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ILLNESS PERCEPTION AND RELIGIOSITY ON DIABETIC PATIENTS' MENTAL HEALTH IN CAPE COAST METROPOLIS

JONATHAN AMARTEY

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ILLNESS PERCEPTION AND RELIGIOSITY ON DIABETIC PATIENTS' MENTAL HEALTH IN CAPE COAST METROPOLIS

BY

JONATHAN AMARTEY

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

MARCH 2019

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DECLARATION

Candidate's Declaration

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

Candidate's Signature …… Date…….

Name: ……..…

Supervisors' Declaration

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

Principal Supervisor's Signature…… Date……

Name: ……..…….

Co-Supervisor's Signature…… Date…….……

Name: ……...……

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ABSTRACT

In contemporary Ghana, several medical problems are being reported at the general hospitals and clinics for treatment. Most of these medical problems are accompanied by mental health problems. However, the mental health elements of the medical conditions are usually neglected though researches have demonstrated that the associated mental health problems can influence the prognosis and the course of such illnesses. This study sought to explore the relationships that exist between patients' illness perception, religiosity and their mental health. The target population of the study was all diabetic patients attending a health facility numbering 250, seeking treatment for diabetes in the Cape Coast Metropolis in the Central Region of Ghana. A sample size of 103 diabetic patients from 250 patients was selected through the convenience sampling technique from the population. Descriptive survey design involving the quantitative approach was used in the study. Quantitative data were gathered through questionnaires and were analyzed using descriptive statistics (frequencies and percentages, means and standard deviation) and inferential statistics (Pearson correlation and independent sample t-test). The study revealed that, generally, diabetic patients' in the metropolis have a high level of religiosity. Again, result indicated that there was a negative correlation between diabetic patients' religiosity and their mental health ($r=-.286^{**}$, $n=103$, $p<0.05$, $p=0.003$, 2-tailed). Results also indicated that there was a weak positive relationship between illness perception of diabetic patients and their mental health($r=.080$, $n=103$, $p<0.05$, $p=0.421$, 2-tailed). Based on the findings, a holistic and comprehensive model of healthcare such as the Biopsychosocial model should be incorporated at the various health centres across the nation.

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KEY WORDS

Religiosity

Illness Perception

Biopsychosocial Model

Cape Coast Metropolis

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DEDICATION

To Mr. Joseph Amartey, my late father and Ms. Florence Lydia Mensah, my beloved mother.

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LIST OF ACRONYMS

ADA	American Diabetes Association
BIPQ	Brief Illness Perceptions Questionnaire
GD	Gestational Diabetes
IPQ	Illness Perception Questionnaire
PPMC	Pearson Product Moment Correlation
SPSS	Statistical Product for Service Solution
SRM	Self -Regulatory Model
WHO	World Health Organization

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CHAPTER ONE

INTRODUCTION

Background of Study

Diabetes can be defined as a situation where an individual's body is incapable of producing the hormone insulin in levels required by the body cells to take up optimal glucose (Kumar & Clark, 2005). Also, Diabetes mellitus is a metabolic disorder characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both.

Further, diabetes mellitus is characterized by gross loss of weight, frequent urination, excessive thirst and slow healing of wounds. Some other symptoms of diabetes include chronic fatigue and changes in vision. Therefore, if the diabetic condition is not well managed it can lead to complications such as loss of blood circulation to the heart and limbs (Darkwa, 2011). Failure of circulation of blood to the heart and limbs could pose serious threats to the lives of those suffering from the condition. These serious complications of diabetes are likely to predispose the diabetes patients to mental health problems that are commonly found among sufferers of chronic illnesses (Darkwa, 2011).

There are three broad categories of diabetes mellitus and these are the Type -1, Type-2 and Gestational diabetes. Type 1diabetes indicates the processes of beta–cell destruction that may ultimately lead to diabetes mellitus in which "insulin is required for survival" to prevent the development of

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ketoacidosis, coma and death (World Health Organization, 1999). Type II diabetes is the commonest form of diabetes and is characterized by disorders of insulin secretion and insulin resistance. Gestational Diabetes (GD) mellitus refers to the onset or initial recognition of glucose intolerance during pregnancy, usually in the second or third trimester (American Diabetes Association, 2001).

Diabetes is one notable long term illness that is strongly associated with mental health such as depression and anxiety. People living with diabetes are two to three times more likely to have depression than the general population (Fenton and Stover 2006; Simon, Shear, Thompson, Zalta, Perlman, Reynolds, Frank, Melhem, Silowash, 2007; Vamos, Mucsi, Keszei, Kopp, Novak, 2009). As observed for cardiovascular disease, prevalence estimates vary but the proportionate increase is consistent (Anderson et al 2001).

Analysis of more than 13,000 twins in Sweden found that mid- and late-life onset of diabetes was associated with a respective 176 per cent and 63 per cent increase in the risk of dementia (Xu et al 2009). Another study in Japan reported that over an 11-year period 27 per cent of a group of people over 60 with diabetes developed dementia compared with 21 per cent of a matched cohort without diabetes (Ohara, Doi, Ninomiya, Hirakawa, Hata, Iwaki, Kanba, Kiyohara 2011). The risk of developing dementia is even higher among people who have depression as well as diabetes (Katon, 2011).

In sub-Saharan Africa (SSA), chronic illnesses are on the increase, however, growth rates of diabetes mellitus (DM) and hypertension are among the highest chronic diseases worldwide (Danquah, Bedu-Addo, Terp, Micah,

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Amoako, Awuku, Dietz, Giet, Spranger, Mockenhaupt, 2012). In Ghana, it is estimated that 4 million people are living with diabetes and this number is expected to rise in the near future (National Diabetes Association of Ghana, 2012). Thus, several people are living with diabetes and its attendance complications. It is therefore believed that by 2025, more than 75% of the world population with diabetes will reside in developing countries and the countries with the largest populations of adults with diabetes will include: India, China and the United States (King, Aubert, & Herman, 1998).

Living with any type of chronic disease, the person either has to make minor or major lifestyle adjustments. Diabetes, in particular, can eventually take its toll on the emotional, psychological, and physical wellbeing of any person. These adjustments can lead to either successful adherence to medical regimens and control of the disease, or among other things, ineffective or maladaptive coping (Duangdao & Roesch, 2008). How the individual adjusts to the diabetic condition depends on the resources available to the individual at personal, community and societal levels.

Several factors have been identified to have a significant influence on the mental health and illness outcome of diabetic patients. Some of these factors include illness perception, level of patients‟ religiosity as well as the patients‟ demographic characteristics. In the case of diabetic patients, Mosorovic, Brkic, Nuhbegovic and Pranjic (2012) asserted that diabetes mellitus is a disease that is no longer just an individual problem, but it is assuming psychological and socio-medical significance of mass disease. Thus, in trying to reduce the rate of complications associated with diabetes, both

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psychological as well as socio-medical factors should be taken into consideration.

Several factors have been found to influence the levels of mental health problems among diabetic patients. One of these variables is how the diabetic patients perceive their illness. Illness perception has been studied extensively in relation to several medical and psychological conditions. Perception is described as the process by which an individual interprets and organizes sensations and events to produce a meaningful experience of the world (Lindsay & Norman, 1977). These interpretations are guided by the specific knowledge, beliefs and expectations characterizing the individual (Alsén, 2009). Perception in terms of illness may be conceptualised as how people understand and make sense of their diseases and/or disabilities, e.g. illness perceptions. In this respect, illness perceptions to some extent correspond to the conceptualizations of illness in contrast to disease (Alsén, 2009).

There are several determinants of health outcomes among patients suffering from any form of illness and as such, outcomes of medical management in patients with chronic illness are determined not only by objective factors but also by behavioural and social factors (Leventhal, Weinman, Leventhal &Phillips, 2008). Some of these behavioural and social factors are related to how the patients appraise their illness on several dimensions. Some of these perceptual dimensions of the illness perception include the causal attribution, timeline, severity, consequences, understanding as well as the personal control of the individual over the condition. The extent

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of these perceptions to a large extent determines how the individual patients react to treatment as well as other management regiments.

Furthermore, research has shown that people vary in how they perceive their health status and that these perceptions often are independent of the actual physical conditions that are being suffered (Taylor, Kemeny, Reed, Bower & Gruenewald, 2000). For example, people vary in how they perceive their possibilities to influence or control their health (Wallston, 2004), whether their condition is acute or chronic (Lau & Hartman, 1983) or whether or not their specific situation is hopeful (Scheier & Carver, 1985). Such perceptions may in turn determine individuals‟ behaviour as well as their response to managing health threats related to a disease or a symptom (Alsén, 2009). Thus, the individual's active role in terms of thought processes affect their health outcomes and therefore, Schrag, Jahanshashi and Quinn (2001) asserted that patients‟ perceptions of their condition are likely to play an important role in how they adjust to their illness.

Additionally, the individual's level of religiosity has been shown to have significant influences on his/her psychological wellbeing. However, the study of religion in psychology has not been without disagreements as it is seen as not being scientific. In the past years there has been a change from negative attitudes in psychology, concerning religion, to the identification of more positive relations between religion and different aspects of mental health (Rusu &Turliuc, 2011). Religiosity is a multi-layered concept involving cognitive, emotional, motivational and behavioural aspects (Hackney & Sanders, 2003). Richards and Bergin (1997) see religion as a subset of the spiritual, considering that is possible for someone to be spiritual without being

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religious and to be religious without being spiritual. Being spiritual means having a transcendental relation with a superior being, whereas being religious means adopting a certain religious creed or church (Rusu &Turliuc, 2011). However, this separation of religiosity and spirituality is not the case in our context as spirituality and religiosity cannot be decoupled. Thus, a religious person in the Ghanaian setting is seen as spiritual and vice versa.

Furthermore, religion is seen to have important influence on the individual as well as the society at large. For instance, Frey and Stutzer (2002) asserted that religion raises happiness because church attendance is an important source of social support. Also, religion can instill life with meaning and purpose, and religious people are better at dealing with negative circumstances in life and church members live healthier lives and live longer which also contributes to happiness (Frey & Stutzer, 2002). As result of these influences of religion on the individual, Krause and Wulff (2005) noted that that church-based friendship may promote a sense of belonging and thus enhance physical and mental health.

More so, research evidence has pointed to the fact that some forms of religiosity are associated with specific health related issues. For example, religiosity has been associated with low levels of depression (McCullough & Larson, 1999), a personal well-being (Koenig, 2001), positive social attitudes (Baton et al., 1993), a low risk of divorce and an increase in the degree of marital functionality (Mahoney, Pargament, Tarakeshwar & Swank, 2001). Tsang and McCullough (2003) in their analysis of the relationship between religiosity and health related issues, it was shown that religiosity correlates significantly with physical and mental health, tolerance, pro-social behaviour

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and positive interpersonal relationships. These significant influences of religiosity on several aspects of individual's life is worth exploring to ascertain the extent to which religiosity affects these aspect of existent.

More so, some demographic characteristics of the diabetic patients have been shown to predispose them to mental health problems. Some of these demographic characteristics of the diabetic patients include sex, age, marital status, duration of illness and type of diabetes among others. For instance, Jimenez-Garcıa et al., (2011), Guruprasad, Niranjanand and Ashwin (2012) and Hermanns et al., (2005) found among diabetic patients that the female sex is a risk factor for development of psychological distress. Other researchers have also found significant age differences in the development of mental health problems among diabetic patients (Paddison, 2010; Jimenez-Garcıa et al, 2011; Jadoon et al., 2012).

From the discussions of the variables above, it becomes necessary to investigate how these variables relate with one another. That is, an individual perception of the illness may result in dependence on his/her religious faith to adjust to the illness. Perceiving the illness as threatening is usually accompanied by psychological distress. However, these perceptions and reactions to the illness are usually influenced by individual characteristics. Therefore, the individual characteristics of the diabetic patients influence their mental health significantly.

Statement of the Problem

In contemporary Ghana, several medical problems are being reported at the general hospitals and clinics for treatment. Most of these medical problems are accompanied by mental health problems. However, the mental

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health elements of the medical conditions are usually neglected though researches have demonstrated that the associated mental health problems can influence the prognosis and the course of such illnesses (Lin et al., 2004). Even though there has been researches done, there has been a continuous neglect on the need to adopt holistic measures to health care provision, such as considering the patient's religious and psychological needs. Many diabetes patients find it challenging to make the lifestyle changes necessary to stay healthy. Making healthy lifestyle choices is important for people with type 2 diabetes.

Additionally, with the high prevalence of diabetes mellitus predicted to be very high by 2030 (Shaw, Sicree & Zimmet, 2010) and affecting people mostly in developing countries, the psychological care and intervention that is required alongside other orthodox treatment of diseases. The individual patients may have their own ways of dealing with the mental health challenges that accompany their illness but the question is, which individual resources do they use, how do they use them and how these individual resources affect their general mental health. Therefore, there is the need to identify the factors that are likely to have significant influence on mental health of diabetic patients to inform therapy.

In the management of these physical conditions, one would think that all health-related professionals would be brought on board but the opposite is what we are facing in Ghana. Thus, psychological care is very critical in the management of diabetic patients.

Furthermore, one crucial aspect of health that seems to be ignored in healthcare delivery in the country is the interpretations and beliefs held by the

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patients about their illness (diabetes). This is because the beliefs and perceptions held by an individual about their health conditions to a large extent influence their health outcomes and treatment regimen. That is, if the individual perceives his/her illness to be more or less threatening, how does this affect his/her wellbeing? Therefore, when these beliefs and perceptions about the illness (diabetes) are not understood and incorporated into the care of diabetic patients, a lot of problems are neglected as several researchers have demonstrated a significant association between illness perception and mental and physical health outcomes (e. g. Broadbent, Donkin & Stroh, 2011; Petricek, Vrcić-Keglević, Vuletic 2009; Leventhal, Leventhal, & Cameron, 2001).

More so, a central part of the Ghanaian which is religion (Gyekye, 1996) seems to be neglected in the provision of healthcare especially in the physical illnesses. However, as the complications of diabetes are not limited to only the medical ones, most people rely on their individual resources such as religion to cope with the illness. The question that arises is whether the diabetic patients‟ religious resources are utilized in providing healthcare services as it is well known that prayer camps and healing centers continue to serve as refuge for patients. To address this shortfall however, research is needed to examine whether indeed the individual's level of religiosity protects him/her against unfavorable consequences of diabetes.

In a nutshell, it is very important to consider factors such as patients' perception of an illness and their level of religiosity in relation to their mental wellbeing in order to streamline an effective treatment regimen that would ensure both psychological and medical wellbeing. For this to be realized there

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is an urgent need to clearly spell out the roles or functions of illness perception and levels of religiosity and its influence on the mental wellbeing among patients. To rule out or discredit the relevance of these two actors will be a grave error and miscalculation on the part of health care providers and can lead to more serious complications. So far, very limited studies have been conducted on the perception and religiosity on the mental health patients' mental health. This study however, extends the scope to include mental health.

Purpose of the Study

The main purpose of this current study is to investigate the relationship between diabetic patients' religiosity and mental health outcomes, as well as their illness perception and mental health. Specifically, this study seeks to:

1. examine the relationship between diabetic patients' level of religiosity and their mental health problems.
2. investigate the relationship between diabetic patients' illness perception and their mental health problems.
3. outline the three most important perceived causes of diabetes amongst diabetic at the Cape Coast Metropolis.
4. investigate whether patients' demographic characteristics such as sex, age, level of education and duration of illness influence their mental health problems significantly.

Research Questions

The study will seek to answer the following research questions based on available literature;

1. What is the level of spirituality amongst diabetic patients at the Cape Coast Metropolis?

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2. What are the perceived causes of illness amongst diabetic patients at the Cape Coast Metropolis?

Hypotheses

The following hypotheses were therefore made for the study;

H_1: There will be a statistical significant relationship between diabetic patient's religiosity and their mental health.

H_0: There will not be a statistical significant relationship between diabetic patient's religiosity and their mental health.

H_2: There will be a relationship between illness perception of diabetic patients and their mental health at the Cape Coast Metropolis.

H_0: There will not be a relationship between illness perception of diabetic patients and their mental health at the Cape Coast Metropolis.

H_3: There will be no statistical significant difference between male and female diabetic patients based on their religiosity.

H_0: There will be a statistical significant difference between male and female diabetic patients based on their religiosity

H_4: There will be no statistical significant differences between males and females diabetic patients based on their mental health.

H_0: There will be a statistical significant differences between males and females diabetic patients based on their mental health.

H_5: Religiosity will best predict the mental health of diabetic patients at the Cape coast Metropolis.

Significance of the Study

This research results contributed knowledge on patient's religiosity and illness perception and their contributions in improving mental health to help

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policy makers in planning intervention programmes. This study plays a major role of advocating for the bio psychosocial model of illness treatment and management as it emphasizes the need to include our spiritual, social, biological and psychological components toward the managing of illnesses.

This study highlighted the common mental health problems in diabetic patients in Ghana. The identification of these common mental health problems would form the basis for incorporating psychological care into the treatment plan. Coupled with the identification of the common mental health problems would be how the perceptions and religiosity levels of the diabetic patients are likely to influence such mental health problems. This is because the patients do usually rely on both personal as well as their social resources in dealing with health problems. The results from this study equipped clinicians with information on how to cater for the mental health needs of diabetic patients in Ghana since this study is one of the few in the area of diabetic and mental health outcomes.

The study outcomes informed policy decision making by recommending measures to be put in place in the care of diabetic patients. This study added to existing literature in the area of illness perception and diabetic complications (mental health problems) since the relevant literature are few if not non-existent. Also, as a result of paucity in the religion and mental health literature in Ghana, the outcomes of the study would form the basis for further studies. In the long run, this study helped shape the scope of management of diabetes mellitus which is predominantly biomedical by including more allied health professionals into the management plan.

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Delimitations

This study focuses on illness perception, religiosity and how these relate to the mental wellness of diabetic patients in Cape Coast Metropolis. Data was collected from Cape Coast District Hospital and Ewim Polyclinic. Other health facilities in the metropolis were not included.

Limitations

The participants in the study included those gotten through convenience and the research instrument used was not able to cater for everything the researcher wanted to investigate. Again there was difficulty in getting participants to divulge information on lifestyles as most did not want to share their lifestyle choices because they felt embarrassed.

Definition of Terms

Mental Health Outcomes: These include the patients' reported experience of Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism

Religiosity: This refers to personal religious faith of the individual not specific to any religion

Illness Perception: This refers to the interpretation given to diabetes mellitus in terms of the diabetes being benign or severe

Organization of the Study

The study is divided into five chapters. Chapter one is the introduction to the study which comprised the background of the study, the statement of the problem, the purpose of the study, significance of the study and research

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questions. The chapter also contains the delimitations and limitations of the study.

Chapter two begins with the conceptual framework of the study and then followed by the review of related literature on various theoretical framework used in the study, empirical evidence on Diabetes and Mental Health Outcomes, Religiosity and Mental Health Outcomes, Illness Perception and Health Outcomes, the chapter ends with a summary of literature reviewed.

The research design, population, sample and sampling procedure, research instruments, data collection and analysis procedures are discussed in chapter three. Chapter four presents the analysis and discussion of results, summary of findings and additional findings. The concluding chapter deals with the discussion of the study, recommendations, limitations, areas for future study and conclusion.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This current study sought to examine the relationship between patients' perception of diabetes mellitus and their mental health, how this perception impacts their mental health outcomes, as well as outlining the perceived causes of illness among the diabetic patients. Also, the influence of diabetic patients' religiosity and their mental health outcomes are examined as well as their demographic characteristics. This chapter therefore, presents the conceptual framework of the study, theoretical frameworks underlying the study with the view of elaborating on the theories that explain the various variables in the study by putting them into perspective. The theories of concern in this present study include the Self-Regulatory Model (Leventhal, Meyer & Nerenz, 1980), the Strength Model of Self Control (Baumeister, Vohs & Tice, 2007), the Health Belief Model (Rosenstock, 1966) and the Religious Coping theory (Pargament, 1997). The reviews of the theories underpinning the study are followed by the empirical literature on the various variables in the study. The first section relates to empirical evidence on the roles or functions of religion in psychology or psychological health, Diabetes and Mental Health, Religion and Mental Health, and Illness Perception and Health Outcomes. The chapter concludes by summarizing the entire chapter.

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Theoretical Frameworks

Four main theories/models that will guide this study are listed and discussed into details in the section below.

Self -Regulatory Model *(SRM)* by Leventhal, Meyer and Nerenz (1980, 1997)

This model proposes that individuals actively generate cognitive and emotional representations of health threats and that these representations guide and regulate behaviour (Leventhal, Benyamini, Brownlee, Diefenbach, Leventhal, Patrick-Miller, Robitaille, 1997). The model indicates that internal stimuli (e.g. the experience of symptoms) as well as stimuli from the environment (e.g. risk information, witnessing a relative's illness) may trigger cognitive and emotional representations. Based on these representations individuals derive an action plan to cope with the threat they perceive. The success of a particular coping strategy is appraised and feeds back into both the representation and the action plan, which may be modified accordingly.

This model therefore, helps in understanding how a particular illness condition is conceptualized by patients and how this understanding facilitates adjusting and coping with the condition. In this regard, several perceptual components (cognitive and emotional) have been identified to form part of how patients interpret their illnesses. Thus, the Leventhal's Self-Regulation Model theory proposes five separate components. These components identified in the model are perceptions of identity, cause of illness, duration, consequence, and curability or controllability (Ogden, 2004).

Identity: This refers to the label given to the illness (the medical diagnosis) and the symptoms experienced (Ogden, 2004). This identity element provides

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an individual with a label and the associated symptoms which shape how the condition is interpreted. For instance, “I have diabetes” which signifies the label and “I urinate more frequently than usual” representing the symptom.

The perceived cause of the illness: This refers to factors identified by the individual as contributing to the emergence of the condition under consideration. These causes may be biological, such as a virus or a lesion, or psychosocial, such as stress or health-related behaviour (Ogden, 2004). For instance, ‘my diabetes is from my family, stress and spiritual among others’.

Time line: According to Ogden (2004, p50), it “refers to the patients‟ beliefs about how long the illness will last, whether it is acute (short-term) or chronic (long-term)”. For instance, „my diabetes will last forever‟ and „my diabetes will be over soon‟. These items reflect the perceptions of the duration of the illness by the patients.

Consequences: This refers to the patient’s perceptions of the possible effects of the illness on their life. Such consequences may be physical (amputation) emotional (depression and anxiety) or a combination of factors. For instance, „My diabetes will prevent me from eating my favorite foods and also from my usual lifestyles.

Curability and controllability: Patients also represent illnesses in terms of whether they believe that the illness can be treated and cured and the extent to which the outcome of their illness is controllable either by themselves or by powerful others such as doctors, God and even healers. For example, „If I follow my diet regimen, my symptoms will disappear‟ and „If I get my medical treatment from my doctor my illness will be cured‟.

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These illness perceptions are activated by the long term memory, and the representation is formed based on the comparison between the current incident and the individuals' former belief (Yuniarti, Dewi, Ningrum, Widiastuti, & Asril, 2013). Thus, in perceiving the illness condition, the individual relies on previously stored information about the illness in making sense out of the condition. This stored information could be accurate or inaccurate but then has a significant influence on the symptoms ascribed to the illness, duration, causes, controllability/curability as well as the effect on the individual.

Several measures have been developed to measure illness perception in patients across different conditions. The original measure was named as The Illness Perception Questionnaire (IPQ) developed by Weinman, Petrie, Moss-Morris and Home (1996) to provide a theoretically derived measurement instrument suitable for use with any patient population. There are five subscales making up the IPQ that attempt to operationalize the components of self-regulation theory. These five subscales are illness identity, perceptions of causation, time-line perceptions, beliefs in severity of consequences, and perceptions of cure or control of the condition (Fortune, Richards, Griffiths & Main, 2002). The scale was further modified and renamed as the revised illness perception questionnaire (IPQ-R) by Moss-Morris et al., (2002). This revised version measures perceptions of identity, consequences, cause, personal control, treatment control, timeline acute/chronic (duration of illness), timeline cyclical (does illness/symptoms occur in cycles), illness coherence (extent to which the patient understands their condition) and emotional representations generated by the illness (e.g. fear). The revised

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version has been shown to have superior psychometric properties compared to the earlier version (Knibb & Horton, 2008).

However, a recent version of the illness perception scale was developed by Broadbent, Petrie, Main and Weinman (2006) and it was named as The Brief Illness Perceptions Questionnaire (BIPQ) for the illness perception, which measures the dimensions: identity, consequences, duration, personal control, treatment control, understanding, causes, symptoms and emotional representations. This measure has been shown to be shorter and easier as well as demonstrating good psychometric properties (Broadbent, Petrie, Main & Weinman, 2006).

Some studies have supported the self-regulation theory in explaining illness outcomes in several illness conditions. For instance, the model was found to be significant in explaining psychological distress in allergy sufferers (Knibb & Horton, 2008), adjustment in breast cancer survivors (Jørgensen, Frederiksen, Boesen, Elsass & Johansen, 2009). Similarly, Hagger and Orbell (2003 in Ogden, 2004) carried out a meta- analysis of 45 empirical studies which used Leventhal's model of illness cognitions and concluded from their analysis that there was consistent support for the different illness cognition dimensions and that the different cognitions showed a logical pattern across different illness types.

The Strength Model of Self Control (Baumeister, Vohs & Tice, 2007)

Related to the self-regulation model (Leventhal et al., 1980, 1997) above is the Strength Model of Self Control (Baumeister, Vohs & Tice, 2007) which stemmed from Self-Regulation. Baumeister and Vohs (2007, p.1) defined self-regulation as "the self's capacity for altering its behaviour". That

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is, the ability of the individual to be able to adapt to both internal and external demands by making conscious attempts at meeting these demands. This self-regulation/control theory has been showed to be influential in many aspects of human existence including mental and physical health outcomes, adjustment and interpersonal relationships (Baumeister & Boone, 2004 in Baumeister & Vohs, 2007).

Furthermore, earlier self-regulation proponents identified three main domains including standards set by the individual, monitoring the set standards and strength/willpower (Baumeister & Vohs, 2007). That is, in self-control/regulation, there are standards set by the individual which guide behaviour and the standards are monitored with the presence of willpower. It can therefore be deduced from these domains of self-regulation that, the individual is an active part of issues affecting him/her life by altering behaviors, beliefs and perceptions. Thus, if an individual is afflicted with an illness like diabetes, he/she requires some self-regulation to maintain stable emotional outcomes as the demands of the illness are likely to destabilize the self.

However, as the model gained grounds in both research and applied settings, a fourth domain which is motivation was introduced to complement the earlier three domains ((Baumeister & Vohs, 2007). Motivation in the sense of self-regulation has been seen as the engine to propel the individual to regulate the self as lack of motivation in the face of clear standards, effective monitoring and abundance resources could lead to low self-regulation (Baumeister & Vohs, 2007). That is, the level of motivation of the individual

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to act is crucial in self-regulation as more motivation leads to high self-regulation.

The self-control/regulation has been showed to have practical implications as pointed out by some authors. For instance Tangney, Baumeister and Boone (2004) reported that increased rates of psychopathology and symptoms are associated with low self-regulation whereas psychological wellbeing, good adjustment and secure attachment are associated with effective self-regulation/control. It is therefore, concluded from these implications that the self-regulation model provides a useful theoretical and practical guide for practitioners as the understanding of the model could be utilized in providing psychological care for positive outcomes.

Health Belief Model (Rosenstock, 1966)

The health belief model was initially developed by Rosenstock (1966) and further by Becker and colleagues throughout the 1970s and 1980s in order to predict preventive health behaviors and also the behavioral response to treatment in acutely and chronically ill patients. In recent years however, the health belief model has been used to predict a wide variety of health-related behaviors in several conditions (Ogden, 2004). Thus, the model has been seen as one of the important propositions that guide both action and research in the field of health and health-related management issues.

Additionally, the health belief model helps in explaining how an individual's perception about an illness influences his/her line of action and addresses the individual's perceptions of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat, and factors influencing the decision to act (barriers, cues to action, and self-efficacy).

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According to Ogden (2004, 24) "the Health Belief Model predicts that behavior is a result of a set of core beliefs, which have been redefined over the years". The core beliefs that were proposed by the proponents of the health belief model are built around the individual's own subjective interpretations and perception in terms of susceptibility to illness, the severity of the illness, the costs involved in carrying out the behavior, the benefits involved in carrying out the behavior and cues to action, which may be internal or external.

However, as the health belief model has been criticized certain reforms or modifications were made to include the construct "health motivation" to reflect an individual's readiness to be concerned about health matters (Ogden, 2004) and Becker and Rosenstock (1987 cited in Ogden, 2004) have also suggested that perceived control should be added to the model. These additions or modifications have made the health belief model applicable in many health-related situations. For instance, the perception of control either real or imagined can, to some extent, determine how the individual will act in the face of health threat. That is, if the individual thinks that s/he can do something about the health threat posed by a condition, more efforts will be put into place rather when there is perceived uncontrollability on the part of the individual.

Research findings have provided support for the health belief model in predicting a variety of health related behaviors including dietary compliance, safe sex, having vaccinations, making regular dental visits and taking part in regular exercise programmes. These health- related behaviors are believed to be related to the individual's perception of susceptibility to the related health

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problem, to their belief that the problem is severe and their perception that the benefits of preventive action outweigh the costs (Becker & Rosenstock, 1984 in Ogden, 2004). Similarly, Janz and Becker (1984 in Ogden, 2004) used the health belief model in a study and found that the best predictors of health-related behaviors are perceived barriers and perceived susceptibility to illness.

On the contrary, Becker and Rosenstock (1984 in Ogden, 2004) conducted a meta-analytic review of 19 studies that included measures of the health belief model to predict compliance and concluded that the best predictors of compliance are the costs and benefits and the perceived severity. This therefore showed that each of the components in the health belief model becomes significant in the context in which it is being used such that in certain instances a component will be significant but in other health-related instances. As a result of these limitations, some authors have criticized the model for being static (Schwarzer, 1992) and also that it is the symptoms (Leventhal, Prohaska & Hirschman,1985 in Ogden) rather than the individual factors as suggested by the health belief model.

Religious Coping (Pargament, 1997)

This theory posits that when people are faced with problems, they try to cope with their religious resources inherent in them which are likely to influence their health outcomes. Pargament (1997) has suggested that particular styles of religious coping are associated with better and worse psychiatric outcomes – in particular, Pargament (2002) concluded that higher well-being is associated with internalized religion, intrinsically motivated religion, and a secure relationship with God. Lower well-being is associated

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with imposed religion, religious beliefs and behavior that have not been examined, and a tenuous relationship with God and the world.

In this regard, Pargament (1997 in Cummings & Pargament, 2010) asserts that religious coping occurs when a stressor related to a sacred goal arises or when people call upon a coping method they view as sacred in response to a stressor. As a result of this assertion by Pargament (1997), it can be put forward that any form of illness that requires the individual to adjust his/her lifestyle becomes a major stressor that requires some amount of coping. One of the most powerful coping resources that people depend on is the support offered by religion which can take several forms including material, emotional as well as psychological support (George, Larson, Koenig & McCullough, 2000).

Furthermore, there have been explanations as to why religiosity is very important in influencing illness outcomes. Some of these explanations include the fact that, religiosity encourages healthful lifestyles, provides opportunities for supportive relationships, assists in finding meaning in adversity, and promotes social connectivity among people (Koenig, McCullough & Larsen, 2001). Thus, religiosity is seen as a buffer which cushions people against the impacts of major life stressors in the form of illness, disaster and trauma among other things.

Studies have showed that religion serves as a protective factor in the illness outcomes of several conditions. For instance, Campbell, Yoon and Johnstone (2010) found that patients who attended public religious services and activities and who perceived having interactions with the divine generally viewed themselves as being healthier than those who engaged in these

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religious coping strategies less frequently. Similarly, a study among chronic pain patients in Belgium revealed that those who reported experiencing closeness and security with God interpreted their condition as an opportunity to change their life or reflect upon what is essential in life (Dezutter, Luyckx, Schaap-Jonker, Bussing, Corveleyn & Hutsebaut 2010). That is not to say that religious dependence protects individuals against negative illness outcome as some studies have also documented that religiosity may lead to negative outcomes (Maranell, 1974).

Conceptual Framework

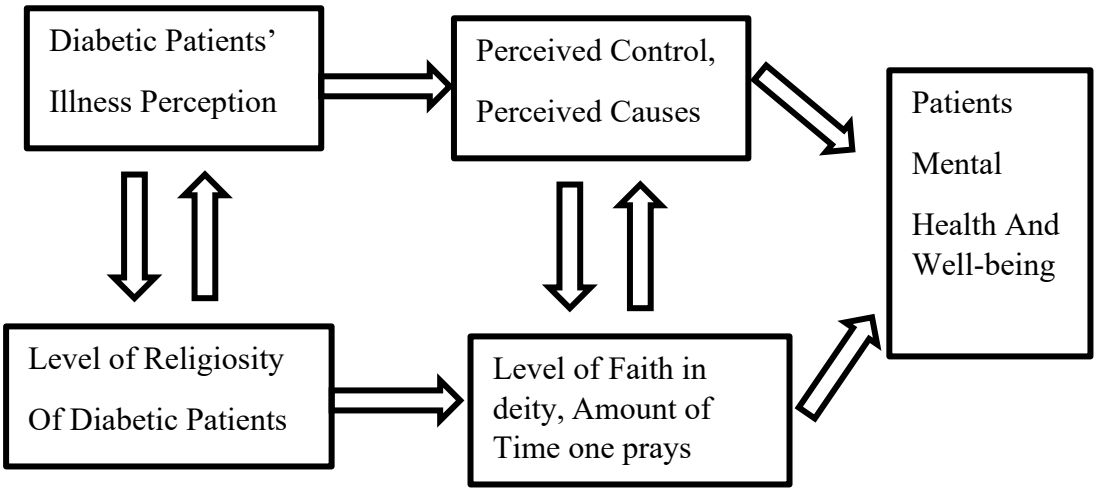

Figure 1-*The relationship among Illness Perception, Religiosity & Mental Health*

Figure 1 is a conceptual framework guiding the study. It shows how the various factors or variables interact with each other. Components of a diabetic patient's illness perception such as perceived control over an illness coupled with his or her level of faith in the object of worship can go a long way to influence the psychological health outcomes of the patient. The diagram depicts that there is an interaction between religiosity and its

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components and illness perception and its components, such interactions and relationships can influence a diabetic person's mental state or health.

Empirical Review

In pursuant of empirical evidence to establish the relationships among several diabetes- related variables, several studies were conducted with varied outcomes depending on the purpose as well as the methodology employed in these studies. The review of some of these related studies are divided into four sections namely the roles and functions of religion in psychological health, Diabetes and Mental Health Outcomes, Religiosity and Mental Health Outcomes and Illness Perception and Health Outcomes.

The roles of religion in psychological health

Interest in the scientific study of religion in relation to psychology by scholars not directly involved with either field has increased exponentially during the past few years (Levin 2009; Pargament and Saunders 2007; Constantine Sedikides 2010; Seybold 2007). However, this interest has not been matched by those who are directly involved in religion or psychology as academic disciplines. The ignoring of religion by these researchers is especially unfortunate because there is evidence that some aspects of religiosity play an important role in enhancing health (Ano & Vasconcelles 2005; Koenig 2009; Levin 2009; Pargament & Saunders 2007; Park 2007; Powell et al. 2003; Rasic et al. 2009; Seybold 2007; Smith et al. 2003; Weaver et al. 2006) and reducing deaths (Chida et al. 2009; Park 2007). Religion can improve psychological adjustment in cases of illness or adversity (Bowen et al. 2006; Chapman & Steger 2010; Koenig 2009; Koenig et al. 2004, 1998;

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Koszycki et al. 2010; Lizardi et al. 2008; Park 2007; Shreve-Neiger & Edelstein 2004).

One important proposition is that religion affects health (Bowen et al. 2006; Ellison et al. 2009; Lizardi et al. 2008; Lockenhoff et al. 2009; Vasegh & Mohammadi 2007) by decreasing anxiety (Lizardi, Dervic, Grunebaum, Burke, Mann & Oquendo 2008; Vasegh & Mohammadi 2007). However, studies aimed at answering this question have yielded inconsistent results (Hill & Pargament 2003), with some studies suggesting that religion neither promotes health (Sloan et al. 1999). Obviously, the nature of the association, if any, between religion and health remains unresolved, and further investigation is needed.

Specifically, a review of 17 studies revealed inconsistent results regarding the above assumption (Shreve-Neiger & Edelstein 2004). Later, several more recent studies have supported it. For example, Muslin found a negative relation between religiosity and anxiety in a medical student sample (Vasegh & Mohammadi 2007). Religiosity has also been found to relate to reduced anxiety in adults from the general population (Ellison, Burdette & Hill 2009), pregnant women (Mann et al. 2008), depressed inpatients (Lizardi et al. 2008), sufferers from panic disorders (Bowen et al. 2006) or generalized anxiety (Koszycki et al.2010) and members of a person-to-person-contact prayer group (Boelens et al. 2009).

One important function of religion is to provide meaning for life (Park 2007; Sedikides 2010). The search for meaning is one of the strongest human motivations, and it gives hope to people confronted with adversity (Frankl, 1963). Research supports the hypothesis that seeing meaning in life helps

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people cope with personal traumas, such as the aftermath of the 9/11 terrorist attacks (Updegraff, Silver & Holman 2008) and other stressful events (Park 2010). Another is religion provides social and psychological resources such as social support, locus of control, positive thinking and encouragement for a healthy lifestyle (Koenig 2009; Park 2007).

Furthermore, if a traumatic event is unexpected and serious, religion provides a quick and systematic aid. This might partly explain why religion can improve psychological adjustment in cases of illness or adversity (Bowen et al. 2006; Chapman & Steger 2010; Koenig 2009; Koenig et al. 2004, 1998; Koszycki et al. 2010; Lizardi et al. 2008; Park 2007; Shreve-Neiger & Edelstein 2004).

Studies of the relationship between religion and health are often criticized by rhetorically asking questions that these studies allegedly have not answered. One of the most important of these questions—does religion promote positive outcomes?—has long been a matter of intense debate. Moreover, previous studies have overrepresented Western Caucasians (Ano & Vasconcelles 2005; Hill and Pargament 2003; Smith et al. 2003), especially in the United States (Ano & Vasconcelles 2005; Shreve-Neiger & Edelstein 2004; Yeager et al. 2006). There also might be a publication bias (Chida et al. 2009; Yeager et al. 2006) in the form of journals favoring the publication of positive results at the expense of negative results (Sedikides & Gebauer 2010). Even worse, there are indications that some researchers have selectively cited positive results to support their own religious beliefs (Kier & Davenport 2004) or imposed their own religious orientation on their research participants (Miller & Thoresen 2003). Because it hosts many different religious groups

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(Shiah, Wu, Tam & Chang 2010) such as Christians, Buddhists and Taoists, Chinese society provides a good background for studying the relationship between religion and health.

These problems suggest another question—do different religious activities lead to similar (positive) outcomes? Western and non-Western religious traditions should be studied together to understand the effects of cultural diversity (Henrich et al. 2010; Lehman et al. 2004).

Diabetes and Mental Health

As has been pointed out earlier by some researchers that diabetes has several complications and the ones under consideration in this research are mainly the mental health complications. Several authors have reported the prevalence and the incidence of mental health problems among diabetic patients and some of these studies are evaluated in this section. In a study by Coker, Ohaeri, Lawal and Orija (2000), the prevalence of specific psychiatric disorders and general cognitive impairment were assessed in patients with diabetes mellitus. In addition the researchers examined the relationship between psychiatric morbidity and clinical variables.

The findings from this study showed that only 11% of the patients had sexual dysfunction while 31% reported psychiatric symptoms. In terms of the psychiatric diagnosis based on the ICD-10, 6% of the patients had generalized anxiety and 4% had a mild depressive disorder. Also some subjective memory disturbances were reported for the patients. It was also reported that insulin-dependent patients have had significantly more widespread psychiatric symptoms than the non-insulin dependent.

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Important characteristics such as low occupational status, duration of illness and sexual dysfunction were significantly associated with Psychiatric symptomatology. Though the study highlighted some significant associations among the diabetes and psychiatric symptoms, it was not able to relate the clinical features to the specific psychiatric disorders and the sample size in the study was relatively small in terms of making generalization.

Lin et al., 2004 assessed whether diabetes self-care, medication adherence, and use of preventive services were associated with depressive illness in a large health maintenance organization. Several medical issues were found but in terms of mental health problems among diabetic patients, major depression was associated with less physical activity, unhealthy diet, and lower adherence to oral hypoglycemic, antihypertensive, and lipid lowering medications. In contrast, preventive care of diabetes, including home-glucose tests, foot checks, screening for micro-albuminuria, and retinopathy was similar among depressed and non-depressed patients.

The researchers concluded that in a primary care population, diabetes self-care was suboptimal across a continuum from home-based activities, such as healthy eating, exercise, and medication adherence, to use of preventive care. Major depression was mainly associated with patient-initiated behaviors that are difficult to maintain (e.g., exercise, diet, medication adherence) but not with preventive services for diabetes. From these findings, it is observable that some elements of mental health problems were reported by the diabetic patients which give an indication of a psychiatric comorbidity but was limited to only depression.

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In a similar study, Hermans, Kulzer, Krichbaum, Kubiak and Haak (2005) examined the prevalence of clinical and subclinical anxiety and affective disorders among diabetic patients in Germany and found that the prevalence rate of affective disorders was higher than anxiety disorders. Further outcomes revealed that affective disorders among diabetic patients were significantly predicted by the patient's characteristics such as age, female gender, living alone, insulin treatment in Type 2 diabetes, hypoglycemia problems and poor glycemic control. However, anxiety symptoms among the diabetic patients were significantly associated with female gender, younger age and Type 2 diabetes. This study outcome provides an idea of which personal characteristics that are likely to predispose diabetic patients to mental health problems and I think such an outcome would help in shaping clinical practice and further studies.

Peyrot, Rubin, Lauritzen, Snoek, Matthews and Skovlund (2005) conducted a cross-sectional study using face-to-face or telephone interviews with diabetic patients and health-care providers in 13 countries in Asia, Australia, Europe and North America in order to examine patient- and provider-reported psychosocial problems and barriers to effective self-care and resources for dealing with those barriers. Findings from the study showed that diabetes-related worries were common among patients, and providers generally recognized these worries. Also, many patients (41%) had poor psychological wellbeing and the providers reported that most patients had psychological problems that affected diabetes self-care, yet providers often reported they did not have the resources to manage these problems, and few patients (10%) reported receiving psychological treatment. However, the study

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failed in determining whether any significant differences exist between those who have had psychological treatment and those who have not. This study clearly exhibited the need for psychological care but it was showed only few of the patients had access to such psychological services.

Furthermore, to explore the levels of anxiety, coping strategies used, and relationships that exist among anxiety, coping strategies, sociodemographic and medical characteristics among Turkish sample of 250 type-1 and type-2 diabetics, Tuncay, Musabak, Gok and Kutlu (2008) found that 79% of the participants in their study experienced anxiety and majority of the participants reported to integrate their diabetes. Acceptance, religion, planning, positive reframing, instrumental support, emotional support, self-distraction and venting were the most frequently used coping strategies among the sample. This study demonstrated how personal characteristics of diabetic patients influence their comorbid anxiety but narrow in scope as there are other equally important mental health problems that results from living with diabetes.

Recent prevalence studies have also shed light on mental health outcomes and their associated factors among diabetic patients. For instance, Lin and von Korff (2008) estimated a 12-month prevalence rate of mood, anxiety, and alcohol-use disorders among community samples of diabetic persons and assessed whether associations of specific mental disorders with diabetes are consistent across diverse countries after controlling for age and gender. The outcome indicated that persons with diabetes were at a greater risk of mood and anxiety disorders than persons without diabetes when their age and sex were held constant. However, this study did not examine the

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individual psychosocial factors that could be influencing the mental health outcomes of the diabetic patients in coping with their condition.

Roupa, Koulouri, Sotiropoulou, Makrinika, Marneras, Lahana and Gourni (2009) examined the occurrence of anxiety and depression symptoms in patients with Type 2 Diabetes Mellitus with regard to sex and body mass index (BMI). The impacts of the respondents' demographic and clinical features were examined on their anxiety and depression levels. The self–completed questionnaire (HADS) was used for anxiety and depression level evaluation and the results showed that percentages of anxiety symptoms in women were three times higher in comparison to men. The study also showed women to have had a twofold percentage of depression symptomatology than men.

Additionally, when the relation between sex, age and Body Mass Index (BMI) and depression-anxiety symptoms was examined, it was shown that high BMI favours the occurrence of modest or severe symptomatology, as risk increases for any additional BMI unit. This study provides an insight to how patients‟ gender can influence their mental health outcomes and this can help clinicians in addressing gender-related issues. However, the sample size for the study was relatively small.

In a related study by Liu, Fu, Wang and Xu (2010) among type-2 diabetic patients in China, it was found that majority of the patients experienced at least one form of complication or the other. It was also identified that the patients had both macro vascular and micro vascular complications. The cities of the respondents, their ages and duration of their illness were also found to have significant influences on their levels of chronic

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complications. The number of the diabetes-related complications was also found to have influenced glycemic control among the patients. From this study, it can be observed that the demographic characteristics of diabetic patients are very important in relation to their mental health outcomes.

Similarly, Paddison (2010) explored the levels of physical and psychological wellbeing among adults with Type 2 diabetes and sought to identify the clinical, demographic, and psychological factors that are associated with differences in wellbeing in New Zealand. Analysis revealed that Mean HbA1c was 7.5% though there was a significant variation across ethnic groups with metabolic control highest among New Zealand Europeans and lowest among Pacific peoples. Further analysis demonstrated that Pacific groups experienced the highest levels of distress about diabetes, and concern about prescribed medication. It was also realized from the study that personal characteristics such as young age, overweight, concerns about prescribed medications, and those of Pacific ethnicity are associated with the experience of adverse health outcomes such as poor metabolic control and diabetes-related distress.

However, the sample in the studies above were too narrowed as the studies were only done among those with type 2 diabetes and not the other categories which could make the findings cut across all the diabetic categories.

Sulaiman, Hamdan, Tamim, Mahmood and Young (2010) reported in their study that diabetes complications and mental health status are significantly related. That is, diabetic patients who are depressed experienced poor self-care, adherence problems and severe physical symptoms. The findings demonstrated the relevance of mental healthcare issues in diabetes

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management because untreated mental health problems result in significant complications for the patients. However, the researchers‟ use of correlation does not give the exact impact of these variables on one another and as such difficult to draw any causal inferences.

In a study, Naranjo, Fisher, Areán, Hessler and Mullan (2011) examined major depressive disorder and its associated factors among patients with type-2 diabetes over time. It was found that development of future depression was predicted significantly by past history of depression and the experience of negative affect by the patients. Some meditational relationships and moderations were found between diabetes and development of major depressive disorder. However, as with some earlier studies, the composition of the sample of the study makes the findings limited to those with type 2 diabetes and not the others. The study also did not consider other important mental health problems that could be present within the studied sample.

In addition to the psychological wellbeing and distress among diabetes patients, Rajesh, Kannadasan and Vijayakumar (2011) evaluated the association between gender, age and social habits with regard to Cognitive dysfunction in Diabetic patients. The randomized prospective study was used and 500 diabetic patients of various socio-demographic characteristics, extending over a period of eighteen months with baseline and follow ups scheduled at every six months intervals with the aid of Mini Mental State Examination (MMSE scale) were used. Results indicated that older diabetic patients exhibited a potential decline in cognitive function and there was a significant impact of diabetes on cognitive function with regard to gender.

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That is, women with diabetes marked a high level of cognitive decline than men of the same age group. Despite these findings, the study was projective in nature as the outcomes indicated the risks of developing a cognitive decline. Also, no psychosocial functioning of the diabetic patients was explored in addition to their cognitive functioning.

Abbas, Abbasi, Vahidi, Najafipoor and Farshi (2011) conducted a study to establish the role of exercise in improvement of psychological problems in diabetic patients by sampling 80 participants with Type -2 Diabetes Mellitus. The participants were assigned to take exercise for 90 minutes per session, 3 times a week for a period of 4 months and were also made to answer the GHQ-12 questionnaire before and after the study project. Findings from the study demonstrated a significant decrease in the mean GHQ-12 scores. Further, factor analysis by Graetz's three-factor model suggested that factor I (anxiety and depression) associated with more improvement than the other factors. Thus, some lifestyle activities aid in psychological functioning of type -2 diabetic patients. The problem however with these results are the extent to which the outcomes can be extended to the other types of diabetes and the role of cognitive as well as other individual characteristics in influencing psychological wellbeing.

In line with some of the earlier studies reported among diabetic patients, Bener, Al-Hamaq and Dafeeah (2011) examined whether there is a relationship between high depression, anxiety, and stress symptoms in Diabetes Mellitus (DM) patients in comparison to a group of controls. The outcomes of the study showed that most of the studied diabetic cases (33.6%) and healthy controls (30.9%) were in the 40-49 years age group and

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significantly larger proportion of Diabetes Mellitus subjects had severe depression, severe anxiety and severe stress compared to healthy controls. The study showed some predictive connections among the variables in the study such that systolic blood pressure, duration of diabetes and obesity were the major predictors for high depression scores among diabetic. For high anxiety scores among diabetic cases, systolic blood pressure, obesity and smoking were the major predictors and finally, high stress scores were predicted by systolic blood pressure, diastolic blood pressure and physical activity. Also, significant sex differences were found such that diabetic women had higher depression, anxiety, and stress scores than men. However, no significant association was observed between the diabetic complications and depression, anxiety or stress scores. The study shed so much light on the impact of diabetic patients‟ personal characteristics on their levels of depression and anxiety.

To compare the prevalence of psychological distress and mental disorders between diabetes and non-diabetes sufferers and to identify associated factors, Jimenez-Garcıa, et al., (2011) used a case–control study found that prevalence of mental disorders was 18.6% among diabetics and 16.4% among controls. Additionally, 26% of diabetics and 18.9% of the non-diabetic suffered psychological distress, and among diabetics variables associated with suffering a mental disorder and psychological distress were female sex, younger age, worse self- rated health, comorbidity, GP visit in the last 4 weeks and ER attendance in last year.

Al-Mandhari, Al-Zakwani, Al-Hasni and Al-Sumri (2011) in a related study assessed the impact of diabetes mellitus and hypertension as well as

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other demographic and clinical characteristics on perceived health status in primary health centers in Oman using a cross-sectional retrospective. Findings from the study demonstrated that the presence of both diabetes mellitus and hypertension was associated with lower physical scores compared to those with diabetes alone but only marginally lower than those with hypertension alone. Further analysis also showed no significant differences across the disease groups in mental scores. However, in terms of the demographic characteristics, age was negatively correlated but male gender, married, literate and higher income were all associated with higher physical scores. Additionally, longer disease duration was associated with lower physical scores. However, male gender, marriage and higher income were associated with higher mental scores. The findings from this study just point to the fact that individual characteristics to a large extent influence disease or illness outcomes (physical and mental) significantly and must be explored in the management of the illness.

Shakya, Maskey, Sharma and Karki (2012) carried out a hospital-clinic based prevalence study to determine the prevalence of psychiatric disorders in diabetic patients receiving treatment. Among 200 clinic diabetes patients, 136 (68%) had GHQ-12 score of 2 or more, i.e. “psychiatric caseness”. By alternate scoring, 15 (7.5%) had severe (25-36), 105 (52.5%) moderate (13-24), 71 (35.5%) mild (1-12) and the rest 9 (4.5%) had nil symptomatology. Among GHQ-12 items, “felt that you couldn’t overcome your difficulties” was the most scored (39.0%), followed by “felt constantly under strain” (37.5%). It was concluded based on the outcome of the study that psychiatric problem is common among patients with diabetes. However, the study did not

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address or identified specific mental health problems but rather used a general health indicator to assess the diabetic patients‟ mental health.

In a similar vein, Guruprasad, Niranjanand and Ashwin (2012) examined the association of depression, demographic and socio-medical factors in type 2 diabetes patients using cross-sectional and epidemiological study designs. Both physical and psychiatric examinations were done on the consenting diabetic patients attending to Medical OPD and symptoms of depression were screened for by using Beck depression inventory. Results from the analysis showed that one-fourth of the screened diabetic patients were found to be having depression, females and overweight individuals were found to have features of depression. In addition, patients with long duration of diabetes and on combination of antidiabetic drugs were significantly associated with depression. Among depressed diabetics 25.9% were having Ischemic heart disease as a comorbid medical illness. The researchers however focused only on depression to the neglect of other equally challenging mental health problems.

Jadoon, Shahzad, Munir and Bashir (2012) found in their prevalence study that diabetic patients experience significant levels of depression and anxiety that qualify for clinical diagnosis. The levels of depression and anxiety were found to be significantly influenced by the diabetic patients‟ characteristics such as age, sex, marital status, exercise, employment status, income, smoking, locality and their level of glycemic control. The findings shed more light on the diabetes- mental health link but how the patients interpret their illness was not taken into consideration as illness perception has been found to significantly influence the level of psychological distress and

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mental health problems. This study outcome provide the basis for further studies as such personal characteristics may not play significant roles in other cultures and settings.

Rahimian-Boogar and Mohajeri-Tehrani (2012) investigated the risk factors for the incidence of depression in type 2 diabetic patients. In this descriptive cross-sectional study, 254 type 2 diabetic patients were selected through convenience sampling among diabetes outpatient clinics of Tehran University of medical sciences and also Iranian diabetes society during 2010-11. Increased pain and functional disability, decreased social support, decreased performance for diabetes self-care, longer duration of diabetes, diabetes complications, the need for insulin therapy, HbA1c>9%, BMI>25kg/m2 and major life events were significantly different between the diabetic patients with and without depression, however, there was no significant difference in age, sex and socio-economic status between the two groups. The sample composition was not representative of the different types of diabetes mellitus.

Religiosity and Mental Health

Several studies have been conducted on the effects of religiosity on the mental health of individuals with physical and psychological problems. A significant negative relationship has been established between level of religiosity and mental health problems (Koenig, McCullough, & Larson, 2001; Smith, McCullough, & Poll, 2003; Nelson, Jacobson, Weinberger, Bhaskaran, Rosenfeld, Breitbart et al., 2009).

Morse, Morse, Klebba, Stock, Forehand and Panayotova (2000) conducted a study among African American women living with HIV/AIDS

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and found that public religious practice is related to lower engagement in high-risk health behaviours among HIV-infected and healthy women. This relationship was however not obtained for people with other chronic illnesses. It was further demonstrated that the higher the practice of public religiosity the better the physical health of the HIV infected women. However, public religiosity was negatively related to the CD4 counts of HIV infected women. The practice of private religiosity was not significantly related to the physical health of the women. The researchers also reported that sense of control was significantly and positively related to their religiosity. Results from this study support the important role religion plays for persons faced with chronic and terminal diseases, as in the case of HIV/AIDS. This study used correlations to establish relationships which do not tell us anything beyond these relationships and therefore, the conclusions from this are limited.

Similarly, a study by King, Mainous and Pearson (2002) found that religious service non-attenders with diabetes were more likely than attenders to have an elevated C-reactive protein. These findings highlight the protective factor of religiosity in the lives of chronically ill patients. This is because as religious attendance was associated with an elevated CRP, it can be seen as beneficial because the diabetic patients get support both material and non-material from other members of the congregation. However, religious attendance in itself may not represent the actual religiosity of the patients as attendance is not a guarantee of religiosity.

Baetz, Griffin, Bowen, Koenig, and Marcoux (2004) examined data from a large epidemiologic survey to determine the relationship of religious practice (worship service attendance), spiritual and religious self-perception,

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and importance (salience) to depressive symptoms. Logistic regression was used to examine the relationship of the religious/spiritual variables to depressive symptoms while controlling for demographic, social, and health variables. More frequent worship service attendees had significantly fewer depressive symptoms. From this study, the role of religion in psychopathology can be seen as a positive one as it serves to protect the people. It is observable that spirituality/religion has an important effect on depressive symptoms, but this study underscores the complexity of this relationship. However, measuring religiosity by attendance is limited in that attendance of religious service may not be a guarantee of spirituality or religiosity.

Edmondson, Lawler, Jobe, Younger, Piferi, and Jones (2005) investigated the roles of spirituality and religiosity in self-reported physical health, and determined whether there is an association between an individual's spirituality and cardiovascular responses to two stressors. In terms of the sample of the study, fifty-two females took part in both a betrayal interview and a structured interview, during which blood pressure and heart rate were monitored. The finding from the data analysis indicated that spirituality was associated with perceived stress, subjective well-being, and medication use. Also, the Existential Well-being subscale predicted fewer physical health symptoms and was associated with lower mean heart rate and decreased heart rate reactivity. Further results showed that the Religious Well-being subscale was associated with reduced systolic blood pressure reactivity in response to the structured interview suggesting that spirituality may have a salutary effect on health, even in a fairly young sample. However, this study did not find strong support for the popular reports that religion, as well as spirituality has a

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health protective effect and the researchers concluded that religiosity in this age group may still be undergoing developmental maturity. Such conclusions however may not be appropriate in countries or cultures were it is unthinkable to decouple religion and spirituality.

In related study, Baetz, Bowen, Jones and Koru-Sengul (2006) explored the relationships among spiritual values worship attendance and psychiatric disorders among Canadians. The demographic characteristics were controlled and the researchers determined odds ratios for lifetime, 1-year, and past psychiatric disorders, with worship frequency and spiritual values as predictors. It was revealed that higher worship frequency was associated with lower odds of psychiatric disorders. In contrast, those who considered higher spiritual values important (in a search for meaning, in giving strength, and in understanding life's difficulties) had higher odds of most psychiatric disorders. The outcome contradicts earlier studies that found religiosity to cushion people against mental health problems.

Miller, McConnell and Klinger (2007) in a related study to determine the influence of spirituality, religiosity, and religious coping on quality of life and self-efficacy among couples following a first time cardiac event sampled 44 patients with their partners who were first-time referrals to a 12-week cardiac rehabilitation program. The results showed that there is no significant association between measures for spirituality and religiosity and couples' ratings for quality of life and self-efficacy. Also, negative forms of religious coping were associated with lower levels of quality of life and decreased confidence in the patient's ability to perform physical tasks. Spouses' measures for quality of life, self-efficacy, spirituality, religiosity, and religious coping

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were associated with patients' measures for the same study variables. However, the outcomes of the study are limited by the fact that there was no control group to actually give a clear effect of the various independent variables and the sample was also small with majority of the patients being males.

Kilbourne, Cummings and Levine (2009) examined the influence of religiosity on depression among low-income people with diabetes in a mid-sized southern city in the US. The cross-sectional design was employed in which the study focused on a combined clinical and community samples of people with diabetes from low-income neighborhoods. Results from the analysis using a bivariate correlation and hierarchical linear regression revealed inverse associations between four of the five dimensions of religiosity and level of depression, that is, prayer, religious reading, religious attendance, and religious belief proved protective against depressive symptoms. Findings from the study also showed that though religious discourse correlated with the other measures of religiosity, engaging in religious discourse was not distinctly associated with levels of depression. The analyses suggest that religious resources increase psychological resiliency among those managing the chronic stress of diabetes.

A qualitative study by Abdoli, Ashktorab, Ahmadi, Parvizy, and Dunning (2011) using in-depth interviews among diabetic patients showed that negative diabetes perception, prolonged stress, poor healthcare, illiteracy and poverty were the main barriers to diabetes empowerment. The researchers also reported that empowerment among the diabetic patients is associated with hopefulness, self-efficacy, diabetes education and fear of complications.

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Further, the levels of diabetic patients‟ religious faith and social support were the main facilitators of diabetes management. These findings provide an in-depth understanding of how diabetic patients perceive their illness what they considered to facilitate or derail the management of the illness.

However, unlike previous studies that focused on either religious attendance or the levels of religiosity of the people, other researchers have focused on comparing the types of religion and their impact among type-2 diabetic patients. For instance, How, Ming, and Chin (2011) found in their study that general religiosity has a significant negative relationship with fasting plasma glucose but not glaciated haemoglobin which is consistent with other earlier works (e.g. Baetz et al., 2006; Edmondson et al., 2005). In terms of the types of religion, Christians and non-religious groups had significantly lower glaciated haemoglobin compared to Muslims. These findings are new in the religion literature as the various faiths were compared and the significant differences provide health professionals with the requisite knowledge in attending to clients of diverse religious background. However, cultural differences in the population limit the extent to which the findings can be generalized.

In a related study, it was demonstrated by Park, Hong, Park and Cho (2012) among the general population in Korea that compared to Atheists, Catholics had a risk for depression. For anxiety among the population, Catholics and Protestants were at a higher risk compared to Atheists. However, Atheists were found to have a higher prevalence of alcohol problems compared to Protestants. On the other hand, religiosity was found to be positively related to mental health problems. This significant positive

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relationship could be due to the fact that in difficult moments people may tend to rely more on religion and spirituality thereby resulting in this association (Baetzm et al., 2006; Kendler, Gardner, & Prescott, 1999). However, the use of only one question to examine spirituality is inadequate as more aspect of spirituality can have varied effects on mental health problems. In addition, religiosity in this was narrowed and limited to just the Christian populations which limits the extent to which results are applicable to other religious categories.

Illness Perception and Health

Illness perceptions of patients have been studied on several outcome variables including both physical and psychological health outcomes. This is because the individual sufferer's meaningful interpretations and the beliefs concerning the illness in question affect his or her attitude to self-care and other health–related behaviors. For instance, some studies have demonstrated significant influences of illness perceptions on several health outcomes across illnesses including both physical and psychological conditions. Some of these studies are reviewed in the following section.

Fortune, Richards, Griffiths and Main (2002) examined the relative contribution of medical variables, illness perceptions, coping and alexithymia to the variance in stress, distress and disability in patients with psoriasis using a cross-sectional study design. A group of 225 patients with psoriasis completed the Hospital Anxiety and Depression Scale (HADS), The Penn State Worry Questionnaire (PSWQ), the COPE, the Illness Perception Questionnaire (IPQ), Toronto Alexithymia Scale (TAS-20), and two measures specific to psoriasis, the Psoriasis Disability Index (PDI), and the Psoriasis

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Life Stress Inventory (PLSI). The severity of patients' psoriasis was clinically assessed by dermatologists on the Psoriasis Area and Severity Index (PASI). Results showed that in general, demographic variables, clinical history and extent of disease were consistently the least useful variables in terms of explaining variance in stress, distress or disability. The researchers reported that the utility of the aforementioned variables was limited to accounting for small but significant variations in disability, but even in this case, they accounted for just over half as much variance as illness perceptions. Illness perception was found to be the most significant predictor of the health outcomes among the study sample. The outcome of the study demonstrated the powerful influence of illness perception on the health outcomes in patients living with chronic conditions.

Additionally, Moss-Morris & Chalde (2003) investigated the strength of chronic fatigue syndrome (CFS) patients' negative illness perceptions by comparing illness perceptions and self-reported disability in patients with CFS and rheumatoid arthritis (RA). Seventy-four RA patients and 49 CFS patients completed the Illness Perception Questionnaire- Revised and the 36-item Short-Form Health Survey. It was demonstrated that when compared to the RA group, the CFS group attributed a wider range of everyday somatic symptoms to their illness, perceived the consequences of their illness to be more profound and were more likely to attribute their illness to a virus or immune system dysfunction. Both groups reported equivalent levels of physical disability but the CFS group reported significantly higher levels of role and social disability. The researchers concluded that although the symptoms of CFS are largely medically unexplained, CFS patients have more

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negative views about their symptoms and the impact that these have had on their lives than do patients with a clearly defined and potentially disabling medical condition.

Rees, Fry, Cull & Sutton (2004) in their 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. The study outcome indicated that 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. Few differences were found in illness perceptions between the two 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. The researchers however, did not examine how the patients' perception of their illness is associated with their distress.

Barnes, Moss-Morris and Kaufusi (2004) in a study, examined whether there are cultural differences in the way in which Tongan and European people with Type 2 diabetes conceptualize their illness and treatment. The researchers also assessed the relationships between patients' illness and treatment perceptions and their adherence to self-care regimens. The respondents completed either a Tongan or English version of a questionnaire, which included standardized measures of personal beliefs about diabetes and medication, and self-reported adherence. Information about the severity of patients‟ diabetes was obtained from patients‟ notes. Comparisons of glycosylated haemoglobin levels showed that Tongan patients had

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significantly poorer control over their diabetes than did European patients and were also significantly more likely than European patients to perceive their diabetes as acute and cyclical in nature, uncontrollable, and caused by factors such as God's will, pollution in the environment, and poor medical care in the past. Tongan patients perceived less necessity for medication, and exhibited higher emotional distress related to their diabetes. The beliefs that characterized the Tongan patients tended to be associated with poorer adherence to diet and medication taking. The outcomes of this research indicate the powerful influence of culture in shaping an individual's perception and beliefs because perceptions and beliefs about something or an issue are culturally constructed.

In order to provide an examination of the relationship between psychosis perceptions, coping strategies, appraisals, and distress in the relatives of patients with schizophrenia, Fortune, Smith and Garvey (2005) indicated that carers who viewed their relative's psychosis as chronic, who had a stronger illness identity (experience of symptoms), who held a stronger belief in the severity of its consequences, and who reported weaker beliefs in treatment control but stronger beliefs that their relative could exert control over their condition had higher distress scores. Coping through seeking emotional support, the use of religion/spirituality, active coping, acceptance, and positive reframing were associated with less distress, while coping through self-blame was associated with higher distress scores. The findings provide an insight into the influence of religion and illness perception on distress.

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To examine illness representations and psychological distress in patients undergoing coronary artery bypass graft surgery, Hermele, Olivo, Namerow & Mehmet (2007) examined 56 patients awaiting CABG surgery using the Profile of Mood States (POMS) and the Illness Perception Questionnaire-Revised (IPQ-R). The researchers found in their study that patients‟ perceptions of their illness as chronic were associated with reduced beliefs in both personal control over illness and efficacy of treatment, and increased perceived consequences of illness in terms of life functioning. It was also found that psychological distress regarding illness was significantly correlated with psychological distress in general. Reduced illness coherence was also associated with increased psychological distress. This outcome of illness coherence being associated with psychological distress points to the fact that an individual's understanding of the illness plays a significant role in their health outcomes and as such, the researchers concluded that preoperative psycho-education aimed at helping patients better understand their illness, treatment, and its effects may reduce psychological distress and perhaps improve future well-being.

Furthermore, illness perception has been studied across a wide range of conditions and for that matter Knibb & Horton (2008) examined the influence of illness perception and coping strategies on the levels of psychological distress among allergy sufferers. The researchers reported that coping strategies and illness perception significantly predicted the levels of psychological distress among the patients. Importantly, perception of identity and emotional response were found to predict psychological distress but were mediated by coping. Though this study contributed significantly to the illness

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perception literature, the outcomes cannot be generalized as there were relatively more females than males in the study as a well as a low response rate. Similarly, the measure of perception used was limited to only few dimensions as a recent measure of illness perception contain more domains and is very brief in assessing illness perception across illnesses (Broadbent, Petrie, Main & Weinman, 2006).

Furthermore, Petricek, Vrcic-Keglevic & Vuletic (2009) explored the influence of illness perception of type 2 diabetes mellitus on their levels of control over relevant cardiovascular risk factors and found that illness perception components such as perceptions of concern, personal control and concern, treatment control, and understanding of the diabetes were significant predictors of body mass index, fasting blood glucose, total cholesterol and blood pressure respectively. Therefore, the perceptions or views held by these type-2 diabetic patients significantly affected some of their health outcomes; giving credence to the fact the individual's cognitive appraisal of the illness is important.

Jørgensen, Frederiksen, Boesen, Elsass, & Johansen (2009) conducted an exploratory study of associations between illness perceptions and adjustment and changes after psychosocial rehabilitation in survivors of breast cancer. Results indicated no differences in the change of illness perceptions and the level of psychological adjustment observed between the three groups of survivors between baseline and one and six months of follow-up. Baseline analyses showed that illness perceptions were associated with distress and quality of life. This study indicates that illness perceptions are associated with

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adjustment and also illness perception predicted distress significantly providing support for the self-regulation model.

Evans & Norman (2009) sought to examine cross-sectional and prospective associations between illness representations, coping and psychological distress, and test the hypothesis that coping would mediate any relationships between illness representations and psychological distress. Patients with PD (n=58) completed the Illness Perception Questionnaire-Revised, the Medical Coping Modes Questionnaire and the Hospital Anxiety and Depression Scale. Patients (n=57) were followed-up at 6 months and the results showed that Illness representations explained large amounts of variance in time 1 anxiety and depression as well as additional variance in time 2 anxiety and depression after controlling for baseline scores. In addition, avoidance mediated the effect of emotional representations on time 1 anxiety, and acceptance-resignation mediated the effects of both consequences and emotional representations on time 1 depression. The examination of the illness perception components in this study is very helpful as it allows for specific conclusions to be drawn in relation to how the illness perception components predict specific mental health problems.

Heyhoe and Lawton (2009) investigated the illness perceptions of patients with interstitial cystitis(IC) and their experience of psychological distress using the Revised Illness Perceptions Questionnaire (IPQ-R). The extent to which this measure adequately captures the illness representations of this group was also evaluated through semi-structured interviews. The results from the study using Pearson's correlation revealed that illness identity, consequences, illness coherence, emotional representations and psychological,

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risk factor and accident and injury attributions were associated with psychological distress. Further analysis employing MANOVA indicated that illness perceptions differed between severely and non-severely distressed patients, but not between patients with more or less severe symptoms. Moreover, the content analysis of patient interviews suggested that some aspects of the emotional experience of IC may not yet be adequately captured in the IPQ-R. Findings indicated that illness perceptions of patient's with IC are associated with psychological distress but the use of correlation does not provide any meaningful specific linkages.

Paddison, Alpass and Stephens (2010) conducted a study among sample of Type 2 diabetic patients by examining the relationships between illness perceptions and illness-related distress among adults with Type-2 diabetes randomly selected as the respondents. Data were collected through a mailed questionnaire survey and review of medical records. The Problem Areas in Diabetes (PAID) scale was used primary outcome which is diabetes-related psychological distress. Multiple regression analyses controlling for age, clinical characteristics, and mental health showed that illness perceptions accounted for 15% of differences in distress about diabetes. However, poor mental health and illness severity alone do not explain differences in diabetes-related emotional adjustment and the authors concluded that "making sense" of diabetes may be central to successfully managing the emotional consequences of diabetes. The contribution of illness perceptions to distress was relatively small and suggests that other equally important factors that could affect distress among patients were not considered.

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In a study among diabetic patients, illness and treatment perceptions were found to be associated with several health-related outcomes such as insulin adherence, antihypertensive and cholesterol medications, diet and exercise (Broadbent, Donkin, & Stroh, 2011). It was also demonstrated that insulin adherence and perceived personal control predicted blood glucose control among type-1 diabetic patients whiles antihypertensive drug and perceived personal control predicted blood glucose levels of type-2 diabetic patients. Unlike previous studies that focused on only one type of diabetes to the neglect of others, this study's strength lies in using both types of diabetes.

Among patients with recurrent symptomatic Atrial Fibrillation, McCabe, Barnason and Houfek (2011) investigated the relationship between illness beliefs and self-management. The patients in the study perceived Atrial Fibrillation as chronic and unpredictable with serious consequences. In terms of the perceived causes of the illness, the patients believed that psychological factors, age, and heredity caused Atrial Fibrillation and reported that Atrial Fibrillation induced worry, anxiety, and depression. Stronger beliefs about Atrial Fibrillation as cyclic, unpredictable, having psychological causes, and greater consequences were associated with more negative emotion. However, the participants who reported a good understanding of Atrial Fibrillation endorsed fewer negative emotions related to Atrial Fibrillation held stronger beliefs that Atrial Fibrillation was controllable with treatment, and appraised Atrial Fibrillation as less serious with fewer negative consequences. The outcomes lend support to the earlier findings of how illness perception influences health outcomes.

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Dempster, McCorry, Brennan, Donnelly, Murray and Johnston, (2011) investigated the extent to which illness cognitions and coping explain psychological distress among family carers of survivors of oesophageal cancer. Results from the analysis of their data the variables in the study explained almost half of the variance in the level of psychological distress among the respondents. In terms of the predictive powers of the individual illness perception components, it was found that the perceptions of the cause, consequences and personal control over oesophageal cancer and the carer's understanding of the condition were significant predictors of psychological distress. Psychological distress was also explained significantly by positive focus coping strategies. This therefore, demonstrates the importance of the illness perception and coping on the level of psychological distress.

Yuniarti, Dewi, Ningrum, Widiastuti and Asril, (2013) conducted a study among type -2 diabetes patients in Indonesia to examine diabetes in relation to illness perception, stress, depression, social support, and self-management. The quantitative approach, employing 68 participants, aged between 40–75 years old was used. Results from their analysis revealed that social support did not mediate the relationship between self-acceptance and depression among patients. There was a significant negative relationship between religiosity and stress and self-acceptance mediated the relationship. It was also discovered that illness perception and coping strategies were not having a direct association with self-management in general and therefore, the predictive impact of the illness perception was minimal and does not resonate with previous studies (e.g. Paddison, Alpass & Stephens, 2010; Jørgensen et al., 2009; Rees, Fry, Cull & Sutton, 2004; Heyhoe & Lawton, 2009; Knibb &

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Horton, 2008; Dempster et al., 2011). The authors concluded that there could be multi collinearity among 8 sub-components of illness perception, coping strategies and self-management.

In a study conducted in Ghana by Nuworza, K. (2013), which examined the influence of diabetic patients' perception of their illness and their levels of religiosity on their mental health problems. A sample of 194 diabetic patients (50 Type -1 and 144 Type-2) was drawn from two major hospitals (Korle-Bu Teaching and Tema General Hospitals) in the Greater Accra Region of Ghana. The cross-sectional survey method was used and the participants were administered with the Brief Illness Perception Questionnaire (Broadbent, Petrie, Main, & Weinman, 2006), Santa Clara Strength of Religious Faith Questionnaire (Plante & Boccaccini, 1997) and the Brief Symptom Inventory (Derogatis, 1993). Results from the analysis using Pearson correlation showed that the diabetic patients' level of religiosity did not significantly relate with the mental health problems. However, illness perception correlated significantly and positively with their general mental health problem (GSI) and specific ones including levels of Somatization, Obsessive-Compulsion, Depression, Anxiety and Psychoticism. Further analyses using multiple regression analysis showed that level of general mental health problem (GSI) was significantly predicted by the perception of illness Coherence followed by perceptions Symptoms and Concern. Multiple regression analysis did not show any significant moderation effect of sex, age, duration of illness and level of education on mental health problem (GSI). However, MANOVA results showed that females report more mental health problem (GSI), Somatization and obsessive-compulsion but no significant sex

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differences in other specific mental health problems. Some of the findings from this study are consistent with some previous literature and inconsistent with some other earlier studies. The implications of these outcomes are discussed in relation to mental healthcare delivery, diabetic patients and the health sector. It is concluded that the diabetic patients' perception of their illness plays a significant role in their experience of mental health problems and also, sex and level of education affect their mental health problems significantly and therefore require attention from the health officials for a holistic healthcare.

Chapter Summary

The Self-Regulatory Model (Leventhal, Meyer & Nerenz, 1980), The Strength Model of Self Control (Baumeister, Vohs & Tice, 2007), Health belief Model (Rosenstock, 1966) and Religious Coping theory (Pargament, 1997) provided the theoretical bases for this study. Each of the models was explained in the light of how they explain the variables in the study. The Self-Regulatory Model, The Strength Model of Self-Control and the Health Belief Model explained the perception of the diabetes by the diabetic patients and the Religious Coping theory explained the importance of religious faith in influencing the health outcomes of diabetic patients.

The review of the relevant studies was done by examining the prevalence of psychiatric morbidities of diabetes and how personal characteristics of the patients influence these outcomes. In general, diabetes has been found to be associated with several psychiatric morbidities including depression, anxiety, psychological distress, sexual dysfunctions and cognitive impairments among others. However, most of the studies were focused on

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depression (Lin & von Korff, 2008; Hermanns et al., 2005; Lin et al., 2004), anxiety (Tuncay et al., 2008; or general psychological distress (Peyrot et al., 2005; Paddison, 2010). Some of these studies have demonstrated that demographic characteristics such as age, sex, duration of illness, education, employment status and, marital status significantly affect psychiatric morbidity whiles others did not find such effects.

The role of religiosity in mental and physical health was reviewed with some studies (e.g. King, Mainous & Pearson, 2002; Baetz et al., 2004; Kilbourne, Cummings & Levine, 2009; Park et al., 2012; Abdoli et al., 2011; How, Ming & Chin, 2011) demonstrating a consistent pattern of religiosity serving as a protective factor against development of mental health and physical health problems. That is, the more religious an individual, the less likely he/she is to develop mental health problems. This is due to the fact that religiosity provides people with meaning and comfort and most especially social support from others within their religious settings. However, some studies (e.g. Edmondson et al., 2005; Miller, McConnell & Klinger, 2007) have also not demonstrated such protective ability of the individuals' religiosity in that it sometimes predisposes people to mental health problems. Thus, the influence of religiosity on mental health problems still remains relatively inconclusive.

Finally, studies on the influence of illness perception on mental health and illness outcomes were reviewed with majority demonstrating a consistent pattern across illnesses and health outcomes. For instance, illness perception has been showed to be significantly associated with psychological distress in diabetes (Paddison, Alpass & Stephens, 2010), breast cancer (Jørgensen et al.,

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2009; Rees, Fry, Cull & Sutton, 2004), interstitial cystitis (Heyhoe & Lawton, 2009), allergy sufferers (Knibb & Horton, 2008) and oesophageal cancer (Dempster et al., 2011). In the same vein, illness perception was showed to have demonstrated a significant influence on cardiovascular risk factors (Petricek et al., 2009) as well as other health outcomes thereby showing the consistency of the self-regulation theory in predicting health outcomes across illnesses.

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CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter presents the research setting/population, sample and sampling technique, the design, pilot testing, measures/ instruments as well as the procedures involved in the data collection and analysis. This section details the steps that were taken in gathering evidence to test the stated hypotheses and research questions.

Design

The study sought to obtain self-report information about diabetic patients' opinions, perceptions, beliefs and attitudes from diverse groups and different gender at a particular timeframe or period. The most appropriate design for this study is the cross-sectional design which is descriptive in nature. A cross-sectional survey is defined by Cherry (2018), as a study which involves looking at people who differ on one key characteristic at one specific point in time. The data is collected at the same time from people who are similar on other characteristics but different on a key factor of interest such as age, income levels, or geographic location. Participants are usually separated into groups known as cohorts. One advantage of using a cross-sectional survey is that the use of routinely collected data allows large cross-sectional studies to be made at little or no expense however a major disadvantage is that collected data does not normally describe which variable is the cause and which the effect. The study can also be considered as Correlational in nature as it sought

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to establish links or relationships between two or more variables. The study is however essentially a replication study.

Population

The population of interest in this study were diabetic patients attending a health facility, seeking treatment for diabetes in the Cape Coast Metropolitan area in the Central Region of Ghana. This population was chosen because Cape Coast is one of the most active metropolitan areas in Ghana and comprises of people from all parts of the country and has seen a surge in the number of diabetes cases in the region. As a result, the various sections of the population cut across in terms of health and illness. Diabetic patients visiting the Ewim Polyclinic and Cape Coast District Hospital were the target population of the study. In all there were a total of 250 persons who were diagnosed of diabetes at the selected health facilities. Hundred (100) of these patients were from the Ewim Polyclinic and one hundred and fifty (150) were from the Cape Coast District Hospital. (Source, Statistician, Ewim Poly Clinic and Cape Coast District Hospital).

Sampling Procedure

The sample of this study was made up of a hundred and three people (103) out of the population of 250 diabetic patients from the two health centers. Krejcie and Morgan (1970) sampling size table was employed to select the required number of participants for the study. The systematic sampling technique was employed in the selection of participants for the study. According to Cohen, Manion and Morrison (2007), the systematic sampling technique "involves selecting subjects from a population list in a systematic rather than a random fashion" (p.111). Systematic sampling is a

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type of probability sampling method in which sample members from a larger population are selected accordingly in a random starting point and a fixed, periodic interval. This interval, called the sampling interval, is calculated by dividing the population size by the desired sample size.

Systematic sampling is a probability sampling method where the elements are chosen from a target population by selecting a random starting point and selecting other members after a fixed 'sampling interval'. Sampling interval is calculated by dividing the entire population size by the desired sample size. Systematic sampling is preferable to simple random sampling when there is a low risk of data manipulation. If such a risk is high when a researcher can manipulate the interval length to obtain desired results, a simple random sampling technique would be more appropriate, however a major disadvantage of using systematic sampling is its tendency to be bias.

Inclusion Criteria:

After a required sample size was estimated, the researcher had to make sure that participants for the study had to meet certain requirement for the study so as to bolster the generalizability of the study. The following are the criteria for inclusion of the patients in the study; patients must be 20 years and above, being an out-patient for a year and above, be willing to participate voluntarily, participants for the study should be able to read, write and understand English or Twi.

Exclusion Criteria

The following are the criteria for exclusion of diabetic patients from taking part in the study: participants who are below the age of 20 years, being

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an in-patient, decline to voluntarily participate in the study were not considered.

Data Collection Instruments

The variables in the study will be measured by the use of inventories and questionnaires and these measures are presented into detail in the following sections below;

Brief Illness Perception Questionnaire (Broadbent, Petrie, Main, & Weinman, 2006):

This is a nine-item questionnaire which measures patients' cognitive and emotional representations of their illness including their perceptions of illness consequences, duration, personal control, treatment control, symptoms, coherence, concern, emotional response, and causes. Examples of items include, 'How much control do you feel you have over your illness?' (Personal control), 'How long do you think your illness will continue?' (Timeline) and 'How much does your illness affect your life?'(Consequence).

The causal item was open ended to allow respondents to indicate what they thought caused their illness. A Cronbach alpha of .70 was reported for the scale. This scale also demonstrated good concurrent validity with relevant measures, predict validity and discriminate validity (Broadbent, Petrie, Main, & Weinman, 2006). An overall illness perception score is computed to determine whether the illness is viewed as benign or threatening, the authors suggested that items 3, 4, and 7 should be reverse scored and added to items 1, 2, 5, 6, and 8. A higher score reflects a more threatening view of the illness. Each item of the Brief IPQ assesses one dimension of illness perceptions:

The consequence score is simply the response to item 1.

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The timeline score is the response to item 2

The personal control scores is the response to item 3

The treatment control score is the response to item 4

The identity score is the response to item 5

The coherence score is the response to item 7

The emotional representation is the response to item 8.

Illness concern is measured by item 6. This reflects a combination of emotional and cognitive representations.

Item 9 is the causal item. Reponses can be grouped into categories such as stress, lifestyle, hereditary, etc. determined by the particular illness studied. Categorical analysis can then be performed, either on just the top listed cause or all three listed causes.

In some circumstances it may be possible to compute an overall score which represents the degree to which the illness is perceived as threatening or benign. The internal consistency of this score will depend on the illness studied and it is recommended this is checked. To compute the score, reverse score items 3, 4, and 7 and add these to items 1, 2, 5, 6, and 8. A higher score reflects a more threatening view of the illness.

Santa Clara Strength of Religious Faith Questionnaire (Plante & Boccaccini, 1997)

This questionnaire is a ten-item questionnaire which measures an individual's level of religious faith. Some examples of items in scale are 'I pray daily,' 'I look to my faith as a source of inspiration,' and 'I look to my faith as providing meaning and purpose in my life'. This scale has a Likert response format of 4-points including; '1 = strongly disagree' '2 = disagree' '3

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= agree' '4 = strongly agree'. Studies that have investigated the internal consistency of the scale have found corrections ranging from 0.94 to 0.97 using Cronbach Alpha's and split-half reliability scores ranging from 0.90 to 0.96 (Plante & Boccaccini, 1997). The total religiosity score was obtained for each respondent by adding the responses on all the ten items with a maximum score of 40 and a minimum score of 10 with higher scores representing a higher level of religiosity and vice versa.

Brief Symptom Inventory (Derogatis, 1993)

The Brief Symptom Inventory is a 53-item self-report symptom inventory designed to reflect the psychological symptom patterns of psychiatric and medical patients and non-patients. This inventory reports profiles of nine primary symptom dimensions and three global indices of distress (Derogatis, 1993). The symptom dimensions included; Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism. The global indices measure current or past level of symptomatology, intensity of symptoms, and number of reported symptoms, respectively.

Item Origin/Selection Process

The BSI is the short version of the SCL-R-90 (Derogatis, 1975, 1977), which measures the same dimensions. Items for each dimension of the BSI were selected based on a factor analysis of the SCL-R-90, with the highest loading items on each dimension selected for the BSI (Derogatis, 1993; Derogatis & Cleary, 1977; Derogatis & Spencer, 1982).

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Time Required

8-12 minutes

Administration Method

Self- or interviewer-administered

Scoring

Respondents rank each feeling item (e.g., "your feelings being easily hurt") on a 5-point scale ranging from 0 (not at all) to 4 (extremely). Rankings characterize the intensity of distress during the past seven days. The items comprising each of the 9 primary symptom dimensions are as follows:

• Somatization: Items 2, 7, 23, 29, 30, 33, and 37

• Obsession-Compulsion: Items 5, 15, 26, 27, 32, and 36

• Interpersonal Sensitivity: Items 20, 21, 22, and 42

• Depression: Items 9, 16, 17, 18, 35, and 50

• Anxiety: Items 1, 12, 19, 38, 45, and 49

• Hostility: Items 6, 13, 40, 41, and 46

• Phobic Anxiety: Items 8, 28, 31, 43, and 47

• Paranoid Ideation: Items 4, 10, 24, 48, and 51

• Psychoticism: Items 3, 14, 34, 44, and 53.

Items 11, 25, 39, and 52 do not factor into any of the dimensions, but are included because they are clinically important. For example, the presence of conscious feelings of guilt is useful information to a clinician. These items are included when calculating Grand Total Scores.

Dimension scores are calculated by summing the values for the items included in that dimension and dividing by the number of items endorsed in that dimension.

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Calculating scores for the three global indices is done as follows:

1. Global Severity Index (GSI). The GSI is calculated using the sums for the nine symptom dimensions plus the four additional items not included in any of the dimension scores, and dividing by the total number of items to which the individual responded. If no items were skipped the GSI will be the mean for all 53 items. Of the three global indices the GSI is the most sensitive indicator of the
2. Positive Symptom Total (PST). The PST is a count of all the items with non-zero responses and reveals the number of symptoms the respondent reports experiencing.
3. Positive Symptom Distress Index (PSDI). The PSDI is the sum of the values of the items receiving non-zero responses divided by the PST. This index provides information about the average level of distress the respondent experiences.

Raw scores should be converted to T scores using the tables provided in the BSI manual.

Score Interpretation

Scores are interpreted by comparison to age-appropriate norms. Normative data are available for both clinical and non-clinical samples of adolescents (over 13 years) and adults (Derogatis, 1993; Derogatis & Spencer, 1982). This appropriate comparison group for LONGSCAN caregiver respondents is non-patient adult females. For this group, a T-score of 60 corresponds to the 84th percentile, a T-score of 70 corresponds to the 93rd percentile, and a T-score of 80 corresponds to the 98th percentile.

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Psychometric Support

Reliability

The authors report good internal consistency reliability for the nine dimensions, ranging from .71 on Psychoticism to .85 on Depression. Good internal consistency reliability is supported by several other independent studies (Croog et al., 1986; Aroian & Patsdaughter, 1989 in Derogatis, 1993). No alpha reliability is reported for the three global indices. Test-retest reliability for the nine symptom dimensions ranges from .68 (Somatization) to .91 (Phobic Anxiety), and for the three Global Indices from .87 (PSDI) to .90 (GSI).

Validity

Correlations between the BSI and the Wiggins content scales and the Tryon cluster scores from the MMPI ranged from .30 to .72 with the most relevant score correlations averaging above .50 (Conoley & Kramer, 1989; Derogatis, Rickles, & Rock, 1976 in Derogatis, 1993). Factor analysis results confirmed the a priori construction of the symptom dimensions. In addition, correlations between the BSI and SCL-R-90 were .92 to .99 (Derogatis, 1993). References to other studies attesting to the validity of the BSI are found in the manual (Derogatis, 1993).

Pilot Study

A pilot study was conducted prior to the main study to determine the reliability of the scales employed in the study. This pilot study was conducted by administering the scales to 20 diabetic patients receiving an out-patient care at the Swedru Government Hospital. Participants were selected using a simple random sampling technique. Participants selected for the pilot study had

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similar medical, socio-cultural and socio demographic (example being diagnosed of diabetes for a number of years, belongs to a religious faith etc.) characteristics of participants used for the main study. The Cronbach alpha (Internal Consistency) was run for each scale and their respective sub-scales. The results of the internal consistency measures are summarized in the Table 1 below;

Table 1-*Internal Consistencies of the Scales from a Pilot study of 20 Diabetic Patients*

Scale	Cronbach Alpha (Internal Consistency)
Religiosity	.72
Brief Illness Perception (BIP)	.66
Brief Symptom Inventory (BSI)	.89
BSI Sub-Scales	
Somatization	.80
Obsessive-Compulsive	.69
Depression	.70
Anxiety	.78
Interpersonal Sensitivity	.62
Hostility	.69
Phobic Anxiety	.70
Paranoid ideation	.58
Psychoticism	.69

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From Table 1 above, the Religiosity scale has a Cronbach alpha value of .72, the Brief Illness Perception Scale has a Cronbach alpha value of .66 and the Brief Symptom Inventory has a Cronbach alpha value of .89. For the nine sub-scales of the BSI, Cronbach alpha values ranged between .58 and .80. These reliability values are presented in the Table 1 above. The above measures of internal consistency for the various questionnaires suggest that the instrument used in the study is satisfactory and aided in providing adequate findings.

Data Collection Procedure

For the procedure, an introduction letter was first written and issued out by the department of Education and Psychology at the University Of Cape Coast to the hospitals of interest. This was then followed by ethical clearance letters which gave legal authority for the researcher to conduct the study. The ethical clearance letters were also submitted to the various health centers of interest for permission. After, the permission was granted at the selected hospitals, a date was fixed for the commencement of the data collection. Data collection was done from 2nd April, 2018 to 24th May, 2018, in total nine weeks were used to collect the data from the various health centres. Data was collected with the help of highly skilled and trained researchers from the Department of Education and psychology who read Measurement and Evaluation at the MPhil level. Also the nurses and staff at the various health centres helped in the process of data collection as they directed the flow of proceeding at the hospitals.

Participants were selected in a systematic order based on an interval and numbers assigned to each participant. Questionnaires were then carefully

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explained to each participants and with some assistance participants were able to complete them, informed consent was also sought from individual participants before administering. Questionnaire response rate was impressive as most participants (103 out of the expected 153) were able to fully complete their questionnaires. However, one major challenge was the inability of the participants to fully understand the technical issues of the instruments, research assistants however did their best to help explain and interpret key areas in the instrument enhancing clarity amongst the participants.

Data Processing and Analysis

Research Question one which sought to know the level or state of religiosity amongst diabetic patients was analyzed using means and standard deviation. This was due to the descriptive nature of the question.

Research question two which looked at the perceived causes of illness amongst the diabetic patients at the Cape Coast Metropolis was analyzed using frequencies and percentages to outline the various perceived causes of diabetes amongst diabetic patients at the Cape Coast Metropolis.

Research hypotheses 1 and 2 were analyzed using Pearson Product Moment Correlation Coefficient so as to help establish the relationship between the various variables under study, this is so because data collected are believed to on interval or ratio scale and variables have a linear relationship. Research Hypothesis 3 was analyzed using independent samples t-test to outline differences between two separate groups. The use of independent samples t-test made it possible to analyze research hypothesis 4. Lastly research hypothesis 5 which sought to identify which of the two independent variables (religiosity and illness perception) best predicts mental health of

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diabetic patients at the Cape Coast Metropolis was analyzed using multiple regression to examine which factor best describes mental health of patients. All the analysis were done using SPSS version 21. Responses from participants were given specific codes and keyed into SPSS software for computation and analysis.

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CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter offers the analyses and the data collected from the field. This is followed by the interpretation of the results and discussion of findings. The purpose of the study was to investigate the relationship between diabetic patients' religiosity and mental health outcomes, as well as their illness perception and mental health in the Cape Coast Metropolis. The analysis and interpretation of data were done based on the results of the research and question set for the study. The analysis was based on the 100% return rate data obtained from 103 diabetic patients used in the study. The data were analyzed using inferential statistics (Pearson product moment correlation coefficient, independent samples t-test and Multiple Regression of predictors) and descriptive statistics (means, standard deviations, frequencies and percentages).

The first part of this chapter designates the demographic characteristics of the selected hospitals in the Cape Coast Metropolis which was analyzed using frequencies and percentages. In the second part, the research results are presented based on the research question and hypotheses outlined for the study.

Respondents' (Diabetic Patients') Demographic Information

This section relates to the background information of the selected diabetic patients in the Cape Coast Metropolis who responded to the

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questionnaire. Demographic variables that were measured include the patients' age, gender, educational level, diabetes type and religious faith. The demographic data was analyzed using frequencies and percentages. Table 2 presents the results.

Table 2-*Demographic Characteristics (Gender, Age Range, Marital Status, Religious Faith and Educational Level) of the Selected Diabetic Patients'*

Demographic Variables	Subscale	Freq.(No)	Percent %
Gender	Male	32	31.1
	Female	71	68.9
Age Range	20-29	26	25.2
	30-39	21	20.4
	40-49	55	53.4
	60 and above	1	1.0
Marital Status	Single	10	9.7
	Married	81	78.6
	Separated /Divorced	9	8.7
	Widowed	2	1.9
Religious Faith	Christianity	45	43.7
	Islam	57	55.3
	Others	1	1.0
Educational Level	No Education	37	35.9
	Primary	3	2.9
	Secondary	60	58.3
	Tertiary	3	2.9

Source: Field Data, (2018) (n=103)

From Table 2, it is evident that the female diabetic patients in hospitals Cape Coast Metropolis (n=71, 68.9%) were more than male diabetic patients (n=32, 31.1%). The responses of the diabetic patients concerning their age revealed that those within the ages of 40-49 were in the majority (n=55,

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53.4%) this was followed by those from 20-29 (n=26, 25.2%). Those within the ages of 60 and above were the least (n=1, 1.0%).

In relation to Marital Status, most of diabetic patients were married (n=81, 78.6%). Those who were single followed (n=10, 9.7%). Diabetic patients who were Widowed were the least (n=2, 1.9%). The results further suggest that Muslims were the majority who have contracted the illness (n=57, 55.3%). Those who were Christians recorded the second count (n=45, 43.7%). Persons from other religious backgrounds were the least (n=1, 1.0%).

Concerning diabetic patients' Educational Level, most of them were Secondary education holders (n=60, 58.3%). Those with No Education followed (n=37, 35.9%). Those with Primary and Tertiary were the least (n=3, 2.9%).

Table 3-*Demographic Characteristics (Diabetes Type and Duration of illness) of the Selected Diabetic Patients*

Demographic Variables	Subscale	Freq.(No)	Percent %
Diabetic Type	Type 1	30	29.1
	Type 2	73	70.9
Duration of illness	1-5 years	67	65.0
	6-10 years	9	8.7
	11-15 years	27	26.2

Source: Field Data, (2018) (n=103)

The researcher further assessed the type of diabetes the patients have, the results show that those with Type 2 diabetes were the majority (n=67, 65.0%). The Type 1 diabetics were least presented (n=27, 26.2%). Lastly on the Duration of illness, the results indicate that those who have lived with the illness from 1 to 5 years were the majority (n=67, 65.0%). Those who confirm

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to have lived with the illness from 11 to 15 years (n=27, 26.2%). Those with with the illness from 6 to 10 years were the least (n=9, 8.7%).

Research Question One: What is the level of religiosity among diabetic patients at the Cape Coast Metropolis?

One of the main objectives of the study was to assess the level of religiosity amongst diabetic patients in some selected hospitals Cape Coast Metropolis. To provide answers to this research question, means and standard deviation were used for the analysis. The results are presented in Table 3.

Table 4-*Descriptive Analysis on the Level of Religiosity amongst Diabetic Patients*

Statement	Mean	Std. D	Rank Order
I enjoy being around others who share my faith.	3.85	.354	1st
I look to my faith as a source of inspiration.	3.64	.482	2nd
I look to my faith as a source of comfort.	3.29	.457	3rd
I pray daily.	3.25	.437	4th
I consider myself active in my faith or church.	3.23	.430	5th
My relationship with God is extremely important to me.	3.22	.418	6th
I look to my faith as providing meaning and purpose in my life.	3.19	.397	7th
My faith is an important part of who I am as a person.	3.16	.364	8th
My faith impacts many of my decisions.	3.09	.284	9th
My religious faith is extremely important to me.	3.03	.747	10th
Mean of means/Std.D	3.29	.437	

Source: Field Data, (2018) Cut off value= 2.50 (n=103)

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As depicted in Table 4, the results show that generally, diabetic patients in the metropolis have a high level or high state of religiosity. The Mean of means/Std which is greater than the test value (2.50) suggest to that fact. For example, the diabetic patients in the metropolis indicated that they enjoy being around others who share their faith *(M=3.85, SD=.354, n=103)* and this contributes to their high level or state of religiosity.

They further indicated that they look to their faith as a source of inspiration *(M=3.64, SD=.482, n=103)*. Most of them further shared that they look to their faith as a source of comfort *(M=3.29, SD=.457, n=103)*. The results further show that diabetic patients in the metropolis pray daily to give them a heightened level or state of religiosity. The results further show that they consider themselves active in their faith or church *(M=3.23, SD=.430, n=103)*.

In another evidence, the selected diabetic patients in the Cape Coast Metropolis specified that their relationship with God is extremely important to them *(M=3.22, SD=.418, n=103)*. In related results, they construed that they look to their faith as providing meaning and purpose in their life *(M=3.19, SD=.397, n=103)*.They further pointed out that faith is an important part of them as a person *(M=3.16, SD=.364, n=103)*.

The results in Table 4 further suggest that faith impacts many of their decisions *(M=3.09, SD=.284, n=103)*. They further indicated religious faith is extremely important to them and this explains one of the reason for their high level or state of religiosity *(M=3.03, SD=.747, n=103)*.

In an effort to provide a more rigorous and accurate analysis of results, the above scale and its items were subjected to further testing to find out how

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significantly different each item is to the other. The spearman rho looks at each instrument on the scales and compares them to see whether there significant differences between them. Table 5 presents results on religiosity factors.

Table 5-*Spearman Man Rho Results on the Religiosity Factors*

Spearman Man rho	Rho	Sig
I look to my faith as providing meaning and purpose in my life.	.748	002
I consider myself active in my faith or church.	.743	000
I look to my faith as a source of comfort.	.612	000
I pray daily.	.473	003
My faith impacts many of my decisions.	.465	000
My faith is an important part of who I am as a person.	.344	001
I enjoy being around others who share my faith.	.293	002
My relationship with God is extremely important to me.	.126	003
I look to my faith as a source of inspiration.	.124	001

Source: Field Data, (2018) (n=103)

The results from the Table show that generally, all the factors of religiosity influence Diabetic Patients' Mental Health. Spearman rho results from the above indicate that there is a strong association between individual items on the questionnaire. The Spearman rho results suggest that their faith provide meaning and purpose in their life and recorded the highest correlation (rho=.748, sig.=.002). "Active in their faith or church" recorded the highest correlation (rho=.743, sig. =.000). Faith as a source of inspiration was the least factor (rho=.124, sig. =.001).

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The results lend support to previous studies that religion provides social and psychological resources such as social support, locus of control, positive thinking and encouragement for a healthy lifestyle (Koenig 2009; Park 2007).In related study, Baetz, Bowen, Jones and Koru-Sengul (2006) explored the relationships among spiritual values worship attendance and psychiatric disorders among Canadians. The demographic characteristics were controlled and the researchers determined odds ratios for lifetime, 1-year, and past psychiatric disorders, with worship frequency and spiritual values as predictors. It was revealed that higher worship frequency was associated with lower odds of psychiatric disorders. In contrast, those who considered higher spiritual values important (in a search for meaning, in giving strength, and in understanding life's difficulties) had higher odds of most psychiatric disorders. The outcome contradicts earlier studies that found religiosity to cushion people against mental health problems.

Research Question Two: What are the perceived causes of illness amongst diabetic patients at the Cape Coast Metropolis?

This research question sought to outline the three most important perceived causes of diabetes amongst diabetic patients at the metropolis. To analyze this questions frequencies and percentages were used to bring out the three most perceived causes of diabetes amongst diabetic patients at the Cape Coast Metropolis.

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Table 6-*Results on the Rank-Order the Three Most Important Factors That Believe to Cause Illness*

Variables	Frequency(No)	Percent (%)	Rank order
Diet/ Nutrition	72	69.9	1st
Genetics	23	22.3	2nd
Lifestyle	8	7.8	3rd
Total	103	100.0	

Source: Field Data, (2018) (n=103)

Table 6 illustrates results on the rank-order of the three most important factors that is believed cause to illness. The results indicate that the Diet/ Nutrition was rated as the most important factor that is believed to cause illness (n=72, 69.9%). Genetics followed as the second most important factor that is believed or perceived to be a cause of illness (n=23, 22.3%). Lifestyle was least rated, it was considered as a less important factor that is believed cause to illness (n=8, 7.8%).

These findings are similar to a study conducted by Kugbey Nurwoza (2013), which outlined the perceived causes of diabetes amongst respondents as Biological factors including genes or heredity, lifestyle factors including eating habits etc. and psychological factors such as emotional outbursts, depression etc. however, unlike this study the study conducted by Kugbey Nurwoza (2013), rated lifestyle as the most perceived cause of illness amongst respondents, followed by biological factors and then psychological factors.

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Research Hypothesis One: There is no statistical significant relationship between diabetic patients' religiosity and their mental health

This research hypothesis intended to examine the relationship between diabetic patients' religiosity and their mental health in some selected hospitals Cape Coast Metropolis. To accomplish this, Pearson Product Moment Correlation (PPMC) was used for the analysis. In the analysis, PPMC(r) was used to determine the degree and the direction of a relationship between the variables (diabetic patients' religiosity and their mental health). In the analysis, PPMC coefficient (r) values from 0 to 0.39 indicates a low correlation between the variables, from 0.4 to 0.59 indicates a moderate correlation between the variables and values from 0.6 to 1.0 indicates a strong correlation. The findings are presented in Table 6.

Table 7-*Pearson Product correlation between Diabetic Patients' Religiosity and their Mental Health*

Variables Under Study		Diabetic Patients' Religiosity	Diabetic Mental Health
Diabetic	Pearson Correlation	1	-.286**
Patients'	Sig. (2-tailed)		.003
Religiosity	N	103	103
Diabetic	Pearson Correlation	-.286**	1
Mental	Sig. (2-tailed)	.003	
Health	N	103	103

Source: Field Data, (2018) *Significant relationship exist at P<0.05, n=103

Table 7 offers the correlation between the study variables (diabetic patients' religiosity and their mental health). From the Table, it can be seen that diabetic patients' religiosity is negatively correlated to the mental health

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of the diabetic patients in the Cape Coast Metropolis ($r=-.286^{**}$, $n=103$, $p<0.05$, $p=0.003$, 2-tailed). However, the correlation was moderate in nature. This means that diabetic patients' religiosity in the Cape Coast Metropolis does not really positively influence the mental health of the diabetic patients.

The results agree with other studies which studied the relationship between religion and health are often criticized by rhetorically asking questions that these studies allegedly have not answered. Moreover, previous studies have overrepresented Western Caucasians (Ano & Vasconcelles 2005; Hill & Pargament 2003; Smith et al. 2003), especially in the United States (Ano and Vasconcelles 2005; Shreve-Neiger and Edelstein 2004; Yeager et al. 2006). All these have demonstrated a relationship between religion and health.

The results again are also in line with the work of Nuworza K (2013) who conducted a cross-sectional survey on 194 diabetic patients, to test whether religiosity has any relationship with patient's mental health. Results from the analysis using Pearson correlation showed that the diabetic patients' level of religiosity did not significantly relate with the mental health problems.

Research Hypothesis Two: There will be a relationship between illness perception of diabetic patients and their mental health.

The purpose of this research hypothesis sought to measure the relationship between illness perception of diabetic patients and their mental health. To measure this relationship, Pearson Product Moment Correlation (PPMC) was used for the analysis. In the analysis, PPMC (r) was used to determine the degree and the direction of a relationship between the variables (illness perception of diabetic patients and their mental health). The results are indicated in Table 7 below.

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Table 8-*Pearson Product Moment Correlation between Illness Perception of Diabetic Patients and their Mental Health*

Variables Under Study		Illness Perception of Diabetic Patients	Diabetic Mental Health
Illness Perception of Diabetic Patients	Pearson Correlation	1	.080
	Sig. (2-tailed)		.421
	N	103	103
Diabetic Mental Health	Pearson Correlation	.080	1
	Sig. (2-tailed)	.421	
	N	103	103

Source: Field Data, (2018) *Significant relationship exist at P<0.05, n=103

As indicated in Table 8, the results show that there is low or weak relationship between illness perception of diabetic patients and their mental health in the Cape Coast Metropolis and the results was not statistically significant *(r=.080, n=103, p=0.421, 2-tailed)*. The results imply that illness perception of diabetic patients in the Cape Coast Metropolis does not influence the mental health of the diabetic patients.

The current study has a direct link to the study of Lin, Katon, von Korff, Rutte, Simon, Oliver, Ciechanowski, Ludman, Bush and Young (2004) who assessed whether diabetes self-care, medication adherence, and use of preventive services which are relevant aspects of illness perception were associated with depressive illness in a large health maintenance organization. Several medical issues were found but in terms of mental health problems among diabetic patients, major depression was associated with less physical

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activity, unhealthy diet, and lower adherence to oral hypoglycemic, antihypertensive, and lipid lowering medications and not illness perception.

In a similarly study, Hermans, Kulzer, Krichbaum, Kubiak and Haak (2005) examined the prevalence of clinical and subclinical anxiety and affective disorders among diabetic patients in Germany and found that the prevalence rate of affective disorders was higher that anxiety disorders.

Further outcomes revealed that affective disorders among diabetic patients were significantly predicted by the patients' characteristics such as age, female gender, living alone, insulin treatment in Type 2 diabetes, hypoglycemia problems and poor glycemic control. However, anxiety symptoms among the diabetic patients were significantly associated with female gender, younger age and Type 2 diabetes. This study outcome provides an idea of which personal characteristics that are likely to predispose diabetic patients to mental health problems and I think such an outcome would help in shaping clinical practice and further studies.

However, the findings in the study contradicted a study done by Fortune, Richards, Griffiths and Main (2002) who concluded that illness perception proved to be positively influential in the health outcomes of patients. The study examined the relative contribution of medical variables, illness perceptions, coping and alexithymia to the variance in stress, distress and disability in patients with psoriasis using a cross-sectional study design. A group of 225 patients with psoriasis completed the Hospital Anxiety and Depression Scale (HADS), The Penn State Worry Questionnaire (PSWQ), the COPE, the Illness Perception Questionnaire (IPQ), Toronto Alexithymia Scale (TAS-20), and two measures specific to psoriasis, the Psoriasis Disability

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Index (PDI), and the Psoriasis Life Stress Inventory (PLSI). The severity of patients' psoriasis was clinically assessed by dermatologists on the Psoriasis Area and Severity Index (PASI). Results showed that in general, demographic variables, clinical history and extent of disease were consistently the least useful variables in terms of explaining variance in stress, distress or disability. The researchers reported that the utility of the aforementioned variables was limited to accounting for small but significant variations in disability, but even in this case, they accounted for just over half as much variance as illness perceptions. Illness perception was found to be the most significant predictor of the health outcomes among the study sample. The outcome of the study demonstrated the powerful influence of illness perception on the health outcomes in patients living with chronic conditions. This outcome was demonstrated by several research findings such as the ones by Dempster et al., (2011), Paddison, Alpass and Stephens (2010), Heyhoe and Lawton (2009) and Knibb and Horton (2008), where illness perception components predicted psychological distress significantly.

Again in a similar cross-sectional survey conducted by Nuworza K., (2013) on 194 diabetic patients, it was established through the use of Pearson Product Moment of Correlation Coefficient that illness perception of patients correlated significantly and positively with their general mental health problem (GSI) and specific ones including levels of Somatization, Obsessive-Compulsion, Depression, Anxiety and Psychoticism.

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Research Hypothesis Three: There will be no statistical significant differences between male and female diabetic patients based on their religiosity.

Another important objective of the study was to find out the differences between male and female diabetic patients based on their religiosity in the Cape Coast Metropolis. To achieve this, independent samples t-test was deemed appropriate for the analysis. The results are presented in Table 8.

Table 9-*Results of t-test Comparing Gender Difference Based on their Religiosity*

Gender	N	Mean	SD	t-value	Df	Sig-Value
Male	32	33.5625	1.0453	3.696	101	.000(s)
Female	71	35.7183	1.0847			

Source: Field Data, (2018) *Significant difference exist at P≤0.05, (n=103)

Results between male and female diabetic patients based on their religiosity in the Cape Coast Metropolis are presented in Table 9. As depicted in the Table, the means and standard deviation gives slight indication that female diabetic patients (mean= 35.7183, SD=1.0847, n=72) are more religious than males (mean=33.5625, SD=1.0453, n=32) diabetic patients in the Cape Coast Metropolis. Also a critical look at the *t* and *p*-value show that, there was statistically significant difference between males and females diabetic patients based on their religiosity (t (df=101) =3.696, p = .000, p>0.05, n=103, 2-tailed). Hence, the null hypothesis stated as "*There will be no statistical significant differences between males and females' diabetic patients' based on their religiosity"* was rejected.

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The above result is line with a study conducted by Francis 1997, who concluded that women are more religious than men. Normally, greater female religiosity is mentioned within the context of Christianity (Francis, 1997). Further studies by Flere 2003, to examine the differences between males and female college students based on their religiosity, found two significant differences. Specifically, females were on average significantly more religious than males in terms of psychological extrinsic religiosity (t= -5,24; p <.001), and intrinsic religiosity (t= - 2,0;p <= .05). However, no such differences were found when observing mean levels of quest and extrinsic social religiosity.

Research Hypothesis Four: There will be no statistical significant differences between male and female diabetic patients based on their mental health

One of the objectives of the study was to determine the differences between male and female diabetic patients based on their mental health in the Cape Coast Metropolis. To achieve this, independent samples t-test was considered appropriate for the analysis. The results are presented in Table 9.

Table 10-*Results of t-test Comparing Gender Difference Based on their Mental Health*

Gender	N	Mean	SD	t-value	Df	Sig-Value
Male	32	23.3125	1.4687	-2.737	101	.008(s)
Female	71	24.1831	1.5053			

Source: Field Data, (2018) *Significant difference exist at P≤0.05, (n=103)

Results between male and female diabetic patients based on their mental health in the Cape Coast Metropolis are presented in Table 10. As portrayed in the Table, when assessing the means and standard deviation

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results, the results show that female diabetic patients (mean= 24.1831, SD=1.5053, n=71) have a more better mental health status than male (mean=23.3125, SD=1.4687, n=32) diabetic patients in the Cape Coast Metropolis. However, a critical look at the *t* and *p*-value show that, there was statistically significant difference between males and females diabetic patients based on their mental health (t (df=101) =-2.737, p = .008, p>0.05, n=103, 2-tailed). Hence, the null hypothesis stated as "*There will be no statistical significant differences between males and females' diabetic patients' based on mental health* was rejected.

The result above contradicts the work of Nurwoza K (2013), who in a cross sectional survey of 194 diabetic patients found out that MANOVA results showed that females report more mental health problem (GSI), Somatization and obsessive-compulsion but no significant sex differences in other specific mental health problems.

Research Hypothesis Five: Religiosity will best predict the mental health of diabetic patients at the Cape coast Metropolis.

This research intended to find out which between the two independent variables (religiosity and illness perception) will best predict diabetic patients' mental health at the metropolis. To be able to accomplish this analysis was done using multiple regression between the variable of concern. The results are presented in Table 11.

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Table 11-*Multiple Regression Analysis of the Predictors of Diabetic Patients' Mental Health*

Model		Unstandardized Coefficients		Standardized Coefficients	T	sig.
		B	Std. Error	Beta		
1	(constant)	.420	179.656		-2.341	.021
	Religiosity	11.7	4.315	.272	2.716	.008
	Illness Perception	5.79	3.185	.182	1.819	.002

Dependent Variable: Diabetic Patients' Mental Health

Source: Field Data, (2018)

Table 9 presents the SPSS Coefficients Model for the different predictors of the Diabetic Patients'. It contains the correlations for the independents variables (Religiosity and Illness Perception). All the two independent variables were statistically significant showing that both Illness Perception and Religiosity predict mental health of the Diabetic Patients. Religiosity produced a significant result (t=.2.716, n=103, p>0.05, Sig. =.008),) and Illness Perception also produced a significant result (t=.1.819, n=103, p>0.05, Sig. =.002). However, when assessing the standardized coefficients beta values, Religiosity predicted mental health of the Diabetic Patients (Beta=.272) more than the Illness Perception (Beta=.182). Therefore the hypothesis that *religiosity will best predict mental health among diabetic patients* is accepted or upheld.

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These findings are similar to the findings of a study by Nuworza (2013), who used multiple regression amongst 194 diabetic patients to find out predictive factors between religiosity and illness perception on diabetic patients mental health. However it was illness perception components that significantly predicted components of mental health like depression. Multiple regression was done and a significant model emerged at the .001 alpha level, [R2 = .27, F(8, 185) = 8.55, ρ < .001]. That is the entire model explained about 27% of variance in the level of depression among diabetic patients.

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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 directions for further research. Thus, the chapter focuses on the implications of the findings from the study for policy formulation and further research. The recommendations are made based on the key findings and major conclusions arising from the study.

Summary of the Study

The main purpose of this study was to investigate the relationship between diabetic patients' religiosity and mental health outcomes, as well as their illness perception and mental health in the Cape Coast Metropolis. To achieve this, the study was guided by four objectives to examine the relationship between diabetic patients' level of religiosity and their mental health problems, to investigate the relationship between diabetic patients' illness perception and their mental health problems, to examine the specific roles or functions religiosity and illness perception play in diabetic patients' health and finally to investigate whether patients' demographic characteristics such as sex, age, level of education and duration of illness influence their mental health problems significantly. Descriptive survey design involving the quantitative approach was used in the study.

The target population of the study were all diabetic patients attending a health facility, seeking treatment for diabetes in the Central Region of Ghana.

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A sample size of 103 diabetic patients were selected for the study using Krejcie and Morgan (1970) sampling size table. Three adapted scales such as Brief Illness Perception Questionnaire by (Broadbent, Petrie, Main, & Weinman, 2006), Santa Clara Strength of Religious Faith Questionnaire by (Plante & Boccaccini, 1997) and Brief Symptom Inventory Derogatis (1993). Pre-testing of the instrument was done and reliability and validity were ensured. Ethical consideration was also ensured before the actual data collection. The data collected was analyzed using descriptive statistics (frequencies and percentages, means and standard deviation) and inferential statistics (Pearson correlation and independent sample t-test).

Key Findings

The following findings were established for the study:

Research question one which was to assess the level or state of religiosity amongst diabetic patients in some selected hospitals at the metropolis revealed that, generally, diabetic patients' in the metropolis have a high level of religiosity. This might probably be due to the high religious nature of most Ghanaians who take church attendance, prayer and worship very seriously.

Religiosity becomes a normal part of life of these patients which reflects the general religious nature of the Ghanaian as religion is seen as an integral part of the majority of the Ghanaian populace (Gyekye, 1996).

Research question two sought to outline the three most important perceived causes of illness amongst diabetic patients at the metropolis. The results revealed that the Diet/ Nutrition was rated as the most important factor that is believed or perceived by the respondents to cause illness (n=72,

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69.9%). Genetics followed as the second most important factors that is believe cause to illness (n=23, 22.3%). Lifestyle was least rated was less important factors that is believe cause to illness (n=8, 7.8%).

Research hypothesis one intended to examine the relationship between diabetic patients' religiosity and their mental health in some selected health centres at the metropolis. The results from the analysis revealed that diabetic patients' religiosity is negatively correlated to the mental health of the diabetic patients' in the metropolis ($r=-.286^{**}$, $n=103$, $p<0.05$, $p=0.003$, 2-tailed). This implies that diabetic patients' religiosity does not really strongly determine the mental health of the diabetic patients in the metropolis.

Research hypothesis two sought to measure the relationship between illness perception of diabetic patients and their mental health. The results from the study indicated that there is low or weak relationship between illness perception of diabetic patients and their mental health and the results was not statistically significant. This explains that illness perception of diabetic patients in the Cape Coast Metropolis does not strongly influence the mental health of the diabetic patients.

Research hypothesis three was to determine the differences between male and female diabetic patients based on their religiosity in the Cape Coast Metropolis. The results from the study indicated that there was statistically significant difference between males and females diabetic patients based on their religiosity.

Research hypothesis four was to find out the differences between male and female diabetic patients based on their mental health in the Cape Coast Metropolis. The results suggest that there was a statistically significant

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difference between males and females diabetic patients based on their mental health, that is female diabetic patients have better mental health than male diabetic patients. This might be due to the fact that females are naturally more religious than males and religion may serve as a buffer against mental illness.

Research hypothesis five sought to find out which independent variable (religiosity and illness perception) best predicts diabetic patients' mental health. The results clearly indicated that even though both religiosity and illness perception both significantly predicted a diabetic patients' mental health, it was found out that religiosity best predicted the mental health outcome of patients. This result was so probably because of the fact that most of the respondents were highly religious and their religiosity had a significant effect on their mental outcomes.

Conclusions

Based on the findings from the study, it can be concluded that diabetes patients in the Cape Coast Metropolis are deeply attached to religiosity and this influence their mental health outcomes. This was because the findings of the research confirmed that there was a statistically significant relationship between diabetes patients' religiosity and mental health outcomes. The study shows that mental health of the diabetic patients is gender sensitive. The higher quality of life enjoyed by the male population of diabetic patients than that of the female communicates clearly the energy that the males have as against the females. This means that females are likely to face more health challenges which could reduce their visibility among friends and other family members. It was also concluded that diabetic patients in the Cape Coast Metropolisin the Central Region have a weak link between positive illness

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perception of diabetic patients and their mental health and this influence their mental health regarding diabetes. Based on the finding of the study, the researcher draws a conclusion that most diabetic patients adhered to correct religiosity and this impacts their mental health outcomes practices.

The outcome demonstrated that the level of religiosity significantly predicted mental health problems but not as much as the illness perception of the patients. As the prevalence of diabetes has been shown to be high and is expected to increase in the near future in Ghana and elsewhere, the health system is faced with challenges regarding the management of the condition. Coupled with the fact that living with diabetes has several implications for the individual and the nation as a whole, the comorbid mental health problems have been shown to influence the management of the condition. It is therefore, imperative that the factors affecting these mental health problems are identified and tackled effectively

Recommendations

In view of the findings of this study, it is recommended that stakeholders mentioned below should do the following.

1. Religious bodies and the Medical Directors of the various hospitals in Cape Coast Metropolis are to ensure that there are diabetes patient's drugs and other appropriate health care measures available at the hospital facilities to help attend to diabetic patients. Religious bodies can help set up pastoral counselling outpost at various health centres to cater or the religious needs of persons diagnosed with diabetes.

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2. A holistic and comprehensive model of healthcare such as the Biopsychosocial model should be incorporated at the various health centres across the nation. This will help take care of either psychological, spiritual or social complication that may accompany chronic illness such diabetes.
3. Sine religiosity has been found to significantly influence patient's health, health facilities should be equipped with places of worship where patients can visit to pray and have their religious needs sorted.

Suggestions for Future Research

The following areas are recommended for further research study.

1. Further studies should be conducted by other health and research institutions to confirm the risk factors and pathology of diabetes and the effect of these variables on mental health. Future research should expand on other equally important comorbid variables that might influence a patient's mental and general health.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Questionnaire for participants

This questionnaire is designed to gather data on the roles and influence of religiosity and illness perception on diabetic patients' mental health. The data so gathered will be used for academic purposes only and will be treated with strict confidentiality. Your name is not required. Pleases, provide a response to every item on the questionnaire frankly and truthfully. Thank you for your cooperation.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

Sex: Male ( ) Female ( )

Age: 20-29( ) 30-39( ) 40-49( ) 50-59( ) 60 and above ( )

Marital Status: Single ( ) Married ( ) Separated/Divorced ( ) Widowed ( )

Religious Faith: Christianity ( ) Islam ( ) Others ( )

Education: No Education ( ) Primary ( ) Secondary ( ) Tertiary ( )

Type of Diabetes: Type -1 ( ) Type-2 ( )

Duration of Illness (Years)……

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SECTION B: SANTA CLARA STRENGTH OF RELIGIOUS FAITH QUESTIONNAIRE

Please answer the following questions about your religious faith in managing your diabetes mellitus using the scale below:

Indicate the level of agreement (or disagreement) for each statement.

1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree

_____ 1. My religious faith is extremely important to me.

_____ 2. I pray daily.

_____ 3. I look to my faith as a source of inspiration.

_____ 4. I look to my faith as providing meaning and purpose in my life.

_____ 5. I consider myself active in my faith or church.

_____ 6. My faith is an important part of who I am as a person.

_____ 7. My relationship with God is extremely important to me.

_____ 8. I enjoy being around others who share my faith.

_____ 9. I look to my faith as a source of comfort.

_____ 10. My faith impacts many of my decisions.

SECTION C: THE BRIEF ILLNESS PERCEPTION QUESTIONNAIRE

Using the scale below, tick your beliefs about diabetes mellitus:

1. How much does your illness affect your life?

0 1 2 3 4 5 6 7 8 9 10

No effect at all severely affects my life

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

0 1 2 3 4 5 6 7 8 9 10

a very short time forever

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

0 1 2 3 4 5 6 7 8 9 10

Absolutely no control extreme amount of control

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

0 1 2 3 4 5 6 7 8 9 10

not at all extremely helpful

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

0 1 2 3 4 5 6 7 8 9 10

no symptoms at all many severe symptoms

6. How concerned are you about your illness?

0 1 2 3 4 5 6 7 8 9 10

not at all concerned extremely concerned

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

0 1 2 3 4 5 6 7 8 9 10

don't understand at all understand very clearly

8. How much does your illness affect you emotionally? (E.g. does it make you angry?)

0 1 2 3 4 5 6 7 8 9 10

not at all affected emotionally extremely affected emotionally

9. Please list in rank-order the three most important factors that you believe caused your illness.

The most important causes for me:

1. _____

2. _____

3. _____

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10. Please list in rank –order how your illness perception has aided in your health

The way I perceive my illness helps me to:

1._____

2._____

3._____

SECTION D: BRIEF SYMPTOM INVENTORY (BSI)

Here is a list of problems people sometimes have. I want you to indicate how much that problem has distressed or bothered you during the past 7 days including today. On the right side are the answers I want you to use.

0 = not at all

1 = a little bit

2 = Moderately

3 = quite a bit

4 = extremely

R = refused

DURING THE PAST 7 DAYS, how much were you distressed by:

1. Nervousness or shakiness inside 0 1 2 3 4 R
2. Faintness or dizziness 0 1 2 3 4 R
3. The idea that someone else can control your thoughts 0 1 2 3 4 R
4. Feeling others are to blame for most of your troubles 0 1 2 3 4 R
5. Trouble remembering things 0 1 2 3 4 R
6. Feeling easily annoyed or irritated 0 1 2 3 4 R
7. Pains in the heart of chest 0 1 2 3 4 R

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8. Feeling afraid in open spaces 0 1 2 3 4 R

9. Thoughts of ending yo 0 1 2 3 4 R

10. Feeling that most people cannot be trusted 0 1 2 3 4 R

11. Poor appetite 0 1 2 3 4 R

12. Suddenly scared for no reason 0 1 2 3 4 R

13. Temper outbursts that you could not control 0 1 2 3 4 R

14. Feeling lonely even when you are with people 0 1 2 3 4 R

15. Feeling blocked in getting things done 0 1 2 3 4 R

16. Feeling lonely 0 1 2 3 4 R

17. Feeling blue 0 1 2 3 4 R

18. Feeling no interest in things 0 1 2 3 4 R

19. Feeling fearful 0 1 2 3 4 R

20. Your feelings being easily hurt 0 1 2 3 4 R

21. Feeling that people are unfriendly or dislike you 0 1 2 3 4 R

22. Feeling inferior to others 0 1 2 3 4 R

23. Nausea or upset stomach 0 1 2 3 4 R

24. Feeling that you are watched or talked about by others 0 1 2 3 4 R

25. Trouble falling asleep 0 1 2 3 4 R

26. Having to check and double check what you do 0 1 2 3 4 R

27. Difficulty making decisions 0 1 2 3 4 R

28. Feeling afraid to travel on buses, subways, or trains 0 1 2 3 4 R

29. Trouble getting your breath 0 1 2 3 4 R

30. Hot or cold spells 0 1 2 3 4 R

31. Having to avoid certain things, places, or activities 0 1 2 3 4 R

because they frighten you

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32. Your mind going blank 0 1 2 3 4 R

33. Numbness or tingling in parts of your body 0 1 2 3 4 R

34. The idea that you should be punished for your sins 0 1 2 3 4 R

35. Feeling hopeless about the future 0 1 2 3 4 R

36. Trouble concentrating 0 1 2 3 4 R

37. Feeling weak in parts of your body 0 1 2 3 4 R

38. Feeling tense or keyed up 0 1 2 3 4 R

39. Thoughts of death or dying 0 1 2 3 4 R

40. Having urges to beat, injure, or harm someone 0 1 2 3 4 R

41. Having urges to break or smash things 0 1 2 3 4 R

42. Feeling very self-conscious with others 0 1 2 3 4 R

43. Feeling uneasy in crowds 0 1 2 3 4 R

44. Never feeling close to another person 0 1 2 3 4 R

45. Spells of terror or panic 0 1 2 3 4 R

46. Getting into frequent arguments 0 1 2 3 4 R

47. Feeling nervous when you are left alone 0 1 2 3 4 R

48. Other not giving you proper credit for your achievements 0 1 2 3 4 R

49. Feeling so restless you couldn't sit still 0 1 2 3 4 R

50. Feelings of worthlessness 0 1 2 3 4 R

51. Feeling that people will take advantage of you if you let them 0 1 2 3 4 R

52. Feeling of guilt 0 1 2 3 4 R

53. The idea that something is wrong with your mind 0 1 2 3 4 R

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APENDIX B

CONSENT FORM

Title**: "Illness perception and Religiosity on Diabetic patients' Mental Health in Cape Coast Municipal"**

Principal Investigator**: Jonathan Amartey**

Principal Supervisor**: Professor Prosper Deku**

Co Supervisor**: Dr. Kofi Krafona**

Department of Education & Psychology, University of Cape Coast, Ghana.

General Information about the Research

The aim of this research is to examine whether the views held by diabetic patients about their illness in terms of cause, personal control, timeline etc. and religiosity have any significant influence on their mental health. Therefore, you will be required to respond each item on the questionnaire as truthfully as possible and there are no correct or wrong answers. The completion of the questionnaire could last from 20minutes to 45minutes depending on the individual participant. The Diabetic Units Ewim Polyclinic and Cape Coast District Hospitals will be used as venues for data collection.

Possible Risks and Discomforts

There are no foreseeable risks in participating in this study. However, any discomforts experienced by any respondent as a result of his or her involvement in the study will be dealt with accordingly by means of psychotherapy or Psycho education after thorough individual assessment of the participant.

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Possible Benefits

The possible benefit may be indirect but the outcomes are likely to inform policy decision making that would shape the scope of diabetes management in Ghana in relation to dealing with the mental health issues which the respondents may be beneficiaries. This can help bring more health professional on board in the management of the diabetic condition.

Confidentiality

Please be assured that no names or any other form of identity is required of you. Any information provided will be handled with care and used for academic purpose only.

Compensation

There will be no material or direct compensation for participation in the study since the study will not take so much time and does not pose any danger to the respondents.

Voluntary Participation and Right to Withdraw

Participation in this research is absolutely voluntary and you under no compulsion to take part. You may withdraw as you so with at any point in the study. You may also choose not to answer specific questions.

Contacts for Additional Information

In case of any doubt or/and for additional information concerning the study you may contact the Principal Investigator, Jonathan Amartey, University of Cape Coast, Ghana. Telephone:

0245643251 or email address: amartey_jona@yahoo.com

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Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of the school of graduate studies, University of Cape Coast, Ghana. If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm.

VOLUNTEER AGREEMENT

The above document describing the benefits and procedures for the research titled: "Illness perception and Religiosity on Diabetic patients' Mental Health in Cape Coast Municipal" has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

---------- ----------

Date Name and signature or mark of volunteer

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

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

---------- ----------

Date Name and signature of Witness.

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

---------- ----------

Date Name and Signature of person who obtained consent

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APPENDIX C

EWIM POLY CLINIC

EWIM POLYCLINIC
CAPE COAST 411
RECEIVED
Date: 27/11/17

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

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

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

Your Ref:

13th November, 2017

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION: MR. AMARTEY, JONATHAN

The bearer of this letter Mr. Jonathan Amartey is an M.Phil Clinical Health Psychology student at the Department of Education and Psychology, UCC.

He is at the thesis writing stage writing on the topic: *"Illness Perception and Religiosity of Diabetic Patients Mental Health in Cape-Coast Metropolis"*.

We are by this letter kindly asking that he is given the necessary assistance.

All information retrieved would be treated confidentially.

Thank you.

(Georgina Nyantakyiwaa Thompson)
Principal Administrative Assistant
For:Head

Attention DDNS
Kindly assist student accordingly.
[illegible]
1/12/17

1

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APPENDIX D

ETHICAL CLEARANCE LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES-ERB/ucc.edu/18-7
Your Ref: .....

Date: 12.04.2018

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

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

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

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

The bearer, Jonathan Amartey Reg. No. ED/CHP/16/0013 is an M.Phil. / Ph.D. student in the Department of Education and Psychology..... in the College of Education Studies, University of Cape Coast, Cape Coast, Ghana. He / She wishes to undertake a research study on the topic:

Illness perception and religiousity on patients' mental health in the Cape Coast Metropolis

.....

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

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

Thank you.
Yours faithfully,

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

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APPENDIX E

INTRODUCTORY LETTER

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

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

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

Your Ref:

13th November, 2017

TO WHOM IT MAY CONCERN

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He is at the thesis writing stage writing on the topic: *"Illness Perception and Religiosity of Diabetic Patients Mental Health in Cape-Coast Metropolis"*.

We are by this letter kindly asking that he is given the necessary assistance.

All information retrieved would be treated confidentially.

Thank you.

(Georgina Nyantakyiwaa Thompson)
Principal Administrative Assistant
For:Head

1

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APPENDIX F

CAPE COAST DISTRICT HOSPITAL

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

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

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

Your Ref:

13th November, 2017

CAPE COAST METROPOLITAN HOSPITAL
06-09-2018
RECEIVED
P.O. BOX 174, CAPE COAST

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION: MR. AMARTEY, JONATHAN

The bearer of this letter Mr. Jonathan Amartey is an M.Phil Clinical Health Psychology student at the Department of Education and Psychology, UCC.

He is at the thesis writing stage writing on the topic: *"Illness Perception and Religiosity of Diabetic Patients Mental Health in Cape-Coast Metropolis"*.

We are by this letter kindly asking that he is given the necessary assistance.

All information retrieved would be treated confidentially.

Thank you.

(Georgina Nyantakyiwaa Thompson)
Principal Administrative Assistant
For:Head

(2) Med. Supt.
FYI please
6/9/18

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APPENDIX G

TABLES

Table 1 ***Internal Consistencies of the Scales from a Pilot study of 20 Diabetic Patients.***

SCALE	Cronbach Alpha (Internal Consistency)
Religiosity	**.72**
Brief Illness Perception (BIP)	**.66**
Brief Symptom Inventory (BSI)	**.89**
BSI Sub-Scales	
Somatization	**.80**
Obsessive-Compulsive	**.69**
Depression	**.70**
Anxiety	**.78**
Interpersonal Sensitivity	**.62**
Hostility	**.69**
Phobic Anxiety	**.70**
Paranoid ideation	**.58**
Psychoticism	**.69**

Source: Field survey, (2018)

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Table 2: Demographic Characteristics (Gender, Age Range, Marital Status, Religious Faith and Educational Level) of the Selected Diabetic Patients'

Demographic Variables	Subscale	Freq.(No)	Percent %
Gender	Male	32	31.1
	Female	71	68.9
Age Range	20-29	26	25.2
	30-39	21	20.4
	40-49	55	53.4
	60 and above	1	1.0
Marital Status	Single	10	9.7
	Married	81	78.6
	Separated /Divorced	9	8.7
	Widowed	2	1.9
Religious Faith	Christianity	45	43.7
	Islam	57	55.3
	Others	1	1.0
Educational Level	No Education	37	35.9
	Primary	3	2.9
	Secondary	60	58.3
	Tertiary	3	2.9

Source: Field Data, (2018) (n=103)

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Table 3: Demographic Characteristics (Diabetes Type and Duration of illness) of the Selected Diabetic Patients

Demographic Variables	Subscale	Freq.(No)	Percent %
Diabetic Type	Type 1	27	26.2
	Type 2	67	65.0
Duration of illness	1-5 years	67	65.0
	6-10 years	9	8.7
	11-15 years	27	26.2

Source: Field Data, (2018) (n=103)

Table 4: Descriptive Analysis on the Level of Religiosity amongst Diabetic Patients

Statement	Cut off Value=2.50		Rank
	Mean	Std. D	Order
I enjoy being around others who share my faith.	3.85	.354	1st
I look to my faith as a source of inspiration.	3.64	.482	2nd
I look to my faith as a source of comfort.	3.29	.457	3rd
I pray daily.	3.25	.437	4th
I consider myself active in my faith or church.	3.23	.430	5th
My relationship with God is extremely important to me.	3.22	.418	6th
I look to my faith as providing meaning and purpose in my life.	3.19	.397	7th
My faith is an important part of who I am as a person.	3.16	.364	8th
My faith impacts many of my decisions.	3.09	.284	9th
My religious faith is extremely important to me.	3.03	.747	10th
Mean of means/Std.D	3.29	.437	

Source: Field Data, (2018) (n=103)

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Table 5 **Spearman Man rho Results on the Religiosity Factors**

Spearman Man rho	Rho	Sig
I look to my faith as providing meaning and purpose in my life.	.748	002
I consider myself active in my faith or church.	.743	000
I look to my faith as a source of comfort.	.612	000
I pray daily.	.473	003
My faith impacts many of my decisions.	.465	000
My faith is an important part of who I am as a person.	.344	001
I enjoy being around others who share my faith.	.293	002
My relationship with God is extremely important to me.	.126	003
I look to my faith as a source of inspiration.	.124	001

Source: Field Data, (2018)

(n=103)

Table 6: Results on the Rank-Order the Three Most Important Factors That Believe to Cause Illness

Variables	Frequency(No)	Percent (%)	Rank order
Diet/ Nutrition	72	69.9	1st
Genetics	23	22.3	2nd
Lifestyle	8	7.8	3rd
Total	103	100.0	

Source: Field Data, (2018) (n=103)

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Table 7: Pearson Product correlation between Diabetic Patients' Religiosity and their Mental Health

Variables Under Study		Diabetic Patients' Religiosity	Diabetic Mental Health
Diabetic Patients' Religiosity	Pearson Correlation	1	-.286**
	Sig. (2-tailed)		.003
	N	103	103
Diabetic Mental Health	Pearson Correlation	-.286**	1
	Sig. (2-tailed)	.003	
	N	103	103

Source: Field Data, (2018) *Significant relationship exist at P<0.05, n=103

Table 8: Pearson Product Moment Correlation between Illness Perception of Diabetic Patients and their Mental Health

Variables Under Study		Illness Perception of Diabetic Patients	Diabetic Mental Health
Illness Perception of Diabetic Patients	Pearson Correlation	1	.080
	Sig. (2-tailed)		.421
	N	103	103
Diabetic Mental Health	Pearson Correlation	.080	1
	Sig. (2-tailed)	.421	
	N	103	103

Source: Field Data, (2018) *Significant relationship exist at P<0.05, n=103

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Table 9: Results of t-test Comparing Gender Difference Based on their Religiosity

Gender	N	Mean	SD	t-value	Df	Sig-Value
Male	32	33.5625	1.0453	3.696	101	.000(s)
Female	71	35.7183	1.0847			

Source: Field Data, (2018) *Significant difference exist at P≤0.05, (n=103)

Table 10: Results of t-test Comparing Gender Difference Based on their Mental Health

Gender	N	Mean	SD	t-value	Df	Sig-Value
Male	32	23.3125	1.4687	-2.737	101	.008(s)
Female	71	24.1831	1.5053			

Source: Field Data, (2018) *Significant difference exist at P≤0.05, (n=103)

Table 11 Multiple Regression Analysis of the Predictors of Diabetic Patients' Mental Health

Model		Unstandardized Coefficients		Standardized Coefficients	T	sig.
		B	Std. Error	Beta		
1	(constant)	.420	179.656		-2.341	.021
	Religiosity	11.7	4.315	.272	2.716	.008
	Illness Perception	5.79	3.185	.182	1.819	.002

Dependent Variable: Diabetic Patients' Mental Health

Source: Field Data, (2018)

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