……

Name:…….

Supervisor's Declaration

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

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

Name:…….

ABSTRACT

The purpose of this study was to examine how illness perception and psychological capital predict health-related quality of life among breast cancer patients. Using the convenient sampling technique, 105 breast cancer patients from the Cape Coast Teaching Hospital participated in this study. Participants answered a 44-item questionnaire that measured health-related quality of life, illness perception and psychological capital. The study found that, generally breast cancer patients have good physical and mental health-related quality of life. It was also revealed that most of the breast cancer patients have low level of psychological capital and moderate (negative) threatening illness perception. There was an association between illness perception and psychological capital. Additionally, illness perception is not a significant predictor of physical and mental health quality of life. Psychological capital predicted health-related quality of life. It was concluded that breast cancer patients are likely to develop psychological and emotional problems and this affects their quality of life. It was recommended that intervention programmes be made available for breast cancer patients to boost their psychological capital and quality of life.

KEYWORDS

Psychological capital

Illness perception

Breast cancer

Patients

Health-related quality of life

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DEDICATION

To the poor, the sick and the needy

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LIST OF ACRONYMS

ACS	-	America Cancer Society
CCTH	-	Cape Coast Teaching Hospital
CDC	-	Center for Disease Control and Prevention
CSM	-	Common Sense Model
HRQoL	-	Health-Related Quality of Life
MOH	-	Ministry of Health
NCD	-	Non-Communicable Disease
NCI	-	National Cancer Institute
PsyCap	-	Psychological Capital
QoL	-	Quality of Life
WHO	-	World Health Organization

CHAPTER ONE

INTRODUCTION

This study essentially aims at assessing psychological capital and illness perception as predictors of health-related quality of life of breast cancer patients. The study looks at breast cancer because it is one of the most common cancers diagnosed in women currently (Afaya et al., 2022) and the commonest cause of cancer death in women worldwide (World Health Organisation, 2018). Currently, it is the leading cause of cancer death in developed countries after lung cancer. In developing countries, it is the first leading cause of death among women (Jemal et al., 2011).

Background to the Study

The global burden of non-communicable diseases (NCD) is increasing nowadays (Rodriguez-Fernandez, 2015; El-Sayed, Palma, Freedman & Kruk, 2015), and the primary causes for this are longer lifespans, prolonged exposure to risk factors and lifestyle changes. Cancer is one of the most significant diseases in the world, according to studies, and it is compounded by the fact that it is multifactorial in epidemiologic terms. Ferlay et al. (2015) opined that in 2012, there were around 14.9 million new cases worldwide. In two decades, it is anticipated that there would be up to 22 million additional cases.

Cancer is the second biggest cause of death worldwide, accounting for 8.8 million deaths in 2015. It is caused by the transformation of normal cells into tumour cells in a multistage process that normally evolves from a pre-cancerous lesion to a malignant tumour. Cancer is still the main cause of mortality in many affluent nations and the second greatest cause of death in

developing countries (Made et al., 2017). This phenomenon might be ascribed to global population aging as a result of longer life expectancies and the adoption of "cancer-causing" lifestyle and habits such as smoking, physical inactivity, and the consumption of high-fat, high-oil, and high-salt junk and/or fast meals. It might also be attributed to more effective methods of diagnosing cancers as well as the establishment of cancer registries in many countries worldwide (Azamjah, Soltan-Zadeh & Zayeri, 2019).

In Ghana, cancer is the fourth greatest cause of death, with around 16,000 new cases diagnosed each year, with liver, breast, cervical, and prostate cancers being the most frequent. This is a fastest-growing non-communicable disease (NCD), owing to a variety of variables including lifestyle, obesity, and a lack of physical exercise or activity, among other factors (Graphic Online, 2016). Currently, epidemiologic data on breast cancer in Ghana is inadequate as most studies are based on clinicopathological characteristics (Edmund et al., 2013). However, the incidence of breast cancer as derived from the Korle Bu Teaching Hospital Cancer Register from 1972 through 1975 shows that breast cancer accounted for 7.5% of all cancers in Ghana and was the fourth most common cancer after liver carcinoma, cervix cancer, and Burkitt lymphoma (Edmund et al., 2013). The increase is even further evident when Clegg-Lamptey et al. reported in 2009 that breast cancer now accounts for about 16% of all cancers, being the commonest female cancer in Ghana (Edmund et al., 2013).

A study by Okifo et al. (2021) on Breast Cancer Treatment and Outcomes at Cape Coast Teaching Hospital revealed that approximately 84% of women had a primary presentation of breast cancer, with metastatic disease

present in 34% of patients. Surgical management mainly involved partial mastectomy (21.7%) and total mastectomy (78.6%), with the most common postoperative complications being surgical site infections (3.8%). The study concluded that women with breast cancer typically present to the Cape Coast Teaching Hospital with advanced-stage disease and experience poor outcomes. Hence the need to investigate their illness perception and quality of life.

Being diagnosed with breast cancer is a very stressful event that has far-reaching consequences for most people who go through it, affecting all aspects of their lives, and the treatment's temporary side effects may have an impact on the patients' health-related quality of life while undergoing treatment. Patients with breast cancer have medical symptoms as well as mental anguish, which have a negative impact on their quality of life (QoL).

Quality of life (QoL) can be defined in many ways, making its measurement and incorporation into scientific study difficult since illness and its treatment affect the psychological, social and economic wellbeing, as well as the biological integrity, of individuals (Fallowfield, 2009).

World Health Organisation defines health as a state of complete physical, mental and social well-being, not merely the absence of disease and infirmity (World Health Organization, 2006). Quality of life concerns have progressively increased in importance in health care practice and study since 1948, when the World Health Organization defined health as not only the absence of sickness and infirmity but also the presence of physical, mental, and social well-being (Anees, Ibrahim, Imtiaz, Batool, Elahi & Malik, 2016). According to WHO, quality of life is an individual's assessment of their place

in life in relation to their objectives, aspirations, standards, and concerns in the context of the culture and value systems in which they live. It is a wide notion influenced by a person's physical health, psychological condition, amount of independence, social ties, personal views, and relationship to key characteristics of their environment in a complicated way (Yao & Wu, 2009).

In accordance with the World Health Organization's definition of health, Ware and Sherbourne (1992), define health-related quality of life as the total circumstances of the quality of life of ill or healthy persons in line with the following eight domains: restrictions in physical activities due to health issues, limitations in social activities due to physical health issues, and limitations in role activities due to physical health issues: physiological discomfort general mental health role constraints due to emotional issues, vitality, and overall health judgments of an individual or a group measured in terms of sentiments of satisfaction and discontent

The propensity of psychology to focus solely on the negative elements of human existence and to foster a pessimistic mind-set was raised as a source of worry in the years following World War II (1939-1945). Accepting the human being as a diseased and ill-being, lacking in psychological equilibrium, according to scholars, is not only absurd, but also harmful (Lee Duckworth, Steen & Seligman, 2005). As a result, psychological capital (PsyCap) has become another essential component in health quality. According to Luthans et al. (2007), PsyCap is defined as: having the confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; making a positive attribution (optimism) about succeeding now and in the future; persevering toward goals and, when necessary, redirecting path to goals (hope)

in order to succeed; and when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success.

In this regard, Seligman and Csikszentmihalyi (2000) hypothesized that focusing on developing positive thinking structures rather than seeking to eradicate negative ideas would be more helpful in resolving every day and professional issues. Amid these criticisms, a new perspective, positive psychology, came to light as a means of focusing on the positive aspects of human life (Pashing & Khosh 2019). The favourable effects of psychological capital on health, well-being, and quality of life have been frequently demonstrated in literature in recent years. Access to a variety of psychological tools is linked to better physical health and overall quality of life (Mirsharifa, Mirzaian & Dousti, 2019). Improved coping can contribute to less physiological and psychological disease symptoms and psychological capital can help people deal with stressors by offering information and psychological support (Baghban-Baghestan, Aerab Sheibani & Javedani Masrur, 2017). Psychological capital could boost health either as a major effect or as a stress-buffering effect, according to researchers. The primary effects hypothesis suggests that, regardless of stress levels, higher psychological health is linked to improved quality of life (Gu, Yang, Zhang & Zhang, 2021). According to the stress-moderating hypothesis, when persons have efficient psychological capital coping strategies, they are effectively protected against the negative repercussions of psychological stress (Gu et al., 2021).

Illness perception is regarded as one of the important modifiable factors positively associated with Health-Related Quality of Life (HRQoL) ($r = .332$, $p < .001$) (Afaya et al., 2022) as it helps in understanding the kind of disease

in question from the patient's perspectives. Illness perception refers to the patient's own implicit beliefs about their illness. In other words, it is the cognitive illness representation of an individual's idea along the five dimensions (identity, cause, timeline, consequences and cure/control of illness) and emotional illness representation (Leventhal et al., 1997). The study by Leventhal, Meyer and Nerenz (1980) has confirmed that the Common Sense Model (CSM) is useful in exploring illness perception and that illness perception in turn influences the Health-Related Quality of Life. Patients might have their own views about breast cancer which influences the way they live their health life and thereby making the illness perception an essential factor influencing Health-Related Quality of Life (Tang, Mayer, Chou & Hsiao, 2016).

Again, the link between psychological capital and HRQoL has been discovered in a number of studies. Psychological capital, for example, was revealed to be a strong and significant predictor of higher HRQoL among patients with serious health conditions by Liu, Wang and Zhao (2015). The link between psychological capital and HRQoL was found to be independent of other characteristics such as education and age. Liu, Wang, Shen, Li and Wang (2015) found a statistically significant beneficial relationship between psychological capital and HRQoL among individuals with moderate mental illnesses. The researchers discovered that the onset of sickness, therapy, and past hospitalisation all had a significant impact on the level of psychological capital, which in turn influenced patients' HRQoL. Age, income, work position, diagnosis, and disease onset all had a substantial impact on psychological capital and HRQoL (Liu et al., 2015). Although empirical

evidence suggests a link between psychological capital and HRQoL, it is crucial to remember that other components such as illness perception regulation might also influence HRQoL.

Statement of the Problem

Breast cancer has attracted a great deal of research and health policy implementation attention because of its complexity as a health problem (Parthasarathy, 2012; Dvaladze et al., 2020). Many studies on breast cancer around the world and in Africa tend to focus on causes, risk factors, and treatment methods. Studies by Kantelhardt and colleagues (2015) and Vanderpuye et al. (2017), for example, looked at the prevalence and disease burden of breast cancer in Africa. The aetiology of breast cancer, characteristics, and burden were all examined by Okunola et al. (2012). Other studies have looked into novel treatment options and ways to prevent the illness from developing (Khosravi-Shahi, Cabezón-Gutiérrez & Custodio-Cabello, 2018; Trimboli et al., 2020), as well as new aspects of the disorder (Parks, Derks, Bastiaannet & Cheung, 2018; Pashayan et al., 2020). Research on the condition's social, emotional, and psychological effects has received far less priority than research on its medical consequences. These psychological and illness perception of breast cancer development have been examined in other areas of the world. However, in the African and Ghanaian settings, empirical evidence is scarce despite the fact that some studies have been undertaken in other parts of the world.

A person's quality of life may be affected by the emotional-response process of psychological capital (Pashing & Khosh, 2019). The patient's perception and attitude toward psychological health are significant in relation

to psychological capital and can have an impact on quality of life (Lupşa, Vîrga, Maricuţoiu & Rusu, 2020). Psychological research has demonstrated that psychological capital can prevent health issues in a person, promote self-confidence, and positively affect the physical, psychological and social status of the individual and definitely improve one's quality of life (Nosrati, Momeni, Mazdeh & Karami, 2018). Therefore, this topic needs to be investigated in depth.

In addition, some studies have shown an association between HRQoL and psychological capital. Even though some research show a poor link between psychological capital and HRQoL (Nosrati, Momeni, Mazdeh & Karami, 2018; Abu et al., 2018), others also show a high link between psychological capital and HRQoL (Gu, Yang, Zhang & Zhang, 2021). It can therefore be noted that there is a lack of consensus among academics as to whether psychological capital has a beneficial or detrimental impact on HRQoL. Patients with a variety of medical conditions, such as diabetes (Mirsharifa et al., 2019), HIV (Ming, Wen-qing & Li, 2015), and prostate (Lehto, Helander, Taari & Aromaa, 2015), have all been studied for the association between psychological and quality of life (Frey, Robinson, Wong & Gott, 2018). Studies on the impact of psychological capital on HRQoL among breast cancer patients in African and Ghanaian contexts are, however, scarce.

Finally, previous research has examined and found significant positive relationship between illness perception and HRQoL among patients with specific medical conditions such as kidney disease, diabetes and drug addiction (Bahrami, Bahrami, Mashhadi & Kareshki, 2015; Brandão, Tavares,

Schulz & Matos, 2016). However, it appears that the relationship between illness perception among patients with breast cancer has not been extensively examined by research and lacks in-depth empirical backing. Furthermore, literature on how illness perception influences the HRQoL of breast cancer patients is limited, especially in the Ghanaian context. It is against these arguments, inconsistencies in literature and the lack of empirical backing that this study seeks to examine how psychological capital and illness perception predict HRQoL in patients with breast cancer.

Purpose of the Study

The overall purpose of this study was to examine how psychological capital and illness perception serve as predictors of health-related quality of life in patients with breast cancer.

Research Questions

The following research questions guided the study.

1. What is the health-related quality of life of breast cancer patients in Cape Coast?
2. What is the level of psychological capital in patients with breast cancer in Cape Coast?
3. What is the illness perception of patients with breast cancer in Cape Coast?

Research Hypotheses

The hypotheses were:

1. ***H_0:*** There is no statistically significant relationship between illness perception and psychological capital in patients with breast cancer.

H_1: There is a statistically significant relationship between illness perception and psychological capital in patients with breast cancer.

2. ***H_0:*** Illness perception will not significantly predict health-related quality of life among patients with breast cancer.

   H_1: Illness perception will significantly predict health-related quality of life among patients with breast cancer.

3. ***H_0:*** Psychological capital is not a significant predictor of health-related quality of life among patients with breast cancer.

   H_1: Psychological capital is a significant predictor of health-related quality of life among patients with breast cancer.

Significance of the Study

The findings of the study have the potential to improve health care and the quality of patients' lives, especially breast cancer patients. The study provides valuable information on the psychological problems that individuals with chronic health conditions such as breast cancer face as literature has already pointed out. This would inform healthcare policymakers (Ministry of Health [MOH]) on the need to incorporate the Biopsychosocial model of diagnosis and treatment in the healthcare delivery system in Ghana as recommended by the World Health Organization. In doing so, the healthcare system would not only focus on the physical or biological health needs of individuals with chronic health conditions but would also find it necessary to educate patience about the disease and to provide psychological help to such individuals.

This study also informs stakeholders such as clinical health psychologists, clinical psychologists, psychiatrists, medical doctors and counsellors in the

healthcare delivery system to find appropriate and effective ways of helping this vulnerable group of individuals deal effectively with the psychological implications of having breast cancer. Findings from this study also add up to the existing and growing body of literature and knowledge that confirms the relationship between physical and psychological health and thus the mind and the body. Also, and in a very particular way, it would increase the knowledge that exists on the psychological problems that women with breast cancer face.

Delimitations

This study focused on psychological capital, illness perception and quality of life of breast cancer patients. Geographically, this study was delimited to the Cape Coast Metropolis in the Central Region of Ghana and more specifically focused on patients seeking breast cancer treatment at the Cape Coast Teaching Hospital. This hospital has a facility that caters for breast cancer patients in the Central Region and beyond.

Limitations

Some participants were not able to respond to the questionnaires themselves because they could not read and understand the English language. It is possible that the actual meaning of the items was lost in the translation.

Again, the study was limited to the convenience sampling.

Definition of Terms

Breast cancer: It is a group of diseases involving abnormal cell growth in the breast with the potential to invade or spread to other parts of the body.

Health-related Quality of life: This is a multi-dimensional concept that includes domains related to physical, mental, emotional and social functioning.

Psychological capital: It is a positive psychological state of development characterized by having confidence (self-efficacy); making a positive attribution (optimism); persevering toward goals (hope) in order to succeed; and when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success.

Illness perception: It means how a person thinks, feels, and/or acts toward an illness, in this case, breast cancer.

Organisation of the Study

The study has five chapters. Chapter One gives a broad overview of the topic under study from different perspectives and justifies why it is important to conduct this study with statistics and research findings. Chapter Two deals with the review of related literature. It presented what authors from various disciplines have written about psychological capital and illness perception among patients with breast cancer. The review covered theoretical, conceptual and empirical aspects. Chapter Three will present the research methodology that will be used for the study. This consists of the research design, population, sample and sampling procedure, data collection instruments, and data collection procedure and data analysis. Chapter Four will present data analysis and discussions of major findings. The findings of the study will be presented using simple frequency distribution tables, among others. Chapter Five which is the final chapter of the study will present a summary of the major findings, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews literature that is related to this study. The review covers:

Theoretical Framework

a. Self-Regulation Model of Illness (Leventhal, Nerenz & Steele, 1984)
b. Health-Related Quality of Life Model (Wilson & Cleary, 1995)
c. Psychological Capital Theory (Luthans, Youssef-Morgan & Avolio, 2015).

Conceptual Review

a. Breast cancer
b. Illness perception
c. Psychological capital
d. Quality of life

Empirical Review

a. Health-related quality of life of breast cancer patients
b. Psychological Capital of patients with breast cancer.
c. Illness perception of patients with breast cancer
d. Relationship between psychological capital and illness perception.
e. Psychological capital and health-related quality of life in patients with breast cancer.
f. Illness perception and health-related quality of life in patients with breast cancer.

Theoretical Framework

Three main theories/models that will guide this study are listed and discussed into details below.

A self-regulation model of illness (Leventhal, Nerenz & Steele, 1984)

According to the self-regulation model, individuals actively develop cognitive and emotional representations of health threats, and these representations are then responsible for guiding and regulating behaviour (Leventhal, Nerenz & Steele, 1984). The model holds that, cognitive and emotional representations can be triggered not only by internal stimuli (such as the feeling of symptoms), but also by cues from the environment (such as risk information or witnessing the illness of a relative). People are able to devise a strategy to deal with the danger they see in the world by using these representations as a guide. The effectiveness of a specific coping technique is evaluated, and the results of this evaluation are fed back into both the representation and the action plan, both of which may be amended as a result. The model consequently assists in understanding how a particular sickness condition is conceived by patients and how this understanding aids patients' ability to adjust to and cope with the condition. In this context, a number of different perceptual components, both cognitive and emotional, have been recognised as constituting a portion of how patients understand their illnesses.

Accordingly, Leventhal's Self-Regulation Model theory proposes a total of five distinct components. The model identifies these components as people's perceptions of sickness, its cause, its length, its consequences, and whether or not it can be cured or controlled (Ogden, 2004).

Identity: This is a reference to both the name that has been given to the condition (the diagnosis) and the symptoms that have been experienced (Ogden, 2004). This identity component assigns a label to an individual and the associated symptoms, both of which play a role in determining how the disease is understood. For example, "I have cancer" can be represented by the statement, "I have abnormal cell growth."

The perceived cause of the illness: This refers to the variables identified by the individual as having contributed to the development of the condition under examination. These causes could be biological, like a virus or a lesion, or psychosocial, such as stress or health-related behaviour (Ogden, 2004). For example, my cancer stems from my family, stress, and spirituality, among other factors.

Timeline: According to Ogden (2004), timeline makes reference to the patient's perceptions regarding the duration of the illness, whether acute (short-term) or chronic (long-term). For example, my cancer will continue forever and my cancer will end shortly. These items reflect the patients' perceptions of the duration of their sickness.

Consequences: This relates to the patient's perceptions about the disease's potential implications on their life. These effects could be bodily (amputation), emotional (depression and anxiety), or a combination of both. For instance, my cancer will prevent me from consuming my favorite foods and from living my normal lifestyle.

Curability and controllability: Patients also describe their conditions in terms of whether or not they believe the illness can be treated and cured, as well as the degree to which they believe the result of their condition is under

their control or under the control of powerful outsiders, such as physicians, God, or healers. For example, if I stick to my food plan, my symptoms will lessen, and if I obtain medical attention from my doctor, I will be healed of my illness. Both of these statements refer to the same thing.

These perceptions of illness are triggered by long-term memory, and they are created based on a comparison between the recent occurrence and the person's previous assessment of similar situations (Yuniarti, Dewi, Ningrum, Widiastuti & Asril, 2013). In order to make sense of the illness condition while one is experiencing it, the illness condition pulls on prior knowledge it has stored regarding the illness. This information, which may or may not be accurate, has a significant impact on the individual in terms of the symptoms associated with the illness, the length of the illness, the causes of the illness, the individual's ability to control or cure the illness, and the impact the illness has on the individual.

There are a number of different measures that have been developed in order to determine how people feel about their illnesses in a variety of ways. The initial test, which was known as The Illness Perception Questionnaire (IPQ), was developed by Moss-Morris, Petrie and Weinman (1996). They intended for it to be a theoretically produced assessment instrument that could be utilized with any patient population. The IPQ is broken up into five subscales, each of which is designed to operationalize a different aspect of self-regulation theory. These five subscales are illness identity, cause perceptions, chronology perceptions, belief in the severity of repercussions, and perceptions of control or cure for the condition (Fortune, Richards, Griffiths & Main, 2002). After making some additional modifications to the

scale, Moss-Morris et al. (2002) gave it the new name of the revised illness perception questionnaire (IPQ-R). This revised version assesses identity, consequences, cause, personal control, treatment control, acute or chronic timeline (length of illness), cyclical timeline (do illness/symptoms recur), illness coherence (degree to which patient understands condition), and emotional representations brought on by illness (e.g. fear).

The Brief Illness Perceptions Questionnaire (BIPQ), which measures the dimensions of identity, consequences, duration, personal control, treatment control, understanding, causes, symptoms, and emotional representations, was developed by Broadbent, Petrie Main and Weinman (2006) for the purpose of obtaining information regarding illness perception. It has been shown that this test is shorter, easier to understand, and has good psychometric properties w

Self-regulation hypothesis is a useful framework for elucidating the clinical manifestations of a wide variety of diseases. For instance, it was shown that the model was useful in describing the psychological pain experienced by allergy sufferers (Knibb & Horton, 2008), as well as the adjustment experienced by breast cancer survivors (Jørgensen, Frederiksen, Boesen, Elsass & Johansen, 2009). Similar to this, Hagger and Orbell (2003, cited in Ogden, 2004) conducted a meta-analysis of 45 empirical investigations utilizing Leventhal's model of illness cognition and came to the conclusion that there was consistent evidence for the various aspects of illness cognition as well as that the various cognitions demonstrated a logical pattern across various types of illness.

Health-Related Quality of Life Model (Wilson & Cleary, 1995)

Wilson and Cleary (1995) developed a model that explains the interrelationships between various patient outcomes by merging medical and social science health concepts. The model examines a person's health-related quality of life (HRQoL) based on a series of interconnected criteria. Components of the model include biological and physiological variables; symptom status; functional status; general health perceptions; individual traits; environmental aspects; nonmedical influences; and overall quality of life (Wilson & Cleary, 1995). Ferrans et al. (2005) followed up on this theory by producing an updated version of the model of HRQoL that Wilson and Cleary (1995) had previously constructed. Though Wilson and Cleary (1995) and Ferrans et al. (2005) share similar thoughts, nevertheless, the model's components and their interactions are slightly different. Components of this new model include biological function, symptoms, functional status, general health perceptions, individual traits, environmental factors, and overall quality of life. Wilson and Cleary's (1995) "biological and physiological variables" have been renamed "biological function" and "nonmedical elements" have been omitted from this model.

According to Ferrans et al. (2005), there was no obligation to incorporate "nonmedical factors" as a separate component because these elements can be attributed to either a person or environmental factors. Therefore, it was unnecessary to include "nonmedical considerations" as a separate category. Because alterations in the biological function directly or indirectly affect all aspects of health, including symptoms, function status, perception of health, and overall quality of life, the name of the model's first component has been

changed to "biological function" (Ferrans et al., 2005). Ferrans et al. (2005) noted that Wilson and Cleary (1995) did not present enough examples of both individual and environmental characteristics.

In contrast, Ferrans et al. (2005) enhanced Wilson and Cleary's (1995) model by adding detailed explanations of the environmental and human constructs and by inserting "nonmedical aspects" into these components. Individual and environmental factors do not contribute to "biological and physiological variables" in Wilson and Cleary's (1995) model, whereas the revised Wilson and Cleary model by Ferrans et al. (2005) and the World Health Organization's International Classification of Functioning (WHO ICF) models clearly demonstrate these associations. This is another fault in the model proposed by Wilson and Cleary (1995). The integrated care model (ICM) of the World Health Organization links personal and environmental factors to bodily functions and structure (WHO, 2002).

The model established by Ferrans et al. (2005) allows for the conclusion that the severity of diseases such as hypertension and diabetes is influenced by both individual and environmental characteristics, as well as offers novel paths to highlight these correlations between the two types of variables. This theory is consequently applicable to the contemporary efforts of medical institutions to improve the health of clients, particularly the elderly. This will result in a longer life expectancy, and if no measures are taken to improve the quality of life, these individuals could live for a very long time with chronic illness. This model should be revaluated because medical research is beginning to profit from the increased life expectancy of humans. Also, the management of

difficult circumstances, which has resulted in an improvement in the human situation, adds to this.

Psychological Capital Theory (PsyCap) (Luthans, Youssef-Morgan & Avolio, 2015)

PsyCap is specifically defined and universally accepted as being "an individual's positive psychological state of development characterised by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future, (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) in order to succeed, and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al., 2007, p. 3). PsyCap represents a new form of capital (often untapped and underdeveloped) that focuses on 'who you are' and, most importantly, 'who you can become' expanding human potential (Luthans et al., 2004; Luthans & Youssef, 2004).

After defining psychological capital, Luthans, Youssef-Morgan and Avolio (2015) conducted a systematic analysis in developing a model on the widely recognized constructs or capacities in positive psychology, the following four were determined to be the best fit: hope, efficacy, resilience, and optimism (Luthans 2002a, Luthans et al. 2004, Luthans & Youssef 2004). They later often summarize these using the acronym HERO (Hope, Efficacy, Resilience, Optimism). Drawing from Fredrickson's (2001, 2009) broaden-and-build notion that positivity can build psychological resources that can be tapped when needed and psychological resource theories (Hobfoll, 2002), they treat and subsequently refer to these four as positive psychological resources,

which have an underlying common thread of meeting the inclusion criteria and are thus part of an interactive, synergistic resource set, rather than being in isolation and completely independent psychological constructs (Luthans et al., 2015).

Hope is defined as "a positive motivational state based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)" (Snyder et al., 1991). On the basis of this definition, hope includes two key dimensions: agency, which is the willpower or determination to pursue goals, and pathways, which is the "waypower" or ability to generate alternative paths to achieve goals when obstacles hinder plans. Hope is rooted in Snyder's extensive theory-building and research and has been applied to numerous life domains (Snyder, 2000).

Efficacy is defined as "the individual's conviction or confidence about his or her abilities to mobilize the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998b, p. 66). Efficacy is rooted in Bandura's (1997) social cognitive theory, and its links to performance have been established in numerous life domains, including the workplace (Stajkovic & Luthans, 1998a). Four approaches are recognized for efficacy development. These are mastery or success experiences; vicarious learning or modelling from relevant others; social persuasion and positive feedback; and physiological and psychological arousal (Bandura, 1997).

Resilience is defined as "the capacity to rebound or bounce back from adversity, conflict, failure or even positive events, progress and increased responsibility" (Luthans, 2002b, p. 702). It represents the deployment of

positive adaptation patterns and processes to overcome adversities or risk factors by capitalizing on personal, social or psychological assets (Masten et al., 2009). Although extensively studied in developmental psychology, resilience research and applications are becoming more popular in organizational psychology. The Comprehensive Soldier and Family Fitness training program, established in 2008 by the United States Army to proactively build resilience in soldiers and their families as a preventative measure and a positive alternative to the prevailing reactive treatment programs, is one of many examples (Seligman & Matthews, 2011).

Optimism is a positive explanatory style that attributes positive events to personal, permanent, and pervasive causes, and interprets negative events in terms of external, temporary, and situation specific factors. In contrast, a pessimistic explanatory style attributes positive events to external, temporary, and situation-specific causes, and negative events to personal, permanent, and pervasive ones (Seligman, 1998). In addition, Carver et al. (2009) describes optimism as a generalized positive outlook that yields global positive expectancies. In other words, optimists are those who expect good things to happen. The latter, positive outlook view is more general, whereas in the former, the explanatory style view is more situation-specific.

The model of psychological capital integrates the four HERO positive psychological resources (Luthans et al., 2004; Luthans & Youssef, 2004; Luthans et al., 2015). When these four resources are combined, they form, and have been empirically supported (Luthans et al., 2007), as a higher-order core construct based on the shared commonalities of the four first-order constructs and their unique characteristics. This is also consistent with Hobfoll's (2002)

notion of "Resource Caravans," that is, psychological resources that may travel together and interact synergistically to produce differentiated manifestations over time and across contexts. In terms of commonalities, hope, efficacy, resilience and optimism share a sense of control, intentionality, and agentic goal pursuit. They also share the common theme of "positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans et al., 2007, p. 550).

In recent years, increasing relative emphasis is being given to human well-being over performance. Specifically, research pertinent to chronic disease and breast cancer in general has been conducted. There is growing cross-cultural empirical evidence of PsyCap reducing stress, anxiety, depression, substance abuse, Post Traumatic Stress Disorder (PTSD), domestic abuse/violence and stigma, while increasing well-being, health and relationship, constructive conflict, and overall life satisfaction (Krasikova et al., 2015; Luthans et al., 2013; Luthans & Youssef-Morgan, 2017).

Conceptual Review

Breast Cancer

Cancer is a heterogeneous group of diseases involving anomalous cell development with the possibility to attack or spread to different parts of the body (WHO, 2018). Cancer that starts in the breast is referred to as breast cancer. It is possible for it to begin in either breast. Cancer develops when cells start to divide and multiply in an uncontrolled manner (Sharma et al., 2010). Although breast cancer is almost always found in women, men are not immune to the possibility of developing the disease. Cancer of the breast

develops when breast cells reproduce and divide in an uncontrolled manner, resulting in the formation of a mass of tissue known as a tumor. Sharma et al. (2010) say that you might have breast cancer if you feel a lump in your breast, notice a change in the size of your breast, or notice skin changes on your breast. Breast cancer is the most common type of malignancy that affects women and can be found in various parts of the world. It is responsible for 18.4% of all cases of cancer in females around the globe (American Cancer Society, 2011). There is a lack of consensus regarding how race relates to the risk of developing breast cancer. In the United States, the incidence of breast cancer is higher among black women between the ages of 20 and 40 than it is among white women in the same age range. This disparity narrows as people get older, and a higher incidence rate is found in white women aged 40 and older. On the other hand, African American women have a significantly increased chance of passing away as a result of this condition (American Cancer Society, 2011).

According to estimates provided by the American Cancer Society, approximately 192,370 new cases of invasive breast cancer and approximately 62,280 new cases of carcinoma-in-situ (CIS) would be detected in females living in the United States in the year 2009. (CIS is the earliest form of cancer and is non-invasive). Furthermore, it is anticipated that around 40,170 females will lose their lives to breast cancer in this same year (American Cancer Society 2011). Additionally, the United Kingdom predicted 38,048 new cases of breast cancer in 2009, along with 10,000 fatalities. The Office of National Statistics published its findings in 2010. It is estimated that one in sixty Japanese women will develop breast cancer over their lifetime, making Japan

one of the developed countries with the lowest breast cancer incidence rate. Although it is approximately 30% lower than in the United Kingdom, the breast cancer mortality rate in Japan is rapidly increasing (Badoe & Baako, 2008).

Stages of breast cancer

The stages of breast cancer are based on the size of the tumour, whether or not the tumour has spread to the lymph nodes in the armpits, and whether the tumour has metastasized (that is, spread to a more distant part of the body). Larger size, nodal spread, and metastasis have a larger stage number and a worse prognosis. The main stages are:

a. **Stage 0:** a lump and pre-cancerous or marker condition, which has not spread into the lymph nodes of the breast.
b. **Stages 1-3:** this is when the cancer is within the breast or regional lymph nodes.
c. **Stage 4**: metastatic cancer that has a less favourable prognosis since it has spread beyond the breast and regional lymph nodes.

Signs and symptoms of breast cancer

The emergence of breast cancer, like the emergence of other malignancies, is caused by the interaction of a genetically vulnerable host and a factor in the environment (an external factor). The division of normal cells stops when it has occurred over the required number of times. They do this by affiliating with other cells in the tissue, which allows them to remain in place. Cancer can happen when cells stop being able to stop making copies of themselves, stick to other cells, stay where they belong, and die when they should (American Cancer Society, 2011). The presence of a lump in the breast

that is distinct in texture from the rest of the breast tissue is frequently the first noticeable sign of breast cancer. More than 80% of women with breast cancer are diagnosed when they feel a lump in their breast (American Cancer Society, 2011). The presence of lumps in the lymph nodes that are normally located in the armpits is another indicator of breast cancer. A lump is not the only indicator that a woman may have breast cancer; other signs include thickening of the breast tissue that is distinguishable from that of the other breast, one breast becoming larger or lower, and a nipple changing position or shape, as well as swelling underneath the armpit or around the collarbone (American Cancer Society, 2011).

Paget's disease of the breast is yet another specific indicator that one might have breast cancer. Nipple skin may become irritated, discoloured, or chipped, among other symptoms, as a result of this condition, which manifests as changes in the skin's appearance (National Cancer Institute, 2005). In advanced stages of Paget's disease of the breast, symptoms may include tingling, heightened sensitivity, and burning in the area surrounding the nipple. Also, about half of the women who have been told they have Paget's disease of the breast have a lump in their breast (National Cancer Institute, 2005).

Sometimes also, breast cancer will manifest itself as a form of metastatic disease (cancer that has spread beyond the original organ). The symptoms brought on by metastatic breast cancer are going to vary depending on where the cancer has spread to. The bone, liver, lungs, and brain are all common locations for the spread of cancer (Prentice et al., 2006). A drop in body temperature that cannot be explained may also be an indicator of breast

cancer, as may an unexplained loss of weight. Pain in the bones or joints, jaundice, or neurological symptoms are all possible signs of breast cancer that has spread to other parts of the body (Prentice et al., 2006). These symptoms are said to be non-specific, which means that they could be manifestations of a wide variety of different diseases (National Cancer Institute, 2004).

Risk factors of breast cancer

Modifiable risk factors and fixed risk factors are the two categories used to categorize cancer risk factors. Alcohol intake is an example of a risk factor that can be adjusted, but biological sex and old age are examples of fixed risk variables that cannot be changed (Hayes, Richardson & Frampton, 2013). Age and gender are the main risk factors for breast cancer (Reeder & Vogel, 2008). Genetics, infertility or failure to breastfeed, greater levels of some hormones, specific food habits, and obesity are examples of potential risk factors (Yager & Davidson, 2006; Breast Cancer Care, 2018). According to a recent study by Haim & Portnov (2013), being exposed to light pollution increases the risk of developing breast cancer. The following were also mentioned in other research as breast cancer risk factors:

a. **Genetics:** It is possible that heredity and genetic predisposition have only a tiny impact in the majority of breast instances (Pasche, 2010). On the whole, however, it is considered that genetics is the primary cause of anywhere between 5 and 10% of all instances (Gage, Wattendorf & Henry, 2012). Women whose mothers were diagnosed with the illness prior to the age of 50 have a higher risk of having the ailment themselves compared to women whose mothers were either

never diagnosed with the condition or were diagnosed after the age of 50 (Colditz, Kaphingst, Hankinson & Rosner, 2012).

b. **Medical conditions:** Breast changes like atypical ductal hyperplasia found in benign breast conditions are correlated with an increased breast cancer risk (Afonso & Bouwman, 2008). Diabetes mellitus might also increase the risk of breast cancer (Anothaisintawee et al., 2013). Autoimmune diseases such as lupus erythematous seem also to increase the risk for the acquisition of breast cancer (Böhm, 2011).

Treating and Managing breast cancer

The management of breast cancer depends on various factors, including the stage of the cancer and the person's age (Carlson et al., 2009). Treatments are more aggressive when the prognosis is worse or there is a higher risk of recurrence of the cancer following treatment. Treatment procedures include:

a. **Surgery:** Surgery is typically used to treat breast cancer. During surgery, the tumor is physically removed, usually along with some of the surrounding tissue (Carlson et al., 2009). During the procedure, one or more lymph nodes may be biopsied; increasingly, a sentinel lymph node biopsy is used to sample the lymph nodes. A lumpectomy, quadrantectomy, and mastectomy are common procedures. A mastectomy involves removing both breasts (removal of a small part of the breast). If the patient so chooses, breast reconstruction surgery (plastic surgery) can be done after the tumor has been removed to enhance the cosmetic look of the treated site.

b. **Medication:** Adjuvant therapy refers to medications used both after and in addition to surgery (Holmes, Chen, Li, Hertzmark, Spiegelman

& Hankinson, 2010). Hormone blocking drugs, chemotherapy, and monoclonal antibodies are the three primary categories of pharmaceuticals now utilized for adjuvant breast cancer treatment. When oestrogen is necessary for the cancer to continue developing, hormone-blocking therapy is used (Petit, Dufour & Tannock 2011). Drugs that either block the receptors or the generation of oestrogen can be used to treat certain tumours. Most cases of breast cancer in stages 2 to 4 are treated with chemotherapy, which is especially effective for oestrogen receptor-negative cases (Carlson et al., 2009). Combinations of the chemotherapeutic drugs are given, often for intervals of three to six months. Use of monoclonal antibodies, which selectively bind to antigens specific to cancer cells and trigger an immune response against the target cancer cell, is a different method of treating breast cancer (Jahanzeb, 2008). The drugs also harm rapidly proliferating normal cells, which could have negative side effects.

c. **Radiation:** After surgery, radiotherapy is done to the area of the tumour bed and any regional lymph nodes in order to eliminate any tiny tumour cells that may have evaded removal during the surgical procedure. It is also possible that it will have a favourable influence on the microenvironment of tumours (Forster et al., 2019). External beam radiotherapy and brachytherapy are both types of radiation therapy that can be administered (internal radiotherapy). When breast cancer is treated by removing only the lump, radiation is regarded essential because it has the potential to reduce the chance of recurrence by

between 50 and 66% when it is administered in the optimum dose (Forster et al., 2019).

Preventing breast cancer

Breast cancer can be prevented by various means. However, the most common ways are:

a. **Lifestyle:** Women can reduce their risk of breast cancer by maintaining a healthy weight, reducing alcohol use, increasing physical activity, and breast-feeding (American Cancer Society, 2011). These modifications might prevent 38% of breast cancers. High levels of physical activity reduce the risk of breast cancer by about 14% (Eliassen, Hankinson, Rosner, Holmes & Willett, 2010). Regular physical activity reduces obesity could also have other benefits, such as reduced risks of cardiovascular disease (Hayes et al., 2013). High intake of citrus fruit has been associated with a 10% reduction in the risk of breast cancer (Song & Bae, 2013).

b. **Pre-emptive surgery:** A risk-reducing mastectomy refers to the surgical removal of both breasts performed prior to the diagnosis of cancer or the appearance of any suspicious lumps or other lesions in the breasts (Carbine, Lostumbo, Wallace & Ko, 2018). People who have been examined and shown to have a genetic mutation on the tumor suppressor BReast CAncer gene (gene BRCA), which is associated with a significantly increased risk for an eventual diagnosis of breast cancer, are candidates for this treatment option (Meijers-Heijboeret et al., 2001).

Tamoxifen and other drugs like it have the potential to lower the risk of breast cancer while simultaneously raising the chance of endometrial cancer. They are therefore not indicated for the prevention of breast cancer in women who have a risk that is comparable to the average, but they may be administered to women who have a risk that is significantly higher (Moyer, 2013).

Quality of life

Abdel-Khalek (2010) defines the quality of life as a person's subjective well-being in relation to how content or fulfilled they are with their life in general. Over the course of the past three decades, the scientific community's interest in the concept of "subjective well-being" has expanded significantly. Subjective well-being involves both happy and negative emotions, as well as global assessments of life satisfaction and contentment with particular parts of life (Veenhoven, 2012). Different authors could define a very different number of life domains, depending on how general they wanted to be. The categories have been broadly classified as follows: health and functioning; psychological and spiritual wellness; family; social and economic wellbeing; and environmental wellbeing (Makai et al., 2014). This concept is consistent with the dominant ideas in the published literature about the domains of quality of life; however, the precise phrasing varies slightly from author to author

Overall Quality of life

Through the years, numerous theories and conceptual models have been proposed to describe the components of subjective well-being. Campbell, Converse, and Rodgers published in 1976 one of the earliest and most influential publications identifying the elements that impact an individual's life

satisfaction. They examined the relationship between an individual's characteristics and their environment, as well as the satisfaction one obtains from life. According to their hypothesis, a person's level of happiness depends on how they evaluate many parts of their lives. This evaluation depends not only on the individual's perception of the relevant characteristics but also on the internal criteria employed to evaluate such perceptions. The area of internal standards includes personal values, degrees of expectation and desire, personal needs, and comparisons to those of others. An individual's perspective can be affected by factors such as demographic characteristics, overall optimism or pessimism, and other personality traits. Other personality characteristics may also be influential. In accordance with Campbell et al. (1976), Wilson and Cleary (1995) emphasised the impact of patients' values and preferences on their quality of life as a whole.

A disability that deems one person's life unworthy of living may be considered by another as little more than an irritation, due to the fact that different individuals place different values on various things. Therefore, the significance of values should be a factor in determining a person's level of life satisfaction. One technique to measure a person's degree of life satisfaction is to ask them either a single question about their overall life satisfaction or a series of questions about their level of life satisfaction with various aspects of their lives. If the responses to a series of questions are simply put together, each aspect of life will be accorded equal weight. Nonetheless, some of these instruments feature a weighting system that accounts for the differing levels of life that individuals assign to various areas of their lives. This would highlight differences in the values of the respondents. Two examples of such

measurements are the Quality of Life Inventory and the Quality of Life Index (Paneesha et al., 2010).

Putting a price on the contributions made by many aspects of life has numerous additional benefits. Concern has been expressed regarding the phenomenon known as "response shift," which refers to the changing of an individual's internal standards and values in reaction to significant life events. The cognitive, affective, and behavioural processes engaged in modifying one's lifestyle in response to illness may produce these changes (Ochsner, Silvers & Buhle, 2012). Changes in instrument scores may occasionally indicate a shift in internal standards as opposed to a change in the quality that is of concern.

Health-related Quality of life

Permanently ill patients may have a significant decline in quality of life (de Gusmao, Mion & Pierin, 2009). Numerous fields of study have focused on the quality of life linked with chronic illnesses. Others focus on two or more chronic conditions (Lindsay, Inverarity & McDowell, 2011). The concept of "quality of life" is vast and multifaceted, and it often comprises subjective assessments of both the positive and negative aspects of one's life (von Steinbüchel, Lischetzke, Gurny & Eid, 2006). In the realm of healthcare, HRQoL refers to an evaluation of how an illness, disability or disorder may affect an individual's health throughout their lifespan (Ferrans et al., 2005).

Within the context of the quality-of-life domains, the term "health-related quality of life" refers to an approach that places a premium on the holistic nature of the care offered to patients (Azevedo et al., 2013). It is normal practice to evaluate the efficacy and cost-effectiveness of new treatment

strategies and scientific advances in medicine on the basis of patients' health as it pertains to their quality of life (Azevedo et al., 2013). According to Lee, Song, Noh, Choi and Jos (2012), as socioeconomic conditions and the quality of medical care improve, patients around the world are becoming increasingly concerned about the influence that disease has on their day-to-day lives and their relationships within their communities. It is especially important for chronic diseases such as cancer whose effects are evaluated not only in terms of mortality but also in terms of their social impact and their ability to impair individuals. Unfortunately, doctors have a tendency to be overly concerned with disease and treatment, and as a result, they neglect patients' views of their illness and their tolerance for pain (Graczyk, Borkowska & Krajnik, 2018).

In all facets of healthcare intervention, the patient-centred approach that emphasizes health-related quality of life (HRQoL) is gaining popularity worldwide. HRQoL refers to the physical, psychological and social components of a person's health that are influenced by the individual's prior behaviours, beliefs, expectations, and perceptions (Barcaccia et al., 2013). The objective of HRQL measurement is to arrive at an objective numeric score that correlates to a person's self-perceived state of physical and mental well-being using questionnaires that are adequately prepared. Physical function, emotional status, pain level, the ability to interact with people, and an overall perception of health should all be considered when assessing HRQL (Barcaccia et al., 2013).

According to Barcaccia et al. (2013), patients are the best judges when it comes to estimating their own HRQL. In certain situations, it may be necessary to consider the perspectives of close family members, such as a

spouse or parents. Clinicians, healthcare policymakers, drug regulatory agencies and pharmaceutical companies all over the world recognize the growing significance of HRQoL estimation in selecting the optimal treatment option for patients, formulating policies, approving new drugs and determining pharmaceutical marketing strategies. To acquire a better understanding of how a person's illness affects their daily life, physicians are increasingly utilizing HRQoL to measure the effects of chronic illness on their patients (Barcaccia et al., 2013). An individual's HRQoL is influenced by his or her expectations, beliefs, perceptions and experiences. Patient adherence, satisfaction, compliance, and health-related quality of life are predicted by a physician-patient working alliance characterized by agreed communication on treatment goals and tasks, together with the patient's trust in and liking of his or her doctor (Bennett et al., 2011).

Medication adherence and health-related quality of life (HRQoL) are two distinct end measures but it is considered that medication adherence improves HRQoL. This was emphasized by Alhaddad, Hamoui, Hammoudd and Mallat (2016). Breast cancer is a chronic illness that requires treatment for the remainder of one's life. Therefore, the illness perception and the effect of the drug regimen on the patient's health influences whether or not the treatment is successful (Bonomi, Patrick, Bushnell & Martin, 2000). According to research conducted by Holt, Muntner, Cara, Webber and Krousel-Wood (2010), having a negative illness perception may be a substantial barrier to achieving high HRQoL. The early identification of patients with poor adherence to medicine and lifestyle modification and the implementation of motivational education programs to improve adherence are critical duties for all health practitioners to

conduct in order to improve patients' health outcomes, such as HRQL (Pedersen, Martens, Denollet & Appels, 2007). Following the suggested guidelines for nutritional intake may be associated with improved physical HRQoL in the future, whereas following the recommended guidelines for physical activity may be associated with improved physical HRQoL in the present and may change a negative illness perception of a patients.

In conclusion, having psychological capital and adhering to doctors' advice has the potential to enhance patient comprehension, affect their quality of life, and, in the long run, influence their perception of their illness (Germain et al., 2013).

Illness perception

Wilson and Cleary (1995) pointed out two features that define general health perceptions: (a) they incorporate all of the components that occurred earlier in the model, and (b) they are subjective in nature. These are the distinguishing qualities of general health perceptions. In this phase of the evaluation, a synthesis of all the many facets of health that make up the whole is performed. According to a review of 39 studies that were conducted on the general population, the greatest and most consistent predictors of general health perceptions include physiological processes, symptoms and functional capacity (Brown & Reuber, 2016).

The overall health impressions are not the same as the other components of the model, despite the fact that they are influenced by the previous components of the model. When attempting to evaluate general health views, it is inappropriate to include measurements of other components such as functioning or symptoms. Instead, this aspect is measured using a single

global question that asks participants to rate how well their health is on a Likert scale that ranges from very poor to very good. Ratings of how one feels about their overall health can be utilized both as single-item measures and as items in a battery, such as in the SF-36 Health Survey (Ware & Sherbourne, 1992). When assessing their overall health, people frequently think about a number of different facets of their health as well as the significance each carries with it implicitly. In addition, the evaluation of men's and women's health in general revealed substantial gender differences (Benyamini, Leventhal & Leventhal, 2000).

Illness perception of women with breast cancer

Cancer affects numerous areas of life. Women diagnosed with breast cancer experience increased anxiety and are more susceptible to depressive disorders (Park et al., 2018). Long-term and burdensome treatment is associated with numerous adverse side effects, impairing daily functioning, changing the patient's perception of their body, and altering their social roles (Finnegan-John & Thomas, 2013). Cancer diagnosis has an impact not only on the patient, but also on their family and friends, even after treatment has been completed (Finnegan-John & Thomas, 2013).

Women's health ratings included both life-threatening and nonlife-threatening ailments, but men's health ratings only covered life-threatening conditions (such as heart disease) and nonlife-threatening ailments (such as arthritis). In addition, the researchers discovered that there were gender disparities in the impact that negative emotions had on overall health assessments. Emotion was predominantly associated with serious disease in men, but for women it was associated with a wider variety of life

circumstances. In the same manner, the inability to adjust to life with chronic diseases, as well as the feelings of powerlessness and pessimism owing to a perceived loss of control, interfere with appropriate treatment and self-care and contribute to a poor quality of life among people who have chronic illness (Antipolis, 2014).

The relationship between illness perception and quality of life of these patients with chronic illness may be influenced by specific characteristics such as treatment compliance, psychological capital, gender and socio-economic position of patients with chronic illness (Khongsdir et al., 2015). Despite this reality, few studies have looked at the psychological benefits of being a patient with a chronic illness. In conclusion, the way people perceive illness have some kind of relationship with the quality of life they enjoy and it is healthy or otherwise depending on the perception.

Psychological Capital

There are theoretical discrepancies with respect to how result value, goal-related thinking, perceived capacities for agency-related thinking and perceived capacities for pathway-related thinking are dealt with (Buchanan, 2013). Additional empirical and statistical evidence lends support to the proposition that each of the four talents makes a distinct contribution to the explanation of human behaviour (Breidbach & Maglio, 2016). While this was on going, the researchers also took into consideration the possibility that positive psychological states may have an even greater capacity for prediction when acting as a higher-order core factor (Maglio, 2016). This factor is referred to as Psychological Capital, or simply PsyCap, and its definition is as

follows: "an individual's positive psychological state of development that is characterized by: (1) having the confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed" (Dello Russo & Stoykova, 2015).

As a means of investing in people for the purpose of gaining a competitive advantage, Dello Russo and Stoykova, (2015) gave the concept of "psychological capital" its first appearance in the academic literature. There have been a number of conceptual papers and books published in an effort to further describe PsyCap and its component pieces (Youssef & Luthans, 2010; Dello Russo & Stoykova, 2015).

Psychological Capital was measured using a questionnaire that was produced by Luthans and his colleagues (Luthans et al., 2007). The questionnaire consisted of 24 questions. They then proceeded to investigate the test's criterion, convergent, and discriminant validity, in addition to its test-retest reliability. Researchers are able to examine PsyCap as a whole as well as study the four subscales that correspond with the four underlying positive psychological capacities, thanks to the 24-item measure. Researchers designed and used a 12-item abbreviated version of the PsyCap questionnaire, which they shortened using a rigorous analytic technique (Dello Russo, & Stoykova, 2015). In the short years that have passed since the initial conceptualization and creation of reliable measures of PsyCap, a remarkable quantity of empirical research has been carried out. In addition, a number of studies have been conducted with the purpose of testing the premise that PsyCap will have

a larger association with workplace outcomes than any of its four component parts.

Psychological Capital has been linked to a number of outcomes in the workplace, including performance and satisfaction (Badran & Youssef-Morgan, 2015), job satisfaction and organizational commitment (Pouramini & Fayyazi, 2015), decreases in stress and turnover reduced absenteeism, and performance and organizational citizenship behaviours (Badran & Youssef-Morgan, 2015). Studies have been carried out in a wide variety of settings, and there is some preliminary data to suggest that PsyCap is related to perceived trust in a downsizing scenario (Norman et al., in press), in addition to linkages to job performance with Chinese factory workers (Du Plessis & Boshoff, 2018). Psychological Capital researchers have begun to explore more advanced difficulties, including chronically ill patients, suggesting that patients who have Psychological Capital adhere to treatment regimen (Badran & Youssef-Morgan, 2015). In other studies, PsyCap is seen as a mediator in the supporting patient atmosphere in dealing with their illness perception and in their adherence to treatment regimen (Luthans et al., 2018), as well as the correlations between PsyCap and quality of life with patient attitude and behaviours (Gupta, Shaheen & Das, 2019).

Empirical review

Health-related quality of life of breast cancer patients

Quality of life in patients with breast cancer is an important outcome. Montazeri (2008) undertook a bibliographic review of the literature covering all full publications that appeared in English language biomedical journals between 1974 and 2007. The search strategy included a combination of

keywords, 'quality of life' and 'breast cancer' or 'breast carcinoma' in titles. A total of 971 citations were identified and after exclusion of duplicates, the abstracts of 606 citations were reviewed. Of these, meetings, abstracts, editorials, brief commentaries, letters, errata and dissertation abstracts and papers that appeared online and were indexed ahead of publication were also excluded. The major findings were summarized and presented under several headings: instruments used validation studies, measurement issues, surgical treatment, systemic therapies, and quality of life as predictor of survival, psychological distress, supportive care, symptoms and sexual functioning. Several valid instruments were used to measure quality of life in breast cancer patients.

The European Organization for Research and Treatment of Cancer Core Cancer Quality of Life Questionnaire (EORTCQLQ-C30) and its breast cancer specific complementary measure (EORTC QLQ-BR23) and the Functional Assessment Chronic Illness Therapy General questionnaire (FACIT-G) and its breast cancer module (FACIT-B) were found to be the most common and well-developed instruments to measure quality of life in breast cancer patients. Psychological distress-anxiety and depression were found to be common among breast cancer patient's even years after the disease diagnosis and treatment.

Mokhatri-Hesari and Montazeri (2020) did a review on the topic of Health-related quality of life in breast cancer patients. This overview of the literature aimed to update the current knowledge on quality of life in breast cancer patients. The review of literature was in medicine, Cochrane Database of Systematic Reviews and Google Scholar were carried out to identify review

papers on health-related quality of life in breast cancer during the period from 2008 to 2018. All publications were screened using the PRISMA guideline. The methodological quality of reviews was assessed using the AMSTAR. The findings were summarized and tabulated accordingly. Within a decade, a total of 974 review papers were identified which according to the study selection criteria finally we have evaluated 82 reviews. Of these, about 85% had a reasonable methodological quality.

The findings were mainly summarized on several headings, including instruments used to measure quality of life, treatment, supportive care, psychological distress, and symptoms. Questionnaires had a good performance to quantify quality of life in breast cancer patients. In conclusion, the overall findings from this overview indicated that quality of life in breast cancer patients enhanced during the last decade. Several simple but effective interventions such as physical activity and psychosocial interventions proved to be effective in improving quality of life in this population.

Ngan et al. (2022) also compared the health-related quality of life (HRQoL) of breast cancer (BC) patients, survivors and age-matched women from the general population in Vietnam to address the paucity of HRQoL research and contribute to the robust assessment of BC screening and care in Vietnam. The standardised EQ-5D-5L instrument was incorporated in an online survey and a hospital-based face-to-face survey, and together with data from the Vietnam EQ-5D-5L norms study. $\chi 2$ tests assessed EQ-5D health profile associations and a Tobit regression model investigated the association between overall health status (EQ-VAS/utility scores) and sociodemographic and clinical characteristics. A total of 309 participants (107 patients

undergoing treatment and 202 survivors who had completed treatment) provided usable responses.

The results revealed that, breast cancer patients experience low quality of life. The dimensions that affected mostly the HRQoL of women with BC were pain/discomfort and anxiety/depression. Also, some few patients and survivors differed significantly regarding HRQoL dimensions of mobility, self-care, usual activities, and anxiety/depression. The results point to unmet needs in mental health support and well-being and for attention to be given to the development of a biopsychosocial system of cancer diagnosis, treatment, and care.

Again, Chen et al. (2022) purposed to undertake a meta-analysis and systematic review to evaluate the health-related quality of life (HRQoL) of Asian breast cancer (BC) patients to understand their holistic HRQoL level and provide medical and nursing recommendations to improve and preserve their quality of life. A comprehensive literature search was conducted to find cross-sectional studies published in Chinese and English concerning HRQoL in BC patients from the inception of databases to 14 March 2022. The databases consulted were PubMed, Web of Science, Embase, Cochrane, PsycINFO, CINAHL, and CNKI. Literature screening, data extraction, risk bias assessment, and data synthesis were independently carried out by two researchers. The Endnote X9 and Stata 15.0 software programs were used during the meta-analysis process. Out of the 8,563 studies identified, 23 cross-sectional studies involving 3,839 Asian BC patients were included in this meta-analysis. Two tools, namely, the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire C30 (EORTC QLQ-

C30) and Quality of Life Questionnaire Breast Cancer module 23 (EORTC QLQ-BR23) were used to evaluate the HRQoL of BC patients in Asia. The pooled mean of the global health status of Asian BC patients was 58.34.

According to functional subscales of EORTC QLQ-C30 and EORTC QLQ-BR23, Asian BC patients suffered from the worst emotional functioning (pooled mean=66.38) and sexual enjoyment (pooled mean=49.31). In addition, fatigue (pooled mean=42.17) and being upset by hair loss (pooled mean=48.38) were the most obvious symptoms that Asian BC patients experienced according to the meta-analysis results of the EORTC QLQ-C30 and EORTC QLQ-BR23 symptom subscales. It was then concluded that, Asian BC patients experience a relatively low HRQoL due to the prominent decline in their body functions, as well as the unpleasant experiences caused by their symptoms. It is suggested that timely, appropriate, and targeted intervention should be provided in relation to the physical, psychological, and social aspects of Asian BC patients' lives to enhance their ability to function, relieve them of adverse symptoms, and improve their overall HRQoL.

Moreover, Finck, Barradas, Zenger and Hinz (2018) aimed to examine the quality of life (QoL) in breast cancer patients from Colombia and to explore the relationship between QoL, habitual optimism, and social support. A sample of 95 breast cancer patients treated in a hospital in Bogotá were administered the QoL instrument EORTC QLQ-C30 and the Life Orientation Test LOT-R. Additionally, they were asked to indicate from whom (physicians, friends, nurses, ec.) they wished and received social support. Reference data for the EORTC QLQ-C30 and the LOT-R were taken from a representative sample of the general Colombian population. In the results

section, breast cancer patients showed detriments to their QoL on most functioning scales and symptom scales of the EORTC QLQ-C30, while their general assessments of health and QoL were not worse than those of the controls. Optimism was positively correlated with QoL. Most patients wanted and received social support from their physicians and friends/family. The results suggest that optimism helps patients better cope with the disease.

Psychological Capital of patients with breast cancer

Cancer causes psychological problems, such as anxiety, depression, post-traumatic stress, feelings of sadness and anger, and family problems. Alizadeh, Mirzaian and Abbasi (2021), aimed to evaluate the effect of schema therapy on psychological capital and vulnerable attachment in women with breast cancer. The research method was quasi-experimental with a pretest-posttest design and a control group. The statistical population included all women with breast cancer admitted to the Imam Khomeini Hospital, Tehran, Iran, from 23/07/2019 to 20/11/2019. The total number of patients was 51, of whom 30 were purposefully selected and randomly assigned to an experimental and a control group (15 people in each group). The experimental group was exposed to schema therapy for 11 weekly 90-minute sessions, while the control group did not receive any training. The Luthans Psychological Capital Questionnaire and the Vulnerable Attachment Questionnaire were used to collect data. The collected data were analysed using multivariate analysis of covariance in SPSS-21 software.

The results of paired t-test showed a significant difference between the mean scores of the components of psychological capital and vulnerable attachment in the two experimental and control groups. Therefore, it can be

stated that the effectiveness of schema therapy was associated with increased self-efficacy (P = 0.013), hope (P = 0.001), resilience (P = 0.034), optimism (P = 0.001), and decreased vulnerable attachment (P = 0.029). Based on the findings of this study regarding the effect of schema therapy on improving psychological capital and reducing vulnerable attachment, it can be concluded that breast cancer patients do not have enough psychological capital. However, schema therapy can be used as an effective intervention along with other therapies to reduce the problems of women with breast cancer.

The growing trend of cancer incidence in the past few decades and its effects on physical, psychological, spiritual and social dimensions both in patients and their families make cancer one of the major health hazards of the century. Of all cancers, breast cancer (BC) is the most prevalent among females. Akbari and Akbari, (2018) also aimed at comparing three components of BC between females with breast cancer and healthy ones: coping styles, psychological capital, and patience. In total, one hundred females with BC and one hundred healthy ones were selected from the available sample based on the inclusion and exclusion criteria. The data were compared in accordance with coping styles, psychological capital, and patience by multivariable analysis and independent t-test.

The results revealed that there were significant differences between females with BC and healthy ones in emotion-based coping strategy ($F_{(1198)}$ =5.20, P < 0.05), self-efficacy subscale ($F_{(1193)}$ = 5.58, P < 0.01), hopefulness ($F_{(1193)}$ = 4.50, P < 0.05), and patience (t = 1.99, df = 198, P < 0.05). Subjects with BC, compared to the healthy ones, use the emotion-based coping strategy more often and are more patient. Healthy females had a

greater share of self-efficacy and hopefulness. It was then concluded that, an appropriate coping style, taking advantage of patience as a religious coping style, and a high degree of psychological capital can aid patients make better recoveries. These components have major roles in cancer control.

Again, Zhang, Kwekkeboom and Petrini (2015), aimed to describe the levels of uncertainty, self-efficacy, and self-care behaviour in Chinese women receiving chemotherapy for breast cancer and to determine the level of self-efficacy, self-care behaviour and self-care behaviour among breast cancer patients. A cross-sectional descriptive correlational design was used. Ninety-seven participants completed the Generalized Self-efficacy Scale, the Mishel Uncertainty in Illness Scale, and the Appraisal of Self-care Agency Scale-Revised. Descriptive statistics were used to analyse the levels of uncertainty, self-efficacy, and self-care behaviours in the sample. Mean and standard deviation was used to test the level of self-efficacy, self-care behaviour and self-care behaviour among breast cancer patients. Mean ratings of uncertainty (76.70), self-efficacy (27.15), and self-care behaviour (53.96) all fell in the moderate range. This means that psychological capital (self-efficacy, self-care behaviour and self-care behaviour) among breast cancer patients was on a normal level.

Seegers (2018) looked at the various forms of psychological capital used by women during and after radiation therapy for early-stage breast cancer. Interviews with 23 women 7 months post-radiation therapy for breast cancer were analysed for descriptions of self-care. The interviews were part of the final data collection in a longitudinal study investigating experiences post-treatment. Psychological capital reported most frequently were establishing a

good support network, living life to the fullest despite illness, regulating feelings, managing stress, and taking responsibility for one's own health.

Results suggest that breast cancer patients have many needs that continue to require attention post-radiation therapy, making psychological capital an important consideration throughout recovery. Psychological capital may make a significant difference to women after treatment for breast cancer. Healthcare providers can promote psychological capital by encouraging patients to conserve energy, to engage in relationships and to maintain a positive outlook and by suggesting activities that help patients cope, adapt and manage symptoms during and after treatment.

Illness perception of patients with breast cancer

Baselga et al. (2012) suggested that, the high rates of breast cancer seen in Western countries may be related to certain features of the typical western diet since most of the established risk factor for breast cancer are hormonal. Nutrition may affect breast cancer risk through changes in 37 hormone metabolisms. For example, obesity is known to increase breast cancer risk. Although dietary fat itself has not been clearly shown to alter circulating hormone levels or increase breast cancer risk, data on dietary phytoestrogen level of growth factors such as insulin-like growth factor.

Also, Lee et al., (2019) studied the topic of Illness perception and sense of well-being in breast cancer patients. Their study explored breast cancer patients' illness perception, its relationship to a perceived sense of well-being, and the role of perceived social support. Women with diagnosed breast cancer were recruited from the two university hospitals in South Korea between January and April 2018. The questionnaires included the Illness Perception

Questionnaire-Revised (IPQ-R) and the Functional Assessment of Cancer Therapy for Breast cancer (FACT-B). A total of 321 participants' data was analysed using descriptive analyses, multiple regression, and structural equation modelling. Negative illness perception was greater in participants currently receiving chemotherapy ($p=0.044$) or had received chemotherapy in the past ($p=0.006$). Positive illness perception was lower in older participants ($p=0.001$) or those who had received chemotherapy ($p=0.018$). Negative illness perception had a direct effect on a low sense of well-being ($p<0.001$). It was then concluded that, a significant relationship between illness perception and a sense of well-being was observed in breast cancer patients.

Again, variation in the levels of distress in women at increased risk of breast cancer has been reported, yet there is limited understanding of the factors that are associated with heightened distress in this population. On this basis, Rees et al., (2004) took a theoretical approach using Leventhal's Self-Regulatory Model (SRM) to understand variation in distress levels. The study examined the associations between perceptions of breast cancer and distress in women at increased risk of breast cancer, and a comparison sample with no experience of the disease in their social environment. Questionnaire data from 117 women at increased risk of breast cancer and 100 comparison women were analysed. Women at increased risk of breast cancer showed comparable levels of general distress but significantly higher levels of cancer-specific distress than the comparison group. There were few differences in illness perceptions between the samples, although a number of cognitive perceptions of breast cancer were related to both general and cancer specific distress in the increased risk sample, but not in the comparison sample.

On the other hand, Tettey (2013) sought insight into attitude and perception of students of Winneba Community Health Nurses' Training School (CHNTS) towards breast cancer. The study was an investigation to find out if there was a significant difference between first and second-year students of CHNTS in their attitude towards breast cancer. A descriptive survey design was chosen for this study. The instrument used in collecting the data for the study was a researcher-developed questionnaire. The sample size selected for the study was 120 comprising 59 first-year and 61 second-year students. The model of analysis of data involved the use of frequency and percentage tables and Independent Samples t-tests.

The study showed that students had a good perception of breast cancer. The study also revealed that there was no significant difference in the means of the attitude and perception of the first and second year towards breast cancer. It was recommended, among other things, that students should be encouraged to maintain this good attitude and perception and measures should be taken by the school to improve the attitude of the students as a better attitude towards breast cancer is more desirable among students in particular and the general population at large.

Relationship between psychological capital and illness perception

Tavakoli et al. (2017) undertook a study to investigate the relationship between PsyCap and disease perception in patients with multiple sclerosis. In this study, 120 patients with multiple sclerosis were selected and studied from the MS Society of Ahwaz city by using the availability sampling method. The data collection tools included two questionnaires, Luthans Psychological Capital Questionnaire and a Brief Illness Perception Questionnaire, which

were completed by patients. The mean scores of psychological capitals (2.29 ± 16.39) and disease perception (1.03 ± 5.27) were calculated. Pearson correlation test showed a positive and meaningful correlation between the total score of capital and its components with the disease perception (p =0.001). In the regression results of the psychological capitals components, the components of self-efficacy, optimism and resilience indicated the highest correlation with. Based on the findings of this study the people with better capital would use this capital with a deeper understanding of their disease for strengthening and adapting themselves to their disease status.

Nosrati et al. (2018), conducted a study to determine the relationship between psychological capital and acceptance of the disease with life satisfaction in patients with breast cancer. This study was descriptive correlational research. The study population consisted of all patients with breast cancer affiliated, of which 300 were selected by the available sampling method. Research instruments were psychological capital (including life expectancy, toleration, self-efficacy and life orientation items), Stuifbergen's Acceptance of Chronic Health Conditions Scale and Diner Life Satisfaction Questionnaires. To analyse the data, correlation coefficient and stepwise regression analysis were used in SPSS v22. The results showed that 192 (64%) of participants were female participants and 108 (36%) were men. Their mean age was 34.72±9.02 and the duration of the disease was 5.98±4.25 years. There was a significant positive correlation between psychological capital with life satisfaction ($p<0.001$) and acceptance of life with satisfaction of life ($p<0.001$) in patients with breast cancer. The results showed that with increasing of each component of psychological capital and acceptance of

disease, life satisfaction in patients with breast cancer increases. Therefore, by teaching the components of the psychological capital and accepting the disease, it can increase the life satisfaction and their positive perception of patients and help them better deal with the disease.

Shamili, Zare and Oraki (2013) studied the prediction of psychological capital aspects of quality of life in breast cancer patients. The current study was important to pave the way for further investigation aimed for managing beliefs and perception in order to increase the quality of life in breast cancer patients. This non-experimental research was descriptive and correlative and was conducted on 100 members of breast cancer patients that were selected by accessible sampling in Tehran breast cancer Association. Clinical and demographic information were collected and the participants completed a range of questionnaire s. The data were analysed by Pearson correlation and multivariate regression analyses. According to the results illness perception can predict the psychological capital aspects of quality of life in breast cancer patients. It can be concluded that, illness perception is effective on psychological capital of breast cancer patients. Further interventional study is necessary to improve the quality of life in breast cancer patients.

Tirian (2022), aimed to compare the perception of disease, quality of life, psychological capital, and five personality factors in women with a psychosomatic disorder of rheumatoid arthritis and normal women in Isfahan. The research was post-event (causal-comparative). The statistical population of this study included all women with rheumatoid arthritis in Isfahan in the spring of 2016 who were referred to medical centre in Isfahan and have medical records. The sampling method in this study was random cluster

sampling, of which 30 were selected for the studied groups. The instruments used in this study included a short illness perception questionnaire (IPQ), a World Health Organization quality of life questionnaire, psychological capital scale, and a neo-five-factor personality test (short form). The results showed that there is a difference between illness perception, quality of life, psychological capital, and five personality factors in all components except being pleasant and conscientious in women with the psychosomatic disorder of rheumatoid arthritis and normal women in Isfahan. There was a significant positive correlation between perception of disease and psychological capital (p=0.001) and quality of life (0.002). Therefore, appropriate and timely psychological interventions can play an important role in prevention, progression of treatment, reduction of complications and outcomes, and reduction of treatment costs in patients with rheumatoid arthritis.

Psychological capital and health-related quality of life in patients with breast cancer

Breast cancer is the most prevalent cancer among women, seriously affecting their lives. Therefore, Sadoughi, Mehrzad, and Mohammad (2017), explored the relationship between psychological capital and quality of life among women with breast cancer. The study was descriptive cross-sectional with a correlational design. The statistical population of the study included all women with breast cancer referred to Seyedoshohada hospital, Isfahan for treatment, out of whom 97 women were randomly selected. The respondents provided their demographic information and filled out Cancer Patient Quality of Life Questionnaire, Life Orientation Test (LOT), Snyder Hope Scale, Block & Kremen Resiliency Scale, Sherer et al.

General Self-efficacy Scale (SGSE). The average age of the participants was 45.17±9.55. The mean of the patients' hopefulness (20.15±4.50), optimism (20.31±4.30), resilience (45.92±9.11), self-efficacy (55.51±12.59) and quality of life (63.74±19.20) were recorded. The findings revealed a statistically significant relationship between the components of psychological capital, including hope (r=.45, p.01), optimism (r=.25, p.01), resilience (r=.40, p.01) and self-efficacy (r=.27, p.01).

The findings revealed that hope, optimism, self-efficacy and resilience lead to higher quality of life among women with breast cancer. The findings have important implications in medical interventions aiming to enhance the quality of life among these patients. Therefore, in assessment and treatment of patients with breast cancer, more attention should be paid to psychological factors related to quality of life along with conventional biomedical treatments.

Zhao, Tong and Yang (2022), assessed the evidence of the association between positive psychological resources and quality of life in patients with cancer. Electronic searching was performed to retrieve articles from PubMed, Web of Science, Embase, CNKI and CBM (from inception to 7 April 2022). Summary correlation coefficient (r) values were extracted from each study, and 95% CIs were calculated by the random-effect model. Subgroup and sensitivity analyses were performed to investigate potential heterogeneity. In total, sixty-six articles were included in the present study. The pooled r for resilience was 0.71 (95%CI: 0.55, 0.87), hope 0.50 (95%CI: 0.43, 0.56), self-efficacy 0.53 (95%CI: 0.46, 0.61), self-esteem 0.46 (95%CI: 0.28, 0.63), and optimism 0.30 (95%CI: 0.19, 0.40). For subgroup analysis, no significant

differences were found between minors and adults. This study indicated that resilience, hope, optimism, self-esteem and self-efficacy were positively correlated with quality of life in patients with cancers. Therefore, intervention programs should be focused on increasing state-like positive psychological resources to improve the quality of life in patients with cancer.

Shoaa and Momeni, (2009) studied the relationship between quality of life and hope in breast cancer patients after surgery. Sample in this research was 100 women involved breast cancer and after 2 years. They were referred to special oncologist. Age of patient was 35-50. Hypotheses of research have positive significant relationship. Procedure was descriptive analyses. Tools of research were two questioners. 1-hope of snyder q. (10 q) with positive and negative orientation. 2-quality of life. With (20 q), in dimension of physical, psychological, social and environment life. Reliability was 0.78. Statistics of test was correlation & regression. The results indicated positive and significant relationship between hope as a form of psychological capital and quality of life in physical, psychological and social dimension.

Sadoughi, Mehrzad and MohammadSalehi (2017), also aimed to explore the relationship between optimism and hope on one hand and anxiety and depression on the other hand among these patients. In the present correlational study, 97 patients with breast cancer referring to Seyyedoshohada Hospital, Isfahan, were randomly selected through convenience sampling. The participants filled out Life Orientation Test (LOT), Snyder Adult Hope Scale, and Hospital Anxiety & Depression Scale. Pearson product-moment correlation and independent samples t-test were run in SPSS (version 22) to analyse the data. The mean of depression, anxiety, hope and optimism were

8.31 ± 4.74, 10.21 ± 4.79, 20.15 ± 4.5 and 20.31 ± 4.30, respectively. The total score of anxiety and depression was 18.53 ± 9.02. The Pearson's correlation coefficient indicated a statistically significant inverse relationship in hope with depression (r = -57, P < 0.01) as well with anxiety (r = -62, P < 0.01).

Likewise, there was a statistically significant inverse relationship in optimism with depression (r = -34, P < 0.01) as well as with anxiety (r = -44, P < 0.01), indicating that the more hope and optimism the patients had, the less anxiety and depression they suffered hence high quality of life. Therefore, patients who consider cancer as a serious threat suffer from more anxiety and depression hence low quality of life. Therefore, it is highly suggested that along with conventional treatments, positive psychological elements such as hope and optimism be paid more attention, since they are important interceptors against anxiety and depression for high quality of life.

Illness perception and health-related quality of life in patients with breast cancer

Spain et al. (2007), in a study which purported to be the first of its kind in an Australian population, aimed to use a large sample to determine the relative importance of individual factors to each domain of HRQoL, in particular the role of illness perception. A total of 580 patients with confirmed breast cancer were assessed cross sectional in a designated research clinic to determine the relative impact of physical factors (illness severity, duration, age, fatigue and pain) and psychological factors (mood, cognition and illness representations) on each domain of the SF-36. In his results, categorical regression analysis showed that a combination of physical and psychological factors predicted 38–71% of variance in HRQoL. Illness perception was shown to have an

independent effect on HRQoL in breast cancer patients. It was then concluded that, illness perception is an independent factor contributing to HRQoL in people with breast cancer. Individual domains of HRQoL are associated with different patterns of physical and psychological factors.

Fanakidou et al. (2018), explored the relationship between mental health (depression, anxiety, and stress), loneliness, and illness perception with health-related quality of life (HRQoL) in young breast cancer patients, within a year after mastectomy, and to investigate the role of breast reconstruction. Eighty-one women with stage II breast cancer - 35 with breast reconstruction and 46 without breast reconstruction - completed the Missoula-VITAS Quality of Life Index-15, the Depression Anxiety Stress Scale 21, the UCLA Loneliness Scale, the Brief Illness Perception Questionnaire, and a questionnaire with demographic and medical information. Statistical analysis was performed using IBM SPSS Statistics version 20.

The study revealed that, breast reconstruction was a significant predictor of total HRQoL and its domains. Women with breast reconstruction had better HRQoL, significantly better mental health, less stress and anxiety levels but experienced more physical discomfort and perceived higher level of physical distress compared to the ones without breast reconstruction. On the contrary, patients without breast reconstruction had higher level of loneliness, which was found to be correlated with poor HRQoL and higher levels of anxiety. Negative illness perceptions were associated with poor HRQoL for both groups.

Ośmiałowska et al. (2022), also assessed the association of illness perception, the sense of coherence, and illness acceptance with QoL in breast

cancer patients. Methods. The study included 202 women (mean age 53.0 ± 10.3) treated surgically for breast cancer at the Lower Silesian Oncology Centre. The following standardised questionnaires were used: Acceptance of Illness Scale (AIS), Mental Adjustment to Cancer (Mini-MAC), Quality of Life Questionnaires (EORTC QLQ-C30 and QLQ-BR23), The Multidimensional Essence of Disease and Illness Scale (MEDIS), and Life Orientation Test (LOT-R).

The study revealed a statistically significant association between illness acceptance and QoL. There was also a statistically significant association between the sense of coherence (life optimism LOT-R) and QoL among breast cancer patients. Again, there was a statistically significant association between illness perception and QoL. However, it was concluded that patients with a high level of illness acceptance, with an optimistic disposition, and with a positive illness perception have better QoL within all the functional domains and experience lower intensity of cancer- and treatment-related symptoms as compared to those with low level of illness acceptance, with moderate optimism or a pessimistic disposition, and with neutral or negative illness perception.

Kozieł et al. (2016), studied the association between acceptance of illness, anxiety and depression with assessment quality of life of breast cancer patients. They included 112 women diagnosed with breast cancer treated at Lower Silesian Oncology Centre. The study used standardized questionnaire tools, AIS-scale acceptance of the illness, QoL WHOQOL-BREF questionnaire, HADS-M questionnaire. The results showed a correlation between anxiety and depression with the assessment of acceptance of the

illness showed a negative influence of all components of the questionnaire HADS-M level AIS, as appropriate: anxiety ($r = -0.51$; $p < 0.001$), depression ($r = -0.57$; $p < 0.001$), irritability ($r = -0.32$; $p = 0.001$). A similar relationship was observed in the analysis of the correlation of anxiety and depression, quality of life in all domains of the questionnaire WHOQOL-BREF. They finally concluded that, patients with breast cancer presented a medium level of acceptance of the illness and limiting level of anxiety and depression. Therefore, anxiety and depression of illness assessment negatively affects the assessment of QoL.

Conceptual Framework

The conceptual framework depicts the proposed connection among the variables under study. In Figure 1, the predictor variables are illness perception and psychological capital while HRQoL is the criterion variable. The conceptual framework depicts a relationship between illness perception and psychological capital and how they both interact to predict HRQoL among patients with breast cancer.

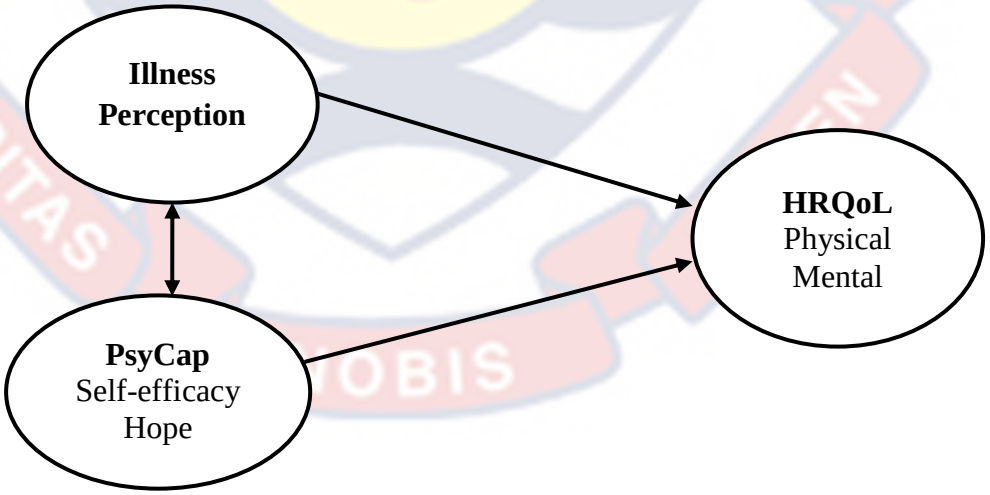

Figure 1: Relationship between Illness perception and psychological capital as predictors of HRQoL

CHAPTER THREE

METHODOLOGY

This chapter explored the various research methodologies that were applied in the study.

Research Design

This study employed a quantitative research method. It involves the process of gathering observable data to answer a research question using statistical, computation or mathematical techniques (Apuke, 2017). A quantitative approach is a research approach that allows the researcher to use inquiry to answer questions to discover the relationship between variables in order to explain, predict and control phenomena.

This study made use of the correlational design. According to Stangor (2011), correlational research involves the measurement of two or more relevant variables and an assessment of the relationship between or among those variables and the goal of correlational research is to uncover variables that show systematic relationships with each other. Thus, correlational research design is used as a method for testing relationships between or among variables of interest (Fitzgerald, Rumrill & Schenker, 2004). In correlational research, two variables are observed in order to determine whether there is any significant relationship between them (Fitzgerald, Rumrill & Schenker, 2004). Since the researcher has no intention of establishing a causal relationship between or among variables nor manipulating any variable but rather has an interest in establishing relationships, correlational design is the most appropriate design for this study.

Study Area

The study was done in the Cape Coast Metropolis. Cape Coast is the administrative capital of Cape Coast Metropolitan District and Central Region of Southern Ghana. According to the 2021 population census in Ghana, Cape Coast had a settlement population of 2,859,821 people (Ghana Statistical Services, 2020)

Cape Coast is blessed with three major hospitals. They are University of Cape Coast Hospital, Cape Coast Metropolitan Hospital and Cape Coast Teaching Hospital (CCTH), commonly known as "Interberton" and also known as the Central Regional Hospital. The Cape Coast Teaching Hospital was chosen because the bulk of chronic health situations, such as cancer, are referred to it from nearby towns and villages for treatment and care. Besides, most of the studies on breast cancer conducted in Ghana concentrated on Korle Bu Teaching Hospital (KBTH), Accra and Komfo Anokye Teaching Hospital (KATH), Kumasi (Asobayire & Barley, 2015; Clegg-Lamptey et al., 2010; Aziato & Clegg-Lamptey, 2015; Obiri et al., 2010; Obrist et al., 2014; Opoku, Benwell, & Yarney, 2012; Williams & Amoateng, 2012; Naku-Ghartey et al, 2016).

Population

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query (Creswell, 2013). All individuals or objects within a certain study population usually have a common, binding characteristic or trait. The accessible population for this study was all breast cancer patients receiving treatment at the Cape Coast Teaching Hospital. Information obtained from the records section of Cape

Coast Teaching Hospital gave one hundred and twenty (120) as the number of individuals with breast cancer receiving treatment at the facility at the time of the study.

Sample and Sampling Procedure

The study made use of census method by considering all 120 breast cancer patients. However, convenience sampling technique was used to select 105 individuals with breast cancer at the selected facility. Convenience sampling is a form of non-probability sampling method in which the sample is drawn from a group of people easy to contact. This method of sampling is often referred to as availability sampling (Saunders, Lewis & Thornhill, 2012). The convenience sample technique was used to get respondents (patients) during their clinic days at the Cape Coast Teaching Hospital.

The study recorded 87.5% response rate. 8.3% had been referred to Korle Bu Teaching Hospital and the other 4.2% had defaulted and could not be reached.

Description of Demographic Information

The demographic details of the respondents who took part in the study are marital status, age of diagnosis and the feelings of patients at the first time of diagnosis and they are described below.

Ages of Respondents

Table 2 displays the study's respondents' age distribution.

Table 2: Age Distribution of Respondents

Age range of respondents	Frequency	Percent
31-40	6	5.7
41-50	34	32.4
51-60	30	28.6
61-70	30	28.6
71 and above	5	4.8
Total	105	100

Source: Field Survey, 2023

Table 2 shows that most of the respondents 32.4% (n = 34) were in the age range of 41 to 50. However, as many as 65 representing 62% of the respondents were above 50 years. This is considered significant since age is a risk factor in the development of breast cancer.

Marital Status of Respondents

Table 3 shows the marital status of the respondents.

Table 3: Marital status of respondents

Marital status	Frequency	Percent (%)
Single	6	5.7
Married	88	83.8
Divorced	5	4.8
Widowed	6	5.7
Total	105	100.0

Source: Field Survey, 2023

It is clear from Table 3 that most of the respondents 83.8% (n = 88) were married. Five representing 4.8% were divorced and six representing 5.7%

were also widowed. Since majority of the respondents were above 31years, it is not out of place that only few of them 5.7% (n=6) were not married.

Feelings of Respondents at Diagnosis of Breast Cancer

Table 4 shows the feelings of respondents at the first day they were diagnosed of breast cancer.

Table 4: Feelings of respondents when diagnosed of breast cancer

Feeling at diagnosis	Frequency	Percent (%)
Sad	43	41.0
Neutral	4	3.8
Shocked	10	9.5
Afraid	48	45.7
Total	105	100.0

Source: Field Survey, 2023

It is clear from Table 4 that most of the respondents 45.7% (n = 48) were afraid when they were first diagnosed of the condition. Also, 41.0% (n = 43) of the respondents were sad upon the diagnosis of the condition. In addition, ten representing 9.3% received the news with shock. Only four representing 3.8% felt neutral. This implies that diagnosis of breast cancer is more likely to introduce the feeling of sadness and fear among victims for the first time because of the mortality rate associated with the condition.

Ages of Respondents at the first time of Diagnosis of Breast Cancer

Table 5 shows the ages of respondents at the first time of diagnosis of breast cancer.

Table 5: Ages of respondents at the first time of diagnosis of breast cancer

Age at Diagnosis	Frequency	Percent (%)
<30	1	1.0
31 – 40	12	11.4
41 – 50	32	30.5
51 – 60	37	35.2
>60	23	21.9
Total	105	100.0

Source: Field Survey, 2023

It is clear from Table 5 that majority of the respondents 87.6% (n = 92) were above 40 years at first time of diagnosis of the condition. This may imply that breast cancer is more likely to affect older people. It is also possible that because of the fear surrounding the disease many people refuse to undergo examination or test at the early stage.

Data Collection Instruments

The research instruments employed in this study were structured questionnaires. The questionnaires for the study consisted of adopted versions of various standardized inventories, with the aim of eliciting various forms of information from the research participants. The instruments used are further explained below:

The Brief Illness Perception Questionnaire (BIPQ)

In this study, the BIPQ designed by Broadbent, Petriea, Maina and Weinman (2006) was adapted to measure illness perception in patients with breast cancer. The BIPQ is an eight-item self-report scale designed to rapidly assess the cognitive and emotional representations of illness. The scale is measured on an 11-point Likert-type scale which ranges from 0 to 10, with 0

and 80 being the lowest and highest scores that can be obtained on the scale respectively. Higher scores on the BIPQ imply that an individual has negative perception about his or her illness; while lower scores depict positive illness perception. The mean score of 0 to 3.33 indicates 'low threatening illness perception', 3.34 to 6.66 indicates 'moderate threatening illness perception' and 6.67 to 10 indicates 'high threatening illness perception'. The scale has demonstrated high test-retest reliability among patients with cardiac condition (r= 0.71). Also, the scale has a Cronbach's alpha ranging from 0.70 to 0.83 (Broadbent et al., 2006; Van Oort, Schröder & French, 2011; Rakhshan, Hassani & Ashktorab, 2011)

The Psychological Capital (PsyCap) Questionnaire for Cancer Patients (PCQ-C 24)

The PCQ-C 24 was adopted to gather data on the psychological capital of the respondents. The PCQ-C 24 was developed by Cui et al. (2021). The PCQ-C 24, made up of 24 items, is intended to evaluate and measure four components of the level of positive psychological capital. The four components are self-efficacy, hope, resilience and optimism. Each of the four components in PsyCap is measured by 6 items and the composite score represents an individual's level of positive PsyCap.

Total score ranging from 3.5 to 4.1 means low level of psychological capital. Also, the total score ranging from 4.2 to 4.7 implies medium level of psychological capital as well as the total score of 4.8 and above implies high level of psychological capital. The scale is measured on a 5-point Likert-type scale, ranging from 1 to 5 (1= Very strongly disagree, 2= Strongly disagree, 3= Neutral, 4= Strongly agree, 5= Very strongly agree). According to Cui et

al. (2021), the Cronbach's alpha coefficient for the composite scale is 0.91 with the Cronbach alpha of subscales ranging from 0.75 to 0.94. Also, the instrument has a test-retest reliability of 0.83 (Cui et al., 2021). Though the PCQ-C 24 is a relatively new instrument, it has proven to be reliable in measuring psychological capital among cancer patients, hence the adoption.

Health-Related Quality of Life Short Form-12 (HRQoL-SF-12)

HRQoL-SF-12 is a shorter version of the HRQoL-SF-36 developed by Jenkinson et al. (1997). HRQoL-SF-12 was adopted and used in the collection of data on health-related quality of life. The HRQoL-SF-12 was a health-related quality of life questionnaire which consisted twelve questions and two subscales that measured the quality of life in eight health domains to assess physical and mental health. The physical component includes the following four health domains: physical functioning (items 2 and 5); role limitations due to physical health problems (items 3 and 4); bodily pain (item 6); and general health (item 1). The mental component also includes the following health domains: vitality (item 8); social functioning (item 11); role limitations due to emotional health problems (items 9and 10); and mental health (items 7and 12). The instrument was measured on a 5-point Likert-type scale, ranging from 1 to 5 (1= None of the time, 2= A little of the time, 3= sometimes, 4= Most times, 5=All the time). A score of 12 which is the lowest possible score depicted a lower health-related quality of life and the highest possible score of 60 also depicted a higher health-related quality of life. HRQoL-SF-12 had a Cronbach alpha ranging from 0.73 to 0.90 across America, Hispanic and Asian

population (Busija et al., 2011; Newcombe, Sheffield, & Chang, 2013; Kim et al., 2014)

Pilot-testing of Instrument

The questionnaire was subjected to pilot-testing to assess the reliability of the research instrument. Pilot-testing is a small-scale test in which a few participants respond to the research instrument and comment on the effectiveness and functionality of the research instrument (Cohen et al., 2011). They point out any problems with the test instrument, instances where items are not clear and other typographical errors. Pilot-testing was done with 10 breast cancer patients receiving treatment at Cape Coast Teaching Hospital. The number of individuals selected for the pilot-testing was influenced by the recommendation of Cohen et al. (2011) who suggested that 10% of the sample size is appropriate for pilot-testing a research instrument. Since the pilot-testing of the instrument was conducted in the same facility (Cape Coast Teaching Hospital) the 10 participants were excluded from the main study. Data were analysed in order to ascertain the internal reliability estimates using Cronbach's alpha reliability coefficient. Results from the reliability analysis of the various scales administered are shown in Table 3.

Table 1-Reliability Test from Pilot-Testing of Research Instruments

Scale	Cronbach's Alpha
1. Brief Illness Perception Questionnaire (BIPQ)	.87
2. The psychological Capital Questionnaire (PCQ- C 24)	.89
3. Health-related Quality of Life short form-12 (HRQoL-SF-12)	.78

Source: Field Survey, 2023

The results in Table 1 show the Cronbach's alpha coefficients of the instruments used in the research. The results from the reliability analyses reveal that all the instruments have high internal consistency (above .77) and thus imply that instruments are reliable.

Data Collection Procedure

An introductory letter (see Appendix A) and ethical clearance (see Appendix B) was acquired from the Department of Education and Psychology, and the Institutional Review Board in the University of Cape Coast respectively and delivered to the Cape Coast Teaching Hospital. Again, ethical clearance and approval (see Appendix C) was acquired from the Ethical Review Board of the Cape Coast Teaching Hospital and various units involved after the researcher was taken through the required procedures. Contacts were made with the various unit heads to be allowed to conduct the study with the patients during clinic hours. The researcher together with two research assistants sent the data collection instruments to the study setting. The researcher briefly introduced the topic, the purpose of the research and the importance of the study to the participants.

The participants were assured of confidentiality and their voluntary participation were also elicited. The questionnaires were administered by the researcher to patients who accepted to participate in the study. The researcher assisted participants who could not understand some of the information on the questionnaire by explaining, interpreting and translating to local languages where necessary and appropriate. The acquired data were kept confidential. There was no identification information on the questionnaire, that is, the questionnaires were filled anonymously by the participants. Participants took

about 25 to 35 minutes to complete the questionnaire. Data collection took about 6 weeks with the help of the two research assistants.

Data Processing and Analysis

The data collection was completed and subjected to statistical analyses and interpretation. Data collected from the survey were organised and categorised using the Statistical Package for Social Science (SPSS version 26). The total score of responses on the various inventories were calculated based on the interpretations of the various developers. Composite scores and sub-scale scores of the various inventories were calculated in order to aid parametric data analysis. Statistical analysis consisting both descriptive and inferential analyses of the responses were provided.

Data on research questions 1, 2 and 3 were analysed using descriptive analyses, more specifically frequencies and percentages as well as means and standard deviations where applicable. This is because the researcher sought to determine the health-related quality, the illness perception and psychological capital of respondents. Research hypothesis 1 was analysed with Pearson Product Moment Correlation Coefficient in order to examine the relation between illness perception and psychological capital. Research hypothesis 2 was also tested using multivariate regression. This was because the researcher aimed at determining how illness perception predicted HRQoL. Since illness perception had eight dimensions (consequences; timeline; personal control; treatment control; identity; concern; coherence; and emotional response.) and HRQoL had two dimensions (physical health and mental health) multivariate regression was considered to be most appropriate. This was because multivariate regression showed the individual contribution of each dimension

in predicting dimensions of HRQoL among the respondents. Again, Research hypothesis 3 was tested using multivariate regression. The researcher again aimed to assess how psychological capital predicted HRQoL among patients with breast cancer. With psychological capital also having four sub-scales (self-efficacy, hope, resilience and optimism), multivariate regression was deemed the most suitable. This was because multivariate regression showed the individual contribution of each sub-scale in predicting the two dimensions of HRQoL among the participants. All statistical tests were conducted at .05 level of significance.

Chapter Summary

This chapter examined the research methodology employed in the study. The chapter looked at the research design, population, sample and sampling procedure, instruments, data collection procedure and data analysis. The study used the quantitative correlational research design. The estimated accessible population was one hundred and twenty (120), consisting of females with breast cancer. Using the convenient technique, the study included all available breast cancer patients receiving treatment at CCTH. The instruments used were the questionnaires which comprised various psychological tests and inventories. Data analysis included descriptive approaches such as means, percentages, frequencies and standard deviations. Further statistical analysis included inferential approaches, specifically Pearson Product Moment correlation Coefficient and Multivariate regression

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter includes analysis and discussion of findings from the target population as presented below;

Analysis of Data on Research Questions

Answering the research questions was important in meeting the objectives of the study. Consequently, the results from analysis of the data on the three research questions in the study are presented below.

Research question one: What is the level of health-related quality of life of breast cancer patients in Cape Coast?

The purpose of this question was to determine the level of health-related quality of life of breast cancer patients involved in the study. Descriptive statistics such as mean and standard deviation were used for analysing the data on this research question. The two dimensions of health-related quality of life; physical and mental health were measured continuously. With a range of zero to hundred (0-100), a standard mean of fifty (50) was set for each dimension (physical health and mental health) of health-related quality of life (Jenkinson et al., 1997). This in effect means that a mean of 50 was considered an average health-related quality of life. Again, a mean of above 50 was considered as an above average health-related quality of life while a mean below 50 was regarded as below average health-related quality of life (Jenkinson et al., 1997). The results on the level of health-related quality of life are shown in Table 6.

Table 6: Level of health-related quality of life among breast cancer patients

	Range (50 as cut-off point)	M	SD
PHQoL	0-100	59.33	6.17
MHQoL	0-100	57.62	7.35
Overall HRQoL	0-100	58.46	5.11

Source: Field Survey, 2023 **M** = Mean, **SD** = Standard Deviation, **N** = 105

NB: **PHQoL**=Physical Health-related Quality of Life, **MHQoL**=Mental Health-related Quality of Life, **HRQoL**= Health-related Quality of Life.

The results in Table 6 show an above average health-related quality of life in the two domains of health-related quality of life, with physical health component obtaining a mean score of 59.33 (*SD*= 6.17) and the mental health component obtaining a mean score of 57.62 (*SD*= 7.35). In addition, patients with breast cancer involved in the study generally have an above average health-related quality of life (*M*= 58.46, *SD*= 5.10). However, although the participants reported above average health-related quality of life, the mean scores obtained on both domains and in general, were a little above (*M*=59.55, *M*=57.62, *M*=58.46) the set standard (50).

Research Question two: What is the level of psychological capital in patients with breast cancer in Cape Coast?

The purpose of this analysis was to determine the level of psychological capital in patients with breast cancer in Cape Coast. This generated continuous data, which was analysed using mean and standard deviations. Psychological capital was assessed under four dimensions: self-efficacy, hope, resilience and optimism. A mean score of below 4.2 means low level of psychological capital (Cui et al., 2021). Also, a mean score ranging

from 4.2 to 4.7 implies medium or moderate level of psychological capital and a mean score of 4.8 and above implies a high level of psychological capital (Cui et al., 2021). The results are presented in Table 7.

Table 7: The level of psychological capital in patients with breast cancer

	M	SD
Self-efficacy	3.256	.5562
Hope	3.340	.7892
Resilience	4.162	.6932
Optimism	4.113	.7452
Psychological Capital	3.718	.5426

Source: Field Survey, 2023 M = Mean, SD = Standard Deviation N = 105

From Table 7, Low level of psychological capital was also found in all the four dimensions of psychological capital, with self-efficacy dimension obtaining a mean of 3.256 (*SD*= .5562), hope obtaining a mean score of 3.340 (SD = .7892), resilience obtaining a mean score of 4.162 (SD= .6932) and the optimism dimension obtaining a mean score of 4.113 (*SD*= .7452). Generally, the overall psychological capital of the respondents under study was also low with a mean score of 3.718 (*SD*=.5426). Although the participants reported low level of psychological capital, the mean score obtained on resilience and optimism were better relative to self-efficacy and hope.

Research question three: What is the level of illness perception of patients with breast cancer in Cape Coast?

The purpose of this analysis was to determine the level of illness perception in patients with breast cancer in Cape Coast. This generated continuous data, which were collapsed into three levels (low, moderate and high) with the total mean score ranging from 0.00 to 30.33 indicating 'low

threatening illness perception', 30.34 to 60.66 indicating 'moderate threatening illness perception' and 60.67 to 100.00 indicating 'high threatening illness perception' Broadbent, Petriea, Maina and Weinman, 2006). Descriptive statistics such as frequencies and percentages were used to analyse the data generated on this research question. The result is presented in Table 8.

Table 8: Level of illness perception among breast cancer patients

	Score range	Frequency	Percentage (%)
Lower	0.00 – 30.33	5	4.8
Moderate	30.34 – 60.66	66	62.9
High	60.67 – 100.00	34	32.4

Source: Field study, 2023

It is evident from Table 8 that most, 62.95% (n= 66) of the breast cancer patients involved in the study have moderate threatening illness perception. Although majority of the respondents have moderate threatening illness perception, as high as 34 respondents representing 32.4% have high threatening illness perception. This may imply that respondents perceive breast cancer as a threat to life because of the low survival rate.

Analysis of Data on Research hypotheses

The study was guided by three research hypotheses. This section presents the results from the testing of these research hypotheses. Prior to the testing of these hypotheses, normality assumption was checked using Kolmogorov-Smirnov and Shapiro-Wilk tests. Assumptions of linear relationship and no significant outliers were met (APPENDIX F). The results in APPENDIX F show that the normality of data was not violated. This was

because both the Kolmogorov-Smirnov and Shapiro-Wilk test p-values were greater than .05. In addition to the tests, visual examinations of the normal Q-Q plots and histograms of both perception and attitude confirmed the normality of the distribution. The Durbin Watson results indicate that there was independence of observation (see APPENDIX F). In addition, no multicollinearity was observed and there was homoscedasticity also.

Research Hypothesis 1

H_0: There is no statistically significant relationship between illness perception and psychological capital in patients with breast cancer

The purpose of this analysis was to establish the correlational relationship between illness perception and psychological capital in patients with breast cancer. Pearson Product Moment Correlation Coefficient was used to examine this relationship. The results from the correlational analysis are shown in Table 9.

Table 9: Correlation between illness perception and psychological capital in patients with breast cancer.

		IP	SE	H	R	O	PC
IP	Pearson Correlation	1					
	Sig. (2-tailed)						
SE	Pearson Correlation	-.604**	1				
	Sig. (2-tailed)	.000					
H	Pearson Correlation	-.642**	.531**	1			
	Sig. (2-tailed)	.000	.000				
R	Pearson Correlation	-.288**	.365**	.430**	1		
	Sig. (2-tailed)	.003	.000	.000			
O	Pearson Correlation	-.209*	.390**	.411**	.695**	1	
	Sig. (2-tailed)	.032	.000	.000	.000		

PC	Pearson Correlation	-.552**	.700**	.778**	.808**	.815**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

Source: Field Survey, 2023 N=105 df=103

Note: *. *Correlation is significant at the 0.05 level (2-tailed), **. Correlation is significant at the 0.01 level (2-tailed).* ***IP*** *= Illness Perception,* ***PC*** *= Psychological Capital,* ***SE*** *= Self-efficacy,* ***H*** *= Hope,* ***R*** *= Resilience, &* ***O*** *= Optimism*

Table 9 shows the results from the correlation analysis between illness perception and psychological capital with its four components. Regarding the correlation analysis between illness perception and the components of the psychological capital, the result revealed that there is statistically significant inverse relationship between illness perception and self-efficacy dimension of psychological capital ($r(103) = -.604$, $p < .001$). This implies that increase in threatening illness perception decreases the self-efficacy psychological capital of breast cancer patients involved in the study.

Again, there is statistically significant negative relationship between illness perception and hope component of psychological capital ($r(103) = -.642$, $p < .001$). This implies that increase in threatening illness perception decreases hope component of psychological capital of the breast cancer patients involved in the study and vice versa.

Additionally, the result revealed that there is statistically significant inverse relationship between illness perception and resilience component of psychological capital ($r(103) = -.288$, $p= .003$). This implies that increase in threatening illness perception decreases resilience component of psychological capital of the breast cancer patients involved in the study and vice versa.

Finally, the result further showed that there is also statistically significant negative relationship between illness perception and optimism component of psychological capital ($r(103) = -.209$, $p = .032$).

The result also revealed that there is statistically significant inverse relationship between illness perception and psychological capital ($r(103) = -.552$, $p < .001$). This relationship implies that as illness perception increases, psychological capital also decreases and vice versa.

Since a significant relationship exists between psychological capital and illness perception, the null hypothesis that there is no statistically significant relationship between illness perception and psychological capital among patients with breast cancer is rejected. The alternate hypothesis, namely, that there is a statistically significant relationship between psychological capital and illness perception is accepted.

Research Hypothesis 2

H_0: Illness perception will not significantly predict health-related quality of life among patients with breast cancer.

The purpose of this analysis was to establish how illness perception predicts health related quality of life among patients with breast cancer. Illness perception is the predictor variable whereas health-related quality of life is the dependent variable. The dependent variable has two dimensions: physical and mental health. Both the independent variable (illness perception) and the dependent variable (physical and mental) generated a continuous data. Given the number of dependent variables and the independent variables and how

they are measured, multivariate regression was deemed necessary for the analysis. The results are shown in Table 10.

Table 10: Linear regression analysis of the influence of Illness perception on health-related quality of life among patients with breast cancer

Dependent Variable	Parameter	B	Std. Error	t	Sig.	η^2p
PHQoL	IP	-.009	.050	-.174	.862	.000
MHQoL	IP	-.075	.059	-1.280	.204	.016

Source: Field Survey, 2023 η^2p = Partial Eta Square

Note: **PHQoL**- Physical Health-Related Quality of Life, **MHQoL**- Mental Health-Related Quality of Life, **IP**-Illness Perception

Table 10 shows details of regression coefficient for how illness perception predicts health-related quality of life. It shows the contribution of illness perception on the two dimensions of health-related quality of life (physical and mental health). The result revealed that illness perception is not a significant predictor of physical health quality of life (B = -.009, t = -.174, p = .862, η^2p =.001). Again, illness perception is not a significant predictor of mental health quality of life of breast cancer patients involved in the study (B = -.376, t = -5.029, p = .204, η^2p =.197). It can therefore be concluded from the results that illness perception enhances neither mental health quality of life nor physical health quality of life.

Since illness perception neither significantly predicts physical health-related quality of life nor mental health-related quality of life, we fail to reject the null hypothesis that illness perception is not a significant predictor of

health-related quality of life among breast cancer patients.

Hypothesis 3

H_0: Psychological capital is not a significant predictor of health-related quality of life among patients with breast cancer.

The purpose of this analysis was to establish how psychological capital predicted health-related quality of life of patients with breast cancer. Psychological capital is a predictor variable and has four dimensions (self-efficacy, hope, resilience and optimism) whereas health related quality of life is a criterion or the independent variable and has two dimensions (physical and mental health). Both the independent variable (Psychological capital) and the dependent variable (Health related quality of life) generated a continuous data. Given the number of dependent variable and the independent variable with its components, multivariate regression was deemed necessary for the analysis. The result is shown in Table 11.

Table 11: Parameter estimates for psychological capital on health-related quality of life among patients with breast cancer

Dependent Variable	Predictors	B	Std. Error	t	Sig.	η^2p
Physical Health QoL	Hope	1.782	.914	1.950	.054	.037
	Resilience	2.882	1.196	2.410	.018	.055
	Optimism	-1.900	1.112	-1.709	.091	.028
	Self-efficacy	-.484	1.266	-.382	.703	.001
Mental Health QoL	Hope	-1.124	1.107	-1.016	.312	.010
	Resilience	2.355	1.449	1.626	.107	.026
	Optimism	-3.482	1.346	-2.586	.011	.063
	Self-efficacy	2.719	1.533	1.774	.079	.031

Source: Field survey, 2023 η^2p = Partial Eta Square

Table 11 shows the regression coefficient of how psychological capital predicts health-related quality of life of breast cancer patients involved in the study. It shows the contributions of the four components of the independent variable (self-efficacy, hope, resilience and optimism) on the two components of the criterion or dependent variable (physical and mental health related quality of life).

As regards physical health-related quality of life, the results in table 11 revealed that hope is not a significant predictor of physical health (*B =1.782*, *t =1.950*, *p* = .054, $\eta^2 p$ =.037); optimism is not a significant predictor of physical health (*B* = -1.900, *t* = -1.709, *p* = .091, $\eta^2 p$ =.028) and self-efficacy is also not a significant predictor of physical health (*B* = -.484, *t* = -.382, *p* = .703, $\eta^2 p$ =.001). On the contrary, resilience is a significant predictor of physical health (*B* = 2.882, *t* = *2.410*, *p* = .018, $\eta^2 p$ =.055). It can therefore be inferred that psychological capital partially predicted physical health-related quality of life.

Concerning mental health-related quality of life the results in table 11 further revealed that hope is not a significant predictor of physical health (*B* =-1.124, *t* =-1.016, *p* = .312, $\eta^2 p$ =.010); resilience is not a significant predictor of physical health (*B* = 2.355, *t* = 1.626, *p* = .107, $\eta^2 p$ =.026); and self-efficacy is also not a significant predictor of physical health (*B* = 2.719, *t* = 1.774, *p* = .079, $\eta^2 p$ =.031). On the contrary, optimism is a significant predictor of physical health (*B* = -3.482, *t* = -2.586, *p* = .011, $\eta^2 p$ =.063). Psychological capital, therefore, partially predicted mental health-related quality of life.

Since two dimensions (resilience and optimism) of psychological capital significantly predicted health-related quality of life, the researcher rejected the null hypothesis that psychological capital does not predict health-related quality of life in patients with breast cancer. The alternate hypothesis however, is partially accepted.

Modified Conceptual Framework Based on the Findings of the Study

From the findings of the study, the conceptual framework has been adapted to suit the results of the study. The findings of the study revealed that there is a significant correlational relationship between illness perception and all four components (self-efficacy, hope, optimism and resilience) of psychological capital. Again, illness perception does not significantly predict health-related quality of life. Thus, illness perception does not in any way predict either physical or mental health-related quality of life. While resilience predicts physical health-related quality of life, optimism predicts mental health-related quality of life. The revised conceptual model is depicted in Figure 2 below.

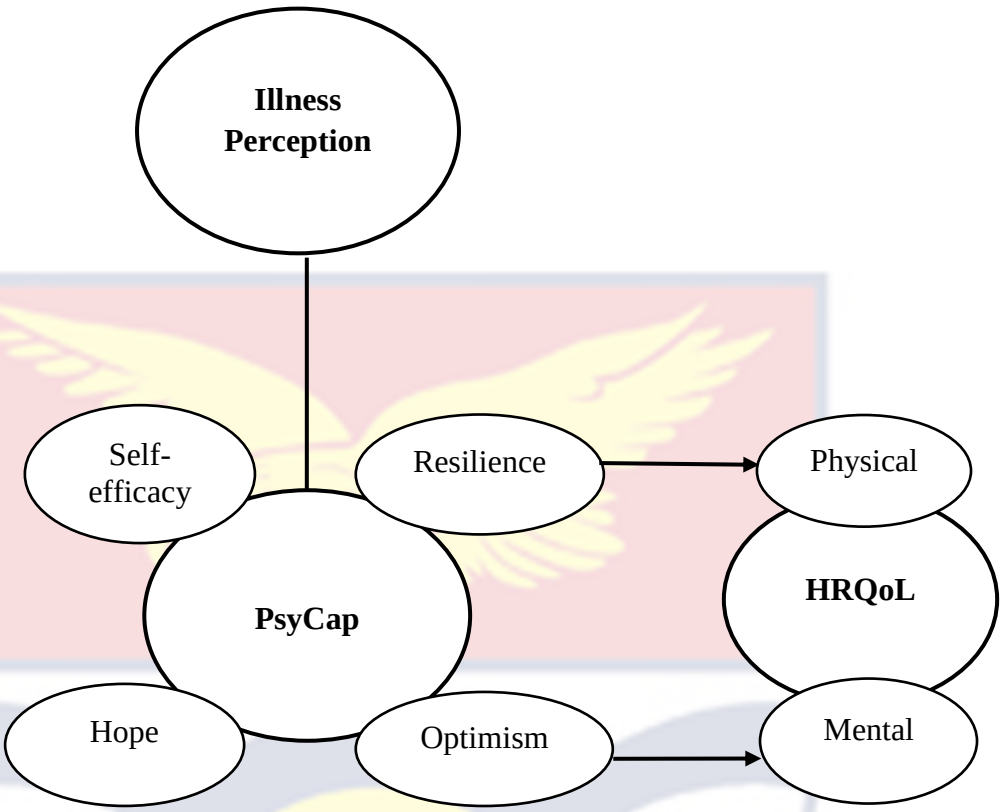

Figure 2: Illness perception and Psychological Capital and Predictors of HRQoL among Breast Cancer Patients

Discussion of Research Findings

The findings of the study are discussed in relation to previous empirical literature. The discussion justifies the findings of the study and also outlines areas where the findings from this study are consistent with other research findings as well as areas where there are discrepancies.

Level of Health-Related Quality of Life among Breast Cancer Patients in Cape Coast Metropolis

Breast cancer is a chronic disease that has lower prognosis. Also, the chance of survival is very low once a person is infected. Consequently, people who have breast cancer are likely to be filled with sadness, fear and anxiety. These feelings obviously affect their health and quality of life. Hence, it was prudent to determine the extent to which breast cancer has influenced the

health-related quality of life of victims of the disease in the study area. Health-related quality of life (HRQoL) is an important aspect of humans that has been the focus of psychological research in recent years. HRQoL was the main criterion variable of interest in the study, and was assessed under two main domains: physical health and mental health.

Generally, the study revealed that most of the breast cancer patients involved in the study have above average health-related quality of life. Above average health-related quality of life was also found in the two domains (physical and mental) of health-related quality of life. This above average HRQoL can be said to imply that the patients with breast cancer involved in this study have better health quality of life. Although the disease has low survival rates, patients with breast cancer under study exhibited some appreciable level of quality of health. A little above average health-related quality of life is very encouraging for people with breast cancer. Public health education on breast cancer may have improved the knowledge level of most breast cancer patients on the disease prevention and treatment. In addition, positive health-related behaviour such as exercise, good diet, check-ups among others may have been emphasised among the breast cancer patients and this may have led to the positive result of this study.

Interestingly, only few studies, in this case one, reported on good health-related quality of life of breast cancer patients. It is Mokhatri-Hesari and Montazeri (2020) who carried a review on the topic 'Health-related quality of life in breast cancer patients,' with the aim of providing update on the current knowledge on quality of life in breast cancer patients. The overall

findings from that overview indicated good quality of life among breast cancer patients and that their health-related quality of life had enhanced during the last decade. He also added that several simple but effective interventions such as physical activity and psychosocial interventions proved to be effective in improving quality of life among patients with breast cancer.

On the contrary, several contradictory findings have been reported in some studies. Health-related quality of life has been found to be poor among patients with breast cancer. An example is the work of Montazeri (2008) who found that psychological distress-anxiety and depression were common among breast cancer patients, even years after the disease diagnosis and treatment. Ngan et al. (2022) also found that HRQoL was low among breast cancer patients and pointed out that the symptoms of pain, discomfort, anxiety and depression were contributing factors to their low or poor quality of life. Again, Chen et al., (2022) undertook meta-analysis and systematic review to evaluate the health-related quality of life (HRQoL) of Asian breast cancer patients and concluded that, Asian breast cancer patients experience relatively low HRQoL due to the prominent decline in their body functions, as well as the unpleasant experiences caused by the symptoms of breast cancer.

There are a variety of factors that may be responsible for the inconsistencies in the findings of this study and that of previous research. They could include contextual variations, differences in the study areas as well as the lack of uniformity in the data collection instruments used. For instance, the work of Montazeri (2008) was a bibliographic review of the literature covering all full publications that appeared in English language biomedical journals between 1974 and 2007. Ngan et al., (2022) conducted their study in

Vietnam using the Standardised EQ-5D-5L instrument in an online survey and a hospital-based face-to-face survey, and together with data from the Vietnam EQ-5D-5L norms study. The study of Chen et al., (2022) was also a meta-analysis and systematic review to evaluate the health-related quality of life (HRQoL) of Asian breast cancer (BC) patients. These contextual variations may obviously have influence on the outcome of the studies.

Level of Psychological Capital in Patients with Breast Cancer in Cape Coast

Breast cancer is the most prevalent cancer among women, seriously affecting their lives. Due to low prognosis and low survival rate from breast cancer, many interventions may fail, which may lead most breast cancer patients to have anxiety, depression, post-traumatic stress, feelings of sadness and anger and family problems. Psychological capital equips individuals with the resources of hope, self-efficacy, resilience and optimism in the face of adversities. These resources are helpful in helping breast cancer patients deal with the psychological, emotional and social stress that accompanies the disease. Hence, it was necessary to determine the level of psychological capital of breast cancer patients in the study area. It was one of the predictor variables in the study and was measured under four domains: hope, self-efficacy, resilience and optimism.

The results revealed that the patients with breast cancer involved in the study generally have low level of psychological capital. Low level of psychological capital was also found in the four dimensions of psychological capital (self-efficacy, hope, resilience and optimism). Although the participants reported low level of psychological capital, the mean score

obtained in resilience and optimism were better relative to self-efficacy and hope. Patients begin to lose hope and confidence when the effect of disease treatment rarely follow the trend they expected. Some also feel lonely, sad and helpless after cancer diagnosis. As a result, they often worry about their health and throw in the fight against the disease especially when they have heard unpleasant stories about cancer and how it has taken many lives of women. Besides, the growing trend of cancer incidence in the past few decades and its effects on physical, psychological, spiritual and social dimensions both in patients and on their families make cancer one of the major health hazards of the century. The aforementioned, among other reasons, might have contributed to why the participants have lower psychological capital.

Other studies have also confirmed the results of the current study. Psychological capital has been found to be low among patients with breast cancer. An example is the work by Alizadeh, Mirzaian and Abbasi (2021) who explored psychological capital among women with breast cancer admitted to the Imam Khomeini Hospital, Tehran, Iran, and concluded that breast cancer patients do not have enough psychological capital. Again, Akbari and Akbari, (2018) also aimed at comparing coping styles, psychological capital and patience in females with breast cancer and those without breast cancer. The study noticed a sharp difference between these two groups with breast cancer patients having very low psychological capital. Breast cancer patients are those who need more psychological capital to cope with their condition in order to enjoy a quality life. However, the study found otherwise. Noticing the major role of psychological capital in cancer control, the study recommended

an appropriate coping style and patience as religious coping style, in addition to psychological capital to aid better recoveries.

Contradictory findings have also been reported in some studies. Psychological capital has been found to be moderate or normal among women with breast cancer in some studies. An example is the work of Zhang, Kwekkeboom and Petrini (2015), who, among Chinese women receiving chemotherapy for breast cancer, found that the mean ratings of uncertainty (76.70), self-efficacy (27.15), and self-care behaviour (53.96) all fell in the moderate range. This means that psychological capital (self-efficacy and self-care behaviour) among breast cancer patients was on a normal level. Seegers (2018) looked at the various forms of psychological capital used by women during and after radiation therapy for early-stage breast cancer, and found that psychological capital reported most frequently were establishing a good support network, living life to the fullest despite illness, regulating feelings, managing stress and taking responsibility for one's own health.

Again, contextual variations, differences in the study areas as well as the lack of uniformity in the data collection instruments used could be responsible for the inconsistencies in the findings of this study and that of previous research.

In addition, encouraging patients to conserve energy, to engage in relationships and to maintain a positive outlook by suggesting activities that help patients cope, adapt and manage symptoms during and after treatment have been seen to be useful in promoting psychological capital. Hence,

differences in these promoters and accessibility to psychological therapies, family and social supports will bring about different results.

Level of Illness Perception of Patients with Breast Cancer in Cape Coast

Many breast cancer patients may give up on their condition because of the seemingly ineffectiveness of treatment plans. Their attitude towards their condition is impacted by this view. As a result, many breast cancer patients may have negative perception of the disease. Hence it was prudent to determine the level of illness perception among breast cancer patients involved in the study. Illness perception was measured under three categories (low threatening, moderate threatening and high threatening). The results revealed that most of the breast cancer patients involved in the study have moderate threatening illness perception and quite a substantial number have high threatening illness perception. This means that they have negative perception about breast cancer. It could be that most of the breast cancer patients involved in the study might have gone through numerous severe symptoms of the disease and have experienced its negative toll on their daily lives and activities. Consequently, they have negative impressions about breast cancer.

This result is in congruence with some studies which also found women with breast cancer to have moderate and high threatening illness perception. An example is the work by Lee et al. (2019) who discovered that participants who were now taking chemotherapy (p=0.044) or had previously received chemotherapy (p=0.006) had a more negative impression about their condition. Those who were older (p=0.001) or who had taken chemotherapy (p=0.018) reported negative perceptions about the disease. Again, Kozie et al. (2016) also reported in their study that patients with breast cancer

demonstrated low level of acceptance of their illness. Thus, the stress that accompanied the chemotherapy in addition to the physical bodily changes made breast cancer patients to have negative perception about the disease.

Contrary to the findings of this study, Tettey (2013) discovered that students' perceptions of breast cancer were positive and more favourable. The study also showed that there were no appreciable differences between the first- and second-year mean attitudes and perceptions of breast cancer. It must be noted here that the participants for this particular study were students but not breast cancer patients. Thus, the major factor responsible for this variation is the fact that Tettey's study evaluated the general public's perception, particularly that of students, whereas other studies, including the current study, evaluated the perception of women with breast cancer. Patients with breast cancer who are the direct victims will express their sickness differently from the wider public, who also view it differently. In such cases, the victims themselves who are in the condition are able to give vivid responses to the situation than others who merely give their opinions outside the condition. Besides, students, by virtue of their academics, have a better understanding of breast cancer than those with little or no education.

Relationship between Illness Perception and Psychological Capital in Patients with Breast Cancer

As part of the objectives of the study, it was important to examine the relationship between illness perception and psychological capital of women with breast cancer. The findings of the study revealed that illness perception is significantly associated with psychological capital of women with breast

cancer involved in the study. Illness perception was found to be significantly related to most of the components of psychological capital (self-efficacy, hope and resilience). Illness perception was however not significantly associated with optimism component of psychological capital. This means that illness perception has influence on self-efficacy, hope and resilience domain of psychological capital but with no influence on the optimism component of women with breast cancer involved in the study. The perception, be it positive or negative, that one has about breast cancer has corresponding influence on one's confidence and capacity, hope of recovery, and the ability to bounce back in strength even in the midst of the adversity.

This may imply that breast cancer patients with high psychological capital may see their sickness as having less impact on their lives and therefore cannot restrain them from executing their daily activities. In the midst of their troubling condition, breast cancer patients with better psychological capital may have stronger coping mechanisms. They may believe that their disease is less contagious and more manageable as a result.

Illness perception of women with breast cancer have been found in some studies to have significant association with psychological capital. For example, the Pearson correlation test for Tavakoli et al.'s (2017) study revealed a significant and positive link between the total capital score and its component parts and the perception of the condition ($p = 0.001$). Nosrati et al. (2018), conducted a study to determine the relationship between psychological capital and acceptance of disease with life satisfaction in patients with breast cancer. The results revealed a significant positive correlation between

psychological capital with life satisfaction ($p<0.001$) and acceptance of life with satisfaction of life ($p<0.001$) in patients with breast cancer. Also, Shamili, Zare and Oraki (2013) found that breast cancer patients' psychological capital has significant association with their perception of illness. In the same vein, Tirian (2022) also discovered a significant positive correlation between perception of disease and psychological capital ($p=0.001$) and quality of life (0.002).

Currently, there are no known studies that put across the idea that illness perception has no significant correlation with psychological capital in coping with adversities and distressful symptoms of cancer among breast cancer patients. This affirms the fact that positive illness perception and psychological capital are essential in improving the quality of life of breast cancer patients.

Illness Perception Predicts Health-Related Quality of Life among Patients with Breast Cancer

As part of the objectives of the study, it was important to determine the influence of illness perception on health-related quality of life of women with breast cancer in Cape Coast Metropolis. The findings of the study revealed that illness perception is a significant predictor of physical health QoL and mental health QoL of breast cancer patients involved in the study. This implies that the cancer patients' perceptions of their condition have bearing on health-related behaviour to enhance their quality of life. Breast cancer patients with threatening illness perceptions may be emotionally unstable which makes them feel sad and depressed. This may affect positively their psychological

health quality of life. The inverse, that breast cancer with less threatening perceptions of illness enjoy good health-related quality of life, also holds true. If patients have good illness perception or less threatening illness perception, it reflects on the way they feel and behave. They are more collected with positive outlook on life and the consequent result is sound mind in sound body.

Illness perception of women with breast cancer have been found in some studies to have significant association with health-related quality of life. For example, Lee et al. (2019) discovered that a low sense of wellbeing was directly impacted by a negative sickness perception ($p < 0.001$). Spain et al. (2007) also discovered that breast cancer patients' HRQoL was impacted by their perception of the illness. In addition, Fanakidou et al. (2018) also found that poor HRQoL was linked to the breast cancer patients' negative assessments of their illnesses. Thus, breast cancer patients with negative illness perception of the disease leads to poor quality of health. It further implies that how one perceives the condition goes a long way to influence one's health-related quality of life. The research by Omiowska et al. (2022) confirms this when his study on the assessment of the association of illness perception, the sense of coherence and illness acceptance with QoL in breast cancer patients likewise found a statistically significant correlation between QoL and accepting one's sickness. Kozieł et al. (2016), studied the association between acceptance of illness, anxiety and depression with assessment of quality of life of breast cancer patients. The study also affirmed the fact that illness perception predicts health-related quality of life.

Currently, there are no known studies that put across the idea that illness perception is not relevant in coping with adverse situations, promoting psychological health and enhancing HRQoL among patients. This goes to prove that illness perception is very important for both individuals with and without health conditions since it has positive impact on general health and well-being.

Psychological Capital Predicts Health-Related Quality of Life among Patients with Breast Cancer

As part of the objectives of the study, it was important to determine the influence of psychological capital on health-related quality of life of women with breast cancer in Cape Coast Metropolis. The findings of the study revealed that self-efficacy and hope are not significant predictors of physical and mental health QoL. The finding also revealed that though optimism is not a significant predictor of physical health, it is a significant predictor of mental health. In addition, though resilience is a significant predictor of physical health, it is not a significant predictor of mental health. Thus, in general, psychological capital predicts health-related quality of life, though partially. What this means is that patients with hope, optimism, self-efficacy and resilience enjoy appreciable levels of health-related quality of life. In practice, people may have substantial psychological capital but at the same time lack the drive to seek treatment. Their health-related quality of life therefore suffers as a result.

Other studies have also reported on psychological capital and quality of life. For instance, Sadoughi, Mehrzad, and Mohammad (2017) discovered a statistically significant association in all the components of psychological

capital and health related quality of life of breast cancer patients: hope (r=.45, p.01), optimism (r=.25, p.01), resilience (r=.40, p.01), and self-efficacy (r=.27, p.01). Zhao et al. (2022) also discovered that quality of life in cancer patients was positively connected with resilience, hope, optimism, self-esteem and self-efficacy. In addition, Shoaa and Momeni, (2009) studied the relationship between quality of life and hope in breast cancer patients after surgery. The results indicated positive and significant relationship between hope as a form of psychological capital and quality of life in physical, psychological and social dimensions. Thus, psychological capital is an essential tool in improving quality of life in patients since no single study has found the contrary view that psychological capital does not promote quality of health.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter provides a summary of the findings of the study as well as the conclusions, recommendations and suggestions for further research. Thus, the chapter focuses on the implications of the findings from the study for policy formulation and further research. The recommendations were made based on the key findings and major conclusions arising from the study. The study focused on examining how psychological capital and illness perception serve as predictors of health-related quality of life in patients with breast cancer. To achieve this, the study was guided by six objectives. They are:

1. Investigate the health-related quality of life of breast cancer patients.
2. Determine the level of psychological capital in patients with breast cancer.
3. Investigate the illness perception of patients with breast cancer.
4. Examine the relationship between illness perception and psychological capital of patients with breast cancer.
5. Determine how illness perception predicts Health-related quality of life.
6. Examine how psychological capital predicts Health-related quality of life.

Descriptive quantitative correlational research design was used in the study. The accessible population was 120 number of individuals with breast cancer receiving treatment at the Cape Coast Teaching Hospital. The study made use of convenience sampling technique to select 105 individuals with

breast cancer at the Cape Coast Teaching Hospital. The study adopted Brief Illness Perception Questionnaire (BIPQ) designed by Broadbent, Petriea, Maina and Weinman (2006), The Psychological Capital (PsyCap) Questionnaire for Cancer Patients (PCQ-C 24) developed by Cui et al. (2021) and Health-Related Quality of Life Short Form-12 (HRQoL-SF-12) developed by Jenkinson et al. (1997) to measure illness perception, psychological capital and health-related quality of life respectively. Pre-testing of the instrument was done and reliability and validity were ensured with the Cronbach alpha value above 0.77 indicating that the scales were reliable. Ethical consideration was also ensured before the actual data collection. The data collected were analysed using descriptive statistics (frequencies and percentages, means and standard deviation) and inferential statistics (Pearson Product Moment Correlation Coefficient and multivariate regression).

Key Findings

The following findings were established for the study:

1. Based on the results of the study, it was found that, generally, most of the breast cancer patients involved in the study have good physical and mental health-related quality of life.
2. Again, it was revealed that most of the breast cancer patients have low level of self-efficacy, hope, resilience and optimism dimensions of psychological capital. However, the level of resilience and optimism were better relative to the other components.

3. The findings of the study also revealed that most of the breast cancer patients have moderate (negative) threatening illness perception.
4. It was also revealed from the study that illness perception is associated with psychological capital and also the four components (self-efficacy, hope, optimism and resilience).
5. Additionally, the study revealed that illness perception is not a significant predictor of physical and mental health QoL of breast cancer.
6. Finally, it was also revealed from the study that psychological capital partially predicts health-related quality of life. Whiles resilience predicts physical health quality of life, optimism is a significant predictor of mental health QoL. However, self-efficacy and hope are not significant predictors of physical and mental health QoL.

Conclusions

The study was able to cover all the objectives that were set and guided the study. Based on the findings from the study, it can be concluded that breast cancer patients in Cape Coast Metropolis have good health-related quality of life. They might have been informed about how to treat and cope with the illness. Good social support and less stigma from significant others as a result of public education in recent times might have contributed to the good health-related quality of life of breast cancer patients in the Metropolis.

It can also be concluded from the study findings that breast cancer patients in the Metropolis have low level of psychological capital. This may be due to the fact that many interventions might have failed, which makes most breast cancer patients in the Metropolis to have lower psychological capital.

Again, it can be concluded from the study findings that breast cancer patients in the Metropolis have moderate or negative threatening illness perception. The majority of breast cancer patients in the Metropolis may have given up on their disease due to the seeming ineffectiveness in treatment regimen. As a result, they have poor perception about their illness.

Moreover, it can be concluded from the study findings that illness perception has association with psychological capital and all its four components (self-efficacy, hope, optimism and resilience). Women with breast cancer see their sickness as having less of an impact when they have high psychological capital.

Additionally, it can be concluded from the study findings that illness perception is not a significant predictor of physical and mental health quality of life of women with breast cancer in the Metropolis.

Finally, it can be concluded from the key findings of the study that psychological capital is a significant predictor of health-related quality of life. However, self-efficacy and hope are not significant predictors of physical and mental health quality of life.

Recommendations

In view of the findings that came out and the conclusions that were made in the study, the following recommendations were made:

1. Timely, appropriate and targeted intervention should be provided in relation to the physical, psychological and social aspects of breast cancer patients' lives to enhance their ability to function, relieve them of adverse symptoms, and improve their overall health-related quality of life.
2. Healthcare providers can promote psychological capital by encouraging patients to conserve energy, engage in relationships, maintain a positive outlook and engage in activities that help patients to cope, adapt and manage symptoms during and after treatment.
3. Clinical health psychologists, clinical psychologists and physicians should also focus on helping patients with breast cancer to develop positive views about the disease and also proactive ways of handling their emotions related to the disease.
4. The Metro Health Directorate, the Media and NGO's should develop an appropriate information, education and communication materials to create awareness and educate the general public on breast cancer diseases stressing the relationship between illness perception and psychological capital.
5. Again, the Health-related quality of life of breast cancer patients is paramount but must be stressed independent of their perception since there is no relation.

6. Lastly, health workers should focus, during their sessions with breast cancer patients, on helping patients build on their psychological capital especially resilience and optimism as they improve the quality of health of breast cancer patients.

Suggestions for Further Research

The overall purpose of this study was to examine how psychological capital and illness perception serve as predictors of health-related quality of life in patients with breast cancer. The following areas, however are recommended for further research study.

1. Further studies should be conducted that make use of mixed method research approach to explore the influence of psychological capital and illness perception on all the dimensions of quality of life of breast cancer patients.
2. Future studies could also take into consideration other key factors such as emotional intelligence, faith, religiosity and spirituality among other factors since Africans are highly religious, to see how they could impact the health-related quality of life of patients with breast cancer.

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APPENDICES

APPENDIX A-INFORMED CONSENT

I am Enoch Asmah, the principal investigator undertaking this scientific-based research. The aim of the study is to **examine how psychological capital and illness perception predict health-related quality of life among breast cancer patients**. The information provided is considered confidential, and no one else except the principal investigator, field assistants and my supervisor will have access to the survey. To the best of our knowledge, the researcher as well as his field assistants do not anticipate any risks or discomfort associated with your participation in the study.

I assure you of privacy and secrecy of your responses. I will protect your information to the best of my ability and you will not be named in any of the reports. The questionnaires do not contain any identification information and every information given is solely for the purpose of academics.

It is worth asserting that, participation in this research study is neither compulsory nor obligatory but rather voluntary.

Therefore, if you willingly want to partake in this study, indicate your voluntary participation by signing or ticking below.

Sign…… Tick [ ]

APPENDIX B: QUESTIONNAIRE

UNIVERSITY OF CAPE COAST

FACULTY OF EDUCATION FOUNDATION

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

This questionnaire seeks to elicit information on **how psychological capital and illness perception predict health-related quality of life among breast cancer patients in the Cape Coast Metropolis**. Participation is voluntary and respondents are assured of confidentiality of any information given. Information given is solely for academic purposes. Thank you.

SECTION A

DEMOGRAPHIC INFORMATION

Please, tick (√) or supply the appropriate responses.

1. **Age of patient**…….....
2. **Marital Status**
   Single [ ] Married [ ] Divorced [ ] Widowed [ ]
3. Please, at what age were you diagnosed with breast cancer?.....
4. How did you feel when you were told you have breast cancer?

   Sad [ ] neutral [ ] shocked [ ] afraid [ ]

SECTION B
Illness Perception

By illness perception, it means how a person thinks, feels, and/or acts toward an illness, in this case, breast cancer. Please use the statements below to indicate your response to your perception of breast cancer.

1. How much does your illness affect your life?

0 not affected at all	1	2	3	4	5	6	7	8	9	10 Severely affects my life

2. How long do you think your illness will continue?

0 a very short time	1	2	3	4	5	6	7	8	9	10 forever

3. How much control do you feel you have over your illness?

0 absolutely no control	1	2	3	4	5	6	7	8	9	10 extreme amount of control

4. How much do you think your treatment can help your illness?

0 not at all	1	2	3	4	5	6	7	8	9	10 extremely helpful

5. How much do you experience symptoms from your illness?

0 no symptoms at all	1	2	3	4	5	6	7	8	9	10 many severe symptoms

6. How concerned are you about your illness?

0 not at all concerned	1	2	3	4	5	6	7	8	9	10 extremely concerned

7. How well do you feel you understand your illness?

0 don't understand at all	1	2	3	4	5	6	7	8	9	10 understand very clearly

8. How much does your illness affect you emotionally? (e.g. does it make you angry, scared, upset or depressed?)

0 not emotionally affected at all	1	2	3	4	5	6	7	8	9	10 extremely affected emotionally

SECTION C
HEALTH-RELATED QUALITY OF LIFE

Please, respond by ticking (√) how often these statements apply to you

1=None of the time, 2=A little of the time, 3=Sometimes, 4=Most times, 5=All the time

	Statements	**1**	**2**	**3**	**4**	**5**
1	I can perform moderate activities.					
2	I am able to climb several flights of stairs.					
3	I accomplish less than what I would like.					
4	I am limited in the kind of work or activities to do.					
5	Severe pain interferes with normal work.					
6	In general, my health is good.					
7	I have a lot of energy.					
8	My physical health and emotional health interfere with my social activities.					
9	I accomplish less than what is required of me.					
10	I work and do other activities more carefully.					
11	I feel calm and peaceful.					
12	I feel sad and depressed					

SECTION D
PSYCHOLOGICAL CAPITAL

Please, indicate by ticking (√) the extent to which you agree with the following statements

(1= Very strongly disagree, 2= Strongly disagree, 3= Neutral, 4= Strongly agree, 5= Very strongly agree).

	Statements	**1**	**2**	**3**	**4**	**5**
1	If I think I am going to fail, it is going to happen.					
2	The effect of disease treatment rarely follows the trend I expect.					
3	I often worry about my health.					
4	I hardly expect good things to happen to me.					
5	I feel tired most of the time.					
6	I feel very lonely or helpless after a cancer diagnosis.					
7	I like to challenge myself with new and difficult things.					
8	I still think I'm a very energetic person when sick.					
9	My daily life is full of things that interest me.					
10	I have a tenacious personality even after the cancer diagnosis.					
11	I can concentrate and think clearly under the pressure of illness.					
12	I can make unusual or difficult decisions.					
13	I treat diseases with a positive attitude.					
14	I never give up even if the chance of cure is low.					
15	My faith helps me through my illness.					
16	I can give and receive love and care from others.					
17	I should perform positive actions to navigate through the disease.					
18	I believe that we can fight diseases as long as we work hard.					
19	I can still experience the joys of life after being diagnosed with cancer.					
20	I am able to do something special for myself to make life better.					
21	I am able to help other patients cope with cancer and treatment.					
22	I divert my attention from the disease by focusing on other important things in life.					
23	I find ways to help myself through this difficult time.					
24	I can overcome physical distress or relieve fatigue by doing something.					

APPENDIX C: ETHICAL CLEARANCE - UCC

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: cos/ERB/ucc/edu/vs/22-154 Date: 21st November, 20

Your Ref: .....

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

The bearer, Enock Asmah,..., Reg. No. EF/cyp/20/0007 is M.Phil / Ph.D. student in the Department of ...Education and Psychology..... in the College of Education Studie University of Cape Coast, Cape Coast, Ghana. He / She wishes to undertake a research study on the topic:

Psychological capital and illness perception as predictors of health-relate quality of life of breast cancer patients.

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

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

Thank you.
Yours faithfully,

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

Chairman, CES-ERB
Prof. J. A. Omotosho
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Vice-Chairman, CES-ERB
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Secretary, CES-ERB
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APPENDIX D: LETTER OF INTRODUCTION

Department of Education and Psychology
Faculty of Educational Foundations
College of Education Studies
University of Cape Coast
Cape Coast

4th November, 2022.

The Chairman
Institutional Review Board
University of Cape Coast
Cape Coast

Dear Sir,

LETTER OF INTRODUCTION

Please, Reverend Father Enoch Asmah is one of the postgraduate students I am supervising at the master's level. His student's registration number is EF/CHP/20/0007. He needs an Ethical Review Certificate to enable him to collect data for a research titled: Psychological Capital and Illness Perception as Predictors of Health-related Quality of Life of Breast Cancer Patients. He has already presented the Thesis proposal at the Departmental level and given approval to do the study.

I would be grateful if he is given the necessary assistance.

Yours sincerely,

Professor Emmanuel Kofi Gyimah
Supervisor

APPENDIX E: ETHICAL CLEARANCE - CAPE COAST TEACHING HOSPITAL

APPENDIX F: TEST OF ASSUMPTIONS RESULTS

A. Normality test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Psychcap	.069	105	.200*	.978	105	.084
THRQoL	.077	105	.146	.983	105	.214
ILP	.070	105	.200*	.984	105	.235

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

B.

Model Summary[b]

Model	Durbin-Watson
1	1.707[a]

a. Predictors: (Constant), ILP, Psychcap

b. Dependent Variable: THRQoL

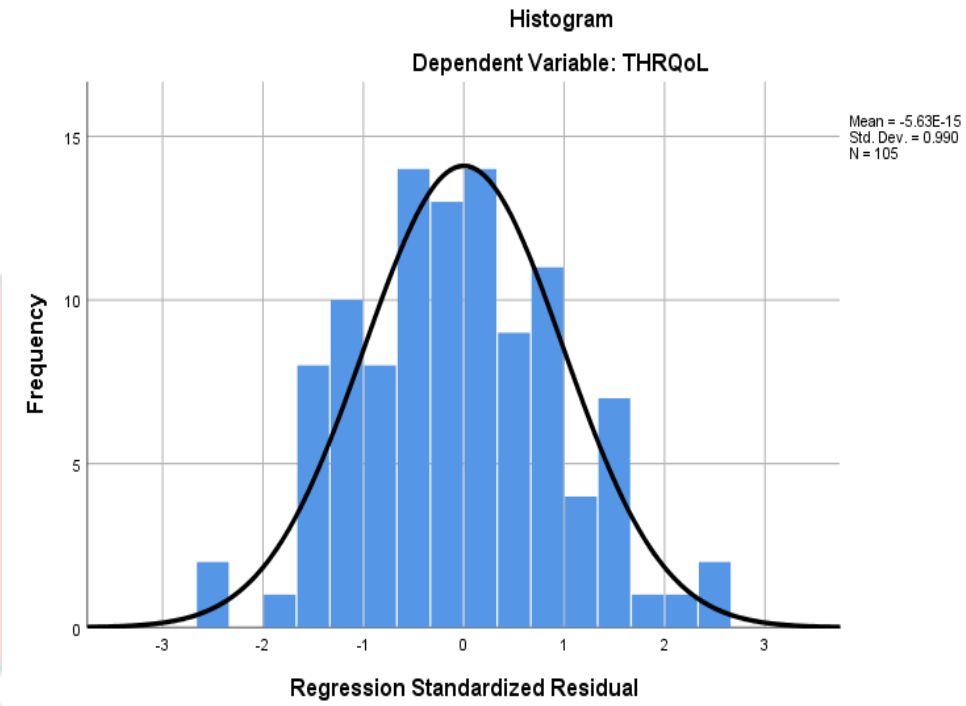
C.

Coefficients[a]

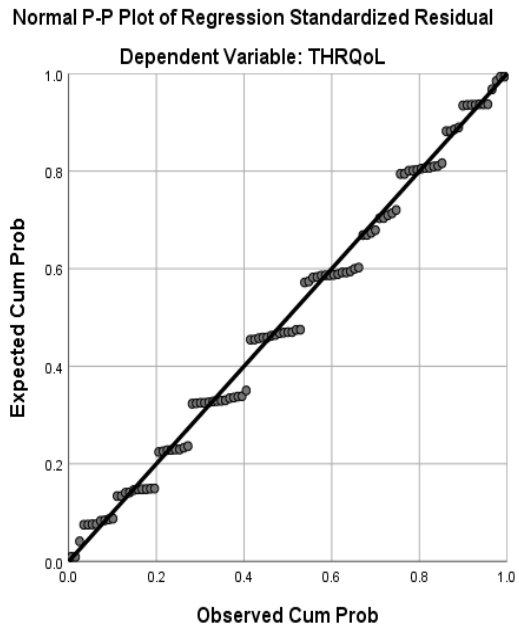
		Collinearity Statistics	
Model		Tolerance	VIF
1	Psychcap	.781	1.280
	ILP	.781	1.280

a. Dependent Variable: THRQoL

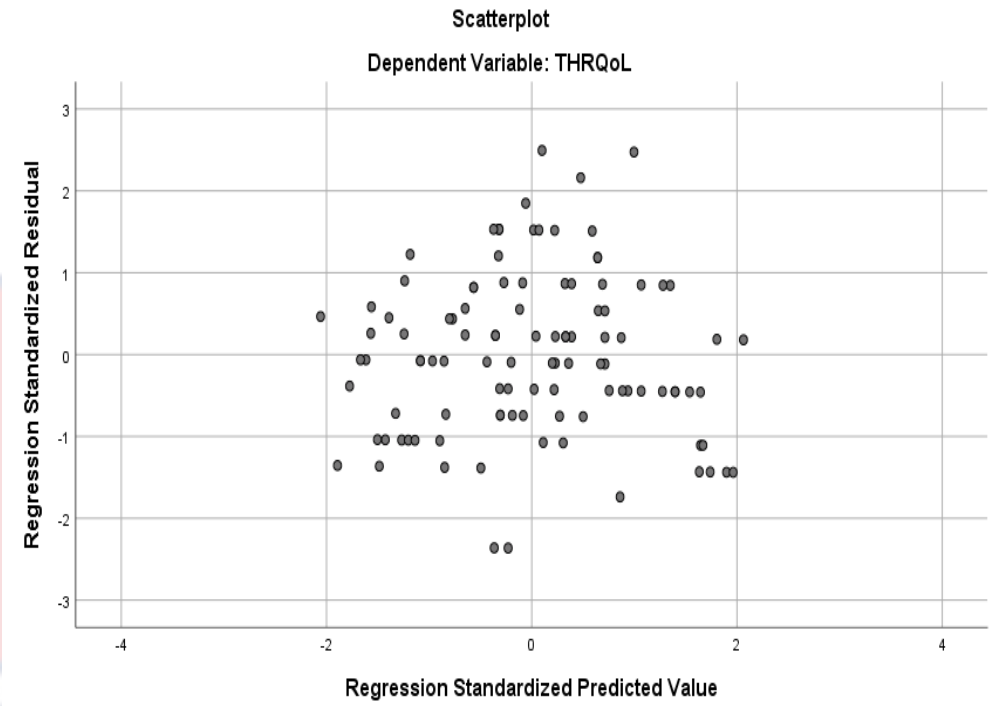
D.



E.



F.



G.