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COLLEGE OF HUMANITIES
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AFRICAN CULTURAL VALUES AND PSYCHOLOGICAL HEALTH IN ADULT PERSONS WITH SICKLE CELL DISEASE IN GHANA

BY

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DECLARATION

I declare that except for references to other peoples' works which have been duly acknowledged, this research work I carried out in the Department of Psychology, University of Ghana, Legon, under the supervision of Professor C. Charles Mate-Kole, Dr. Maxwell Asumeng, and Dr. Joseph Osafo, is the result of my own research work and that it has neither in part nor in whole been presented in this University or elsewhere for another degree.

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Dedicated to all adults living with sickle cell disease in Ghana and West Africa.

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LIST OF ABBREVIATIONS

ACSI - The Africultural Coping Systems Inventory

BSI - Brief Symptom Inventory

CBT - Cognitive Behavior Therapy

CDC - Centers for Disease Control and Prevention

CFI – Comparative Fit Index

CR - Convergent Reliability

EWB – Existential Wellbeing

GSI - Global Severity Index

HbSC – Sickle cell gene ("S") plus abnormal hemoglobin ("C"); less severe sickle cell phenotype

HbSS – Homozygous sickle cell genes ("S"); sickle cell anemia; severe sickle cell phenotype

IPA - Interpretative Phenomenological Analysis

KBTH - Korle-Bu Teaching Hospital

MANCOVA – Multivariate Analysis of Covariance

MANOVA – Multivariate Analysis of Variance

MDSPSS - Multidimensional Scale of Perceived Social Support

NNFI – Nonnormfit Index

PCA – Principal Component Analysis

PiSCES – Pain in sickle cell epidemiological studies

PST - Positive Symptom Total

RMSEA – Root Mean Square Error of Approximation

RWB – Religious Wellbeing

SCD – Sickle cell disease

SEM – Structural Equation Modeling

SMC - Squared Multiple Correlation

SWB – Spiritual Wellbeing

WHO- World Health Organization

ABSTRACT

Although spirituality has been found to reduce psychological symptoms, the factors that intervene in the relationship remain unclear. The present study aimed at determining whether African cultural values would moderate the relationship between spirituality and psychological health, and whether this observation was unique to SCD participants. Additionally, the study explored reasons for the use of African cultural values in coping. Finally, the study aimed at developing a model of coping with SCD. The study was cross sectional using quantitative and qualitative methods. The quantitative data was collected through questionnaire administered to a purposive sample of 201 adult SCD participants. Two hundred and three (203) healthy and 201 diabetic participants were used as comparison groups. The qualitative data was obtained from a subsample of 23 SCD interviewees. Significant results that emerged from the quantitative study revealed that first, the three groups generally demonstrated significant differences in the variables studied. Second, SCD participants differed significantly from comparison groups on specific African cultural values subscales and on specific psychological symptoms. Third, specific African cultural values predicted psychological health in specific BSI subscales among SCD participants. The rest of the quantitative results did not find anything significant. In the qualitative analyses, participants reported using specific African cultural values for transcendental, social support, psychological relaxation, and minimum physical exercise purposes to promote psychological health. However, medical treatment was the mainstay. Aspects of African cultural values that did not support these functions were associated with poor psychological health. Some of these observations emerged in the larger sample while others did not. These results implied that there were significant differences between SCD and diabetic or healthy participants on

endorsement of specific African cultural values and their effects on psychological health. It further implied that SCD individuals used other strategies to complement African cultural values to promote psychological health. Implications of the two studies were evaluated in a revised conceptual model for SCD. Psychological health of SCD participants was a function of factors in the biopsychosocial-spiritual model and based in African cultural values and in the cultural context of patients. Socio-demographic and disease characteristics and other unknown factors added to the equation. The implications of the findings for future research, clinical practice, patient management, and policy matters, were subsequently discussed.

CHAPTER ONE

INTRODUCTION

Background to the Thesis

Sickle cell disease (SCD) is a chronic inherited genetic blood disorder of hemoglobin that damages and deforms red blood cells. The normal disc-shaped red blood cells change to an abnormal sickle-like shaped red blood cells. Sickled cells often cause anemia, obstructing blood vessels and causing ischemia, organ damage and episodes of unpredictable and recurrent pain (Grant, Gil, Floyd, & Abrams, 2000). The genotype, HbSS or SS, is the most common and severe form of the disease. The genotype, HbSC or SC, is a mild form of the disease. Some individuals have sickle cell trait or HbAS and other types of the disease (Creary, Williamson & Kulkarini, 2007, pp. 575-578; Konotey-Ahulu, 1991).

SCD is prevalent worldwide (Lourerio & Rozenfeld, 2005). In the United States, approximately 100,000 people live with SCD, and 2 million are carriers (Centers for Disease Control and Prevention [CDC], 2012). CDC (2012) estimated that SCD prevails most in Sub-Saharan Africa in malaria endemic areas. Each year 200,000 infants are born with SCD in Africa, with up to 2% of all children born in sub-Saharan Africa having the condition (Konotey-Ahulu, 1991; Ohene-Frempong & Nkrumah, 2008; Sergeant, 1997; Sergeant & Sergeant, 2001; World Health Organization, 2006).

Ghana and other West and Central African countries have the highest prevalence of the common forms of SCD (i.e., SS and SC) in the world (WHO, 2006). Statistics from the newborns screening for SCD project in Kumasi indicate that approximately 2% of newborns have SCD of the SS and SC types (Edwin, Edwin & Etwire, 2011). This

translates to about 480,000 annual births of children with SCD in Ghana. According to the World Health Organization (WHO, 2011), about 25 to 30% of Ghanaians carry sickle cell genes that can result in the disease. Sickle cell SS and sickle cell SC constitute over 90% of the disease in Ghana (Konotey Ahulu, 1991). These statistics make SCD a public health related disease in Ghana where several people live with SCD and its clinical, health, educational, social, economic, and psychological complications. Sickle cell complications create the need to develop holistic care programs for affected populations in Ghana where many families are touched by the disease (Konotey-Ahulu, 1991).

Although individuals with SCD used to experience mortality at young ages, better healthcare facilities and childhood antibiotic programs have contributed to longer life spans (Claster & Vichinsky, 2003; Gray, Anionwu, Davies & Brozovic, 1999). Advancement in medical technology has improved patients' life span. The average life span of a male and female with HbSS increased from 14 to 42 and 48 years respectively, in 1973 (Platt, Brambilla, Rosse, et al., 1994). Presently, the life expectancy of individuals with SCD has increased to 50 years and more (Claster & Vichinsky, 2003; Taylor et al., 2010). Infection, dehydration, acidosis, exposure to extremes in temperature, strenuous exercise, emotional and mental stress trigger crisis, but in most instances no predisposing cause is identified (Quacoo-Nuho, 2011). Crises occur especially in the bones, lungs, abdomen, and joints. Complications include the Hand-Foot syndrome, infections, pulmonary hypertension, delayed growth and puberty in children, stroke, eye problems, priapism, gallstones, leg ulcers, multiple organ failure, and many others (Konotey-Ahulu, 1991). Crises can be mentally draining and limit a person's daily activities.

With longer life spans, SCD individuals report problems with chronic pain that interferes with their lives (Anie & Green, 2002; Smith, Bovbjerg, Penberthy, McClish, Levenson, Roberts et al., 2005; Smith, Penberthy, Bovbjerg, McClish, Roberts, Dahman, et al. 2008). Treatment of adult sickle cell pain by pediatricians is often reported to be inadequate (Rettner, 2010).

Pain in adults with SCD is mostly managed at home rather than in hospitals and clinics (Smith et al., 2005; Smith et al., 2008). Patients encounter stigmatization and are labeled as drug seeking. Patients have difficulties finding doctors with specialization in SCD. Some patients have limited resources to attend hospital (Smith et al., 2008). Poor hospital management of pain among adult individuals with SCD (Aisiku, Smith, McClish, Levenson, Penberthy, Roseff et al., 2009; Elander, Lusher, Bevan & Telfer, 2003; Rettner, 2010; Thomas & Taylor, 2002) and health care providers' misunderstanding of patients' pain behaviors contribute to feelings of anger and isolation that result in patient acting-out behavior (Adegbola, 2011; Weissman & Haddox, 1989). Psychological complications become inevitable, affecting quality of life.

One component of quality of life is psychological health. SCD patients report poor quality of life (Lenoci, Telfair, Cecil & Edwards, 2002; Mann-Jiles & Morris, 2009; McClish, Penberthy, Bovbjerg, Roberts, Asiku, Levenson et al., 2005). Patients who enjoy good quality of life also manage well the psychological complications associated with the condition (Mann-Jiles & Morris, 2009). The health quality of life in adult SCD individuals is significantly worse than national norms, and is similar to dialysis patients and poorer than adults with cystic fibrosis (CDC, 2012). Quality of life in adults with

SCD significantly decreases as pain levels increase (Gil, Carter, Porter, Scipio & Bediako 2004).

According to Edwin et al. (2011), many SCD patients succeed to manage the disease in the outpatient setting. They have less need to frequently use healthcare or be hospitalized or have emergency department visits. Much could be learned from such patients in terms of living effectively with SCD (Edwin et al., 2011). A workshop involving such a group of infrequent hospital attendees identified key strategies for effective self-management. The most important strategies identified were self-awareness, emotional/spiritual support, career selection, and nutrition. Others were advocacy, knowledge, appropriate physical exercise, and complementary and alternative medicine (Tanabe, Porter, Creary, Kirkwood, Miller, Ahmed-Williams & Hassel, 2010). According to Smith et al. (2005) and Aisiku et al. (2009), some SCD individuals cope at home and seek health care only when sickle cell pain becomes unbearable. We learn from the foregoing that sickle cell pain and utilization of hospital resources contribute to psychological problems in SCD. In dealing with the sickle cell condition therefore, it is important to investigate the comorbid psychosocial complications.

Psychological Health Concerns in SCD

SCD has psychological issues to which the clinical and research literature devoted some attention. Social, economic, and healthcare disparities experienced by many individuals with SCD further complicate the psychological issues, apart from or in addition to the SCD itself (Barbarin & Christian, 1999; Becker, Axelrol, Oyesanmi, Marko & Kunkel, 2007). Anxiety, hostility, interpersonal sensitivity, obsessive-compulsion, paranoia, phobic anxiety, psychoticism, and somatization, result from living

with such a complex medical condition like SCD. Adults with SCD have low self-efficacy (Edwards, Telfair, Cecil, & Lenoci, 2001). They have depression (Houston-Yu, Rana, Beyer & Castro, 2003; Jenerette, 2004), a lack of effective coping skills, and sometimes perceive life as hopeless (Mann-Jiles & Morris, 2009; Thomas & Taylor, 2002).

Chronic disease patients including SCD individuals are now known to have much higher rates of anxiety, depression and stress than the general population. Major depression increased chronic disease patients' burden of physical illnesses and symptoms, their functional disabilities and medical costs (WHO, 2002).

Quality of life is achieved through a holistic balance of the biophysical, psychological, sociocultural and spiritual dimensions of life. Goddard (1995), however, observed that Western society has separated the individual into distinct biophysical, psychological and spiritual parts and then forgot about the spiritual dimension. Africans are essentially spiritual (Nobles, 2006). However, individuals with SCD often lack the ability to cope spiritually with burdens of their chronic disease (Cooper-Effa, Blount, Kaslow, Rothenberg & Eckman, 2001). It requires an understanding of factors that influence psychological health to improve quality of life for adults with SCD. Apart from the already well known medical factors, some other factors include spirituality, religion, social support, African cultural values and cultural coping, psychological coping, age, education and other socio-demographic variables like socio-economic status (Barbarin, et al. (1999). For people with SCD, the part spirituality plays in promoting holistic care appears to have been mostly overlooked.

Few studies that investigated spirituality and religion concluded that spirituality and religion help to cope with SCD and its pain (Cooper-Effa et al., 2001; Harrison et al., 2005); and have salutary effects on health (Belgrave & Allison, 2006). Since these variables are considered African cultural values, it is possible Ghanaians use them to cope with SCD. The use and effects of spirituality on psychological health need further thorough investigation.

In spite of empirical evidence that religion has significant positive effect on psychological health, religion in psychology and medicine has attracted disagreements. This is because religion is considered as being unscientific, and sometimes injurious to mental and physical health (Cotton, 2006). Recently, however, more convincing research evidence shows a more positive relation between religion and different aspects of psychological health (Rusu & Turliuc, 2011).

Religiosity is a multi-dimensional construct that involves cognitive, emotional, motivational and behavioral aspects (Hackney & Sanders, 2003). Richards and Bergin (1997) consider religion to be a subset of spirituality. However, it is possible for a person to be spiritual without being religious and to be religious without being spiritual. To be spiritual is to have a transcendental relation with a supreme being while being religious means adopting a certain religious or church dogma (Rusu & Turliuc, 2011). In the Ghanaian context, however, the separation of religion and spirituality may not be practicable since the two are inseparable (Gyekye, 1996).

According to Leventhal, Weinman, Leventhal and Phillips (2008), several factors including cultural beliefs and values determine outcomes of medical management of

chronic disease patients (including SCD). The extent of influence of these cultural beliefs and values on patients' psychological wellbeing determines how the patient reacts to medical treatment (Bediako & Neblett, 2011).

Few published literature is found about cultural values and SCD in Ghana. However, a few studies that are available in the West concluded that the social context of SCD and cultural values are important to include in empirical assessment and theoretical analyses of the effect of SCD on patients. The psychological complications that are often described as an effect of SCD might indeed be a consequence of these cultural factors acting alone or in concert with the strains of SCD (Barbarin & Christian, 1999). Barbarin and Christian (1999) emphasized analyses from a biopsychosocial perspective. Such analysis should emphasize the way in which the biomedical aspects of the disease interact with family systems, cultural values, and socio-economic factors to influence adjustment. Researchers are called upon to explore more fully the social context for coping with SCD and its cultural meaning within the African (American) context.

Researchers encouraged the use of multi-method approaches that would permit sophisticated studies of the meanings and functions of spirituality in the lives of African Americans in the family, churches and secular institutions (Barbara & Constantine, 2005; Jacqueline & Mattis, 2000). Moreira-Almeida and Koenig (2008) commended improving research on religiosity and spirituality in chronic pain patients as an important research goal. This is because the available evidence has not found a direct association between some kinds of prayer and pain. Even if religious involvement does not affect pain levels, it could enhance chronic pain patients' sense of wellbeing and social support. Koenig et al. (1998) and Adegbola (2011) recommended to researchers to investigate whether the

inclusion of spirituality would contribute something more to mental health than the traditional medical treatment and psychotherapy. Similarly, research that explores culture-specific antecedents to help- seeking among individuals living with SCD in Ghana is needed.

It is possible that African cultural values play some intervening role in affecting the psychological health of SCD patients and their coping strategies. The fundamental argument in this work is that the cultural patterns, social constructions, health beliefs and practices, material realities and health facilities that exist in individualist Euro-American contexts and collectivist Ghanaian context (Hofstede, 2001) differ. These differences set the stage for differential use of health services thereby determining the relative predictors of psychological health outcomes for patients coping with SCD.

Statement of the Problem

In the Sickle Cell Disease population, it is unclear what role African cultural values play in the spirituality and psychological health relationship. Do adult individuals with SCD use African cultural values, including religion and social support to cope with psychological symptoms? How do they use them and why? This is the main research concern.

Although the relationship between spirituality and psychological health among SCD individuals has been demonstrated, it is difficult to firmly theorize about such relationship. This is because the predictability of religious/ spiritual variables in psychological health is inconsistent. The biomedical sciences have contributed significantly to understanding bio-medical complications of SCD. They have advanced

pharmacological treatments for SCD. The extent to which medical, psychological, sociological, and cultural factors interact and contribute to the psychological health of SCD individuals remains unclear.

The direct and indirect causal paths and relationships among Afrocultural variables and psychological health are unclear. Methodological challenges and data analytical limitations in previous research accounted for this lack of clarity. Western researchers have already found that many Black and African American pain patients use spirituality/religion to cope with stressful situations (Belgrave & Allison, 2006; Utsey et al., 2000). Therefore, the researcher took interest in finding out the possibility of SCD individuals in Ghana using these African cultural resources to cope with the psychological challenges of the disease.

The following observations are noteworthy: Psychological symptoms accompany chronic medical conditions (Fadem, 2004). Psychological issues influence the medical outcomes of such chronic diseases (Lin et al., 2004). Treatment of chronic medical conditions like SCD is often limited to the biomedical model and associated psychological symptoms are usually ignored (Grof, 2010). Ghanaians are spiritual and religious (Assimeng, 2010, Gyekye, 1996, Mbiti, 1975). Psychological complications accompany SCD (Anie & Green, 2012) and prevalence of psychological symptoms in SCD in western countries is high (Hasan et al., 2003; Levenson et al., 2008).

General Aims and Objectives of the Study

The main aim of the present research therefore, is to attempt a mixed methods research to examine existing theories and accepted clinical practices with SCD. Descriptive, associational, comparison and qualitative types of research would be used to

achieve the aims. Thus survey to determine or describe the characteristics of large samples of SCD participants on African cultural variables and psychological health, and conduct in-depth interviews to answer "why" questions over the same variables.

This study has the general objectives to:

1. Examine the relationship between spirituality and psychological health among SCD participants;
2. Determine whether African cultural values/coping clarify the relationship between spirituality and psychological health of SCD participants;
3. Compare SCD participants with other chronic disease and healthy participants on spirituality, African cultural values/coping and psychological health;
4. Explore the meaning and use of spirituality and African cultural values and their role in the psychological health status of SCD participants;
5. Determine the most commonly used coping factors by SCD participants and formulate a model for coping with SCD after analysing and discussing quantitative and qualitative data.

Relevance of the Study

Studying the particular ways in which the sickle cell condition is culturally constructed (cultural meanings) and experienced in the Ghanaian setting, and their effect on the psychological health of patients is beneficial and significant for reasons that are elaborated elsewhere (See Contribution of Thesis to Knowledge).

Organization of the Thesis

The two-part study is organized into five chapters. Chapter one is the introduction containing background to the study, problem statement, study objectives and relevance. Chapter two contains literature review of theoretical and empirical issues. It contains conceptual framework, statement of study hypotheses, specific qualitative research questions, and operational definitions of terms. It explains the general methodology of the thesis, the thesis epistemology, the research methodology used and rationale for adopting a mixed methods research. Chapter three reports the methodology and results of study one and discussed them. Chapter four contains methodology, results, and discussions specific to study two. Chapter five presents general discussion of the two findings. In this chapter, qualitative results are used to further explain the quantitative findings while addressing the research objectives and concerns/problems listed in chapter one. In addition, implications of the findings, limitations of the study and recommendations for future research are given.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

This study attempts to investigate the role African cultural values, specifically spirituality, social support and Africultural coping strategies, play in the psychological health outcomes of adults with SCD. This chapter therefore, presents relevant theoretical frameworks supporting the study. The purpose is to elaborate on the theories that explain the various variables in the study by putting them into perspective and giving the study a structure. The theories used in this study include the Biopsychosocial-spiritual theory (Kozak, Boynton, Bentley & Bezy, 2010; Sulmasy, 2002), the Afrocultural Social Ethos Framework (Jagers, Smith, Mock & Dill, 1997) and the Religious Coping theory (Pargament, 1997). This section of chapter two discusses the theoretical fit of these theories to SCD experience and is critiqued.

Reviews of the empirical literature on the variables in the study follow. The chapter ends with summary, critique and implications of the review for the current study. It includes the conceptual framework that guided this study, rationale for the present study, the hypotheses to be tested, research questions to be explored, and operational definitions of key terms.

Theoretical Framework and Basis of the Research

Three main relevant theories and theoretical models or frameworks guided this study. The study is based on the theory that spirituality/religiosity and psychological symptoms are inversely related among SCD and chronic disease patient populations (Belgrave & Allison, 2006; Cooper-Effa et al., 2001; Harrison et al., 2005; Moreira-

Almeida and Koenig, 2008). Montgomery, Fine and James-Myers (1990) and Myers (1993) theorized that individuals who hold positive African cultural worldview beliefs are likely to report better psychological functioning. According to Belgrave and Allison (2006, p. 35),

> African Americans are more likely than European Americans to report having religious beliefs. They spend more time in church and other places of worship. African Americans are more likely to use spirituality as a framework for coping with stressful circumstances such as chronic illnesses and disabling conditions.

Ghanaians likewise, exhibit religious and spiritual characteristics similar to African Americans. The study is thus grounded in a spirituality framework that emphasizes the Biopsychosocial-spiritual theoretical model (Kozak, Boynton, Bentley & Bezy, 2010; Sulmasy, 2002; Taylor, Stotts, Humphreys, Treadwell & Miaskowski, 2013) and based in an Afrocultural social ethos framework (Jagers, Smith, Mock & Dill, 1997).

The Biopsychosocial Model

This model by Engel (1977) is a technical term for the concept of the "mind and body" connection (Sulmasy, 2002). The biological component of the model seeks to explain the cause of illness from the functioning of a person's body. It explains disease in terms of an underlying abnormality caused by a pathogen, genetic or developmental defect or injury. Possible psychological causes for a health problem form the psychological part of the theory. Lack of self-control, emotional disturbance, and negative thinking are examples of psychological factors. The social part of the theory examines the effects of diverse social factors on health. Examples include socio-economic status, culture, poverty, technology, and religion. Philosophically, the model

states that the workings of the body can affect the mind, and the workings of the mind can affect the body. It means both a direct interaction between the mind and body as well as effects through intermediate factors (Sulmasy, 2002). The intermediate factors in the Ghanaian culture, the researcher suspected are African cultural values variables.

Medicine, psychiatry, clinical psychology, social work, sociology, nursing, chiropractic medicine, and several applied disciplines use the biopsychosocial model for both research and clinical practice purposes. However, the model does not encompass all the dimensions of human functioning. For example, the spiritual component is missing in the model. Grof (2010) discussed the limits and dehumanizing effect of the bio-psychosocial model. He proposed empathy as central in the relationship between the doctor and patient. Sulmasy indicated that "A human person is a being in a relationship - biologically, psychologically**,** socially, and transcendentally" (Sulmasy 2002, p. 32). Bussing and Koenig (2010) argued similarly that, "chronic illness has a significant impact on the life of patients and affects physical, functional, emotional, social and spiritual wellbeing. Healthcare that addresses patients' psychosocial and spiritual needs contributes to patients' improvement and recovery" (p. 24). The cultural relevance of the Biopsychosocial model is limited in view of the absence of a spiritual component in the model. According to Belgrave and Allison (2006),

> "A culturally relevant model of health recognizes core values and ways of being and recognizes the significance of spirituality. In health promotion efforts, African Americans are more likely to use spirituality as a framework for coping with stressful situations. Therefore, spirituality should be incorporated into treatment practices and health promotion efforts" (p. 267).

Belgrave and Allison (2006) argued that the role of churches and religion in contributing to positive health outcomes, and the role of the extended family in providing social, emotional, economic, spiritual support and reassurance must be considered in understanding health and illness outcomes among Africans. Thus, they are advocating for a Biopsychosocial-spiritual approach (Sulmasy, 2002) which must be based on African culture.

The experience of chronic pain in adults with SCD is complex and multi-sided. The pain comprises biological, psychological, sociological, and spiritual aspects (Taylor et al. 2013). Turk and Gatchel (2002) designed the biopsychosocial multidimensional approach to chronic pain as a model of chronic pain. Their model, though comprehensive, did not account for a spiritual/religious dimension. The model has not been applied to sickle cell related pain (Lou Ella et al., 2013). Research suggests that there is inverse relationship between spirituality/religiosity and pain intensity in adults with sickle cell chronic pain (Harrison et al., 2005). Taylor et al. (2013) proposed a biopsychosocial-spiritual model for adults with sickle cell chronic pain because the model covers the whole person.

Relating the biopsychosocial-spiritual model to this study, SCD is a genetic disorder that has physical, physiological, biological and medical complications. This biological condition affects the psychological wellbeing (mental state, emotional wellbeing, attitudes, feelings and behaviors) of the patient. The patient lives in a socio-cultural context where people, culture, socio-economic status, poverty, technology and religion negatively or positively affect the way the patient copes with the disease. The patient uses spiritual-religious resources as complementary coping effort.

Figure 2.1 shows factors in the theoretical framework that informed the present study. The relationships among the factors are shown by the direction of the arrows.

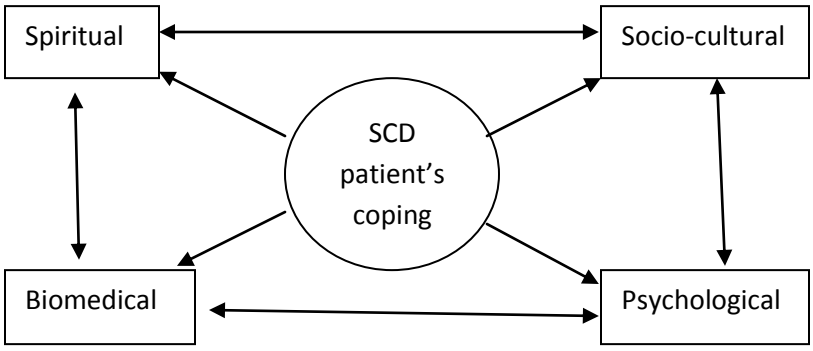


Figure 2.1. A Representation of the biopsychosocial-spiritual theoretical model with the patient at the center

In Figure 2.1, the patient is at the center and is the object of interest, not the disease per se. The SCD patient employs a combination of factors in the biopsychosocial-spiritual model to cope with the chronic disease.

The Afrocultural Social Ethos Framework

Another theoretical framework for this present study borrows from Jagers, Smith, Mock and Dill (1997) who examined the association between culture and psychological functioning among urban adolescents in the USA. Jagers et al. (1997) argued that three African worldview factors are believed to be germane to general African American psychosocial experiences. One is "spirituality." It is an indebted mindfulness of the continuous existence of ancestors, prayer or plea for help from higher power. It is respect for the presence of "spirit" in others (Nobles, 2006). It is held to be one characteristic that defines African American life (Mattis & Jagers, 2001). Another worldview component is "Affect." "Affect" refers to openness to receive and express emotions (Boykin & Ellison,

1995). It is agreement of thought and feeling, being honest with one's emotions, and feeling connected to others (Jagers et al., 1997). Many African American psychologists know that the expression of positive emotions is a basis for resilience, mental health and wellbeing (Caldwell-Colbert, Parks & Eshun, 2009). A third worldview component is "Communalism." It is a basic commitment to others when a person is socially involved, is willing to accept group responsibilities and holds principles that emphasize interdependence (Jagers & Mock, 1995). These three factors comprise what Jagers et al. (1997) term "Afrocultural social ethos." They defined it as "genuine communal relations that require an awareness of a shared vital essence that in turn brings... attention to the affective tone of self and others" (p.330).

In the present study, the researcher examined whether specific representations of an Afrocultural worldview, such as religion and social support, explain the relationship between spirituality and psychological health in a sample of adults coping with SCD. In view of existing literature, the present study is the first examination of African cultural values as a possible intervening psychosocial and coping factor in the SCD population in Ghana.

Religious Coping Theory

According to this theory, when an individual is faced with problems, he/she attempts to cope with their inherent religious resources which are likely to influence their health outcomes. Pargament (1997) suggested that particular styles of religious coping are associated with good or poor psychiatric outcomes. Pargament (2002) indicated that higher wellbeing is associated with internalized religion, intrinsically motivated religion, and a secure relationship with God. On the other hand, imposed religion, unexamined

religious beliefs and behavior, and a questionable relationship with God and the world are associated with lower wellbeing.

Religious coping, therefore, occurs when a stressor related to a sacred goal arises or when people invoke a coping method they view as sacred in response to a stressor (Pargament, 1997, in Cummings & Pargament, 2010). This theory warrants that any form of illness that requires the individual to adjust his/her lifestyle becomes a major stressor that requires some amount of coping. Religion offers one of the most important coping resources individuals and groups depend on and the several forms it can take include material, emotional and psychological support (George, Larson, Koenig, & McCullough, 2000).

The illness outcomes of many conditions reveal religion as serving as a protective element. Patients who frequented public religious services and who believed they had divine experiences generally saw themselves as being healthier than those who rarely participated in religious events (Campbell, Yoon & Johnstone, 2010). Likewise, a study in Belgium among chronic pain patients indicated that some patients recounted experiencing closeness and security with God. Such patients understood their disorder to mean a chance to modify lifestyle and to reflect upon what is necessary in life (Dezutter, Luyckx, Schaap-Jonker, Büssing, Corveleyn, & Hutsebaut, 2010). It does not mean that religiosity protects all persons from negative mental and physical illness outcomes. Some research documented that religion and religiosity may result in negative health outcomes (Koenig et al., 2010).

In summary, this research is based on the three theoretical frameworks because they are useful to the topic under study. The theories basically assume that spirituality, religion and social support systems reduce psychological and physical distress of SCD individuals; that spirituality, religion and social support are African cultural values; and that high African cultural values are associated with high Africultural coping which in turn associate with psychological health in SCD individuals.

Review of Related Literature

In this review of related literature, the issues that were researched in the area of African cultural values, spirituality/religion, social support; psychological health; and coping with sickle cell disease (SCD) have been summarized and synthesized.

Overview of Sickle Cell Disease: Prevalence

The World Health Organization (WHO) documented the prevalence of sickle cell trait to range from 10% to 40% across equatorial Africa. In Northern Africa the prevalence decreases to between 1% and 2%. It is less than 1% in Southern Africa. In West African countries including Ghana and Nigeria, prevalence of the trait is 15% to 30%. In East African countries like Uganda and Tanzania, the variations are wide reaching 45% in some areas (WHO, 2006). This distribution is believed to reflect present or historical exposure to plasmodium malaria infection since carriers seem to be protected from malaria associated with deaths. This has improved survival and thus transmission of the HbS gene.

From this statistic, the incidence of SCD at birth is determined by the prevalence of carriers in the population. SCD therefore, has significant public health implications for

Africa, with up to 16% in West Africa (Weatherall & Clegg, 2001). Nigeria has an estimated carrier prevalence of 24%, 20 per 1000 births are estimated to be affected by SCD. This results in 150,000 annual births with SCD in Nigeria (WHO, 2006). In Ghana approximately 2% of newborns have HbSS and HbSC types (Edwin, Edwin & Etwire, 2011). This translates to about 480,000 annual births of children with SCD in Ghana. Details of the SCD condition and prevalence are presented in chapter one of this thesis (Grant, Gil, Floyd & Abrams, 2000; Schaeffer et al., 1999).

According to Malowany and Butany (2012), by age 5-6 months, signs and symptoms of SCD start showing and continue throughout life. SCD may lead to complications, several of which have a high mortality rate forerun by pain and crisis symptoms. Painful episodes had been reported to be highest among patients aged 20 to 29 years and they predicted early death (Platt, 1991). Men experienced more frequent pain until 25 years while women showed little age-related change (Baum, 1987). Chronic sickle cell pain may be present all the time. Recurrent acute episodes occur throughout life and may require hospitalizations (Brozovic, 1987). This makes problems with acute pain the main characteristics of SCD and also the main focus of research for the SCD population (Smith et al., 2008).

Although researchers have come a long way in terms of understanding and treating children with sickle cell, poor adults with the condition in the United States still face many challenges including poor care when hospitalized. Adult patients often end up in the emergency room for treatment with pain episodes (Rettner, 2010).

Several reasons account for the problems in adult care of SCD. One reason is longevity of SCD patients now as compared to thirty or forty years ago when the majority died during childhood (Eiser & Morse, 2001). Successful treatment of SCD in childhood has resulted in markedly improved survival through adulthood. Thus, the need for adult SCD care is relatively new (Smith, Jordan & Hassell, 2011). As a result, there are more sickle cell specialists established in the pediatric population than there are in the adult area (Rettner, 2010). This makes adults with SCD get their care from pediatric centers where doctors lack adult sickle cell knowledge.

Another reason is that many doctors misperceive how much pain the condition causes in adults and how much medication it requires. Since adult patients are in tune with their body and know the amount and type of medication they need, many doctors suspect adults quest for pain relief as soliciting drugs and suspicious behavior (Rettner, 2010). In the United States, African Americans are a population with less access to health care benefits, and are over-represented among the nation's poor. Because of their poverty level, they might lose some health insurance benefits when they become adults. As a result, they tend to rely on cultural resources to cope with chronic illnesses (Rettner, 2010).

Effects of SCD on adult patients.

Chronic illness affects all aspects of a client's life including psychological, physical, social, recreational, spiritual, sexual, and vocational (Livneh & Antonak, 2005). Livneh and Antonak (2005) defined chronic illness by the degree of functional limitation, interference with the ability to perform daily activities and life roles, uncertain prognosis,

the prolonged course of medical treatment and/or rehabilitation interventions. Chronic illness comes with psychosocial stress associated with the incurred trauma or disease process itself. It has impact on family and friends, and sustained financial losses. To Jenerette and Brewer (2010), the burdens of SCD can affect all aspects of the patient's life to include physiological, psychological, and social well-being. Past quantitative and qualitative studies demonstrate that in children and adults, SCD has a significant impact on quality of life (Lim, 2009).

There are few families in Ghana that are not affected by SCD (Konotey-Ahulu, 1991). Since pain is the basis upon which the disease has been named in certain West African cultures, the local Ghanaian names of the disease indicate how patients and their relatives grapple with pain (Riddington & Owusu-Ofori, 2002). Konotey-Ahulu (1991) indicated that the disease had probably been recognized for generations in West Africa. West Africans referred to SCD as "cold season rheumatism." SCD was given the repetitive onomatopoeic names that are appropriate to a chronic, recurrent pain condition. In this regard, Okraku, Ofori-Atta, Danquah, Ekem and Acquaye (2009) reported that the Akan people of Ghana refer to SCD in their "Twi" dialect as "Ahututuo." According to Riddington and Owusu-Ofori (2002), these indigenous names like "ahututuo" are characterized by alliteration of letters that apparently signifies the persistence and recurrence of pain, and the closest English translations would include 'body biting', 'body chewing', and 'beaten up.' The Fante people of Ghana call it "Nwiiwii"; the Ga people of Ghana call the disease "chwechweechwe"; the Ewe call it "nuidudui; while the Krobo people call it "hemikomi" also meaning bodily pains or body biting (Konotey-Ahulu, 1991). This reveals that while Westerners describe SCD by its microscopic

morphological characteristics, Ghanaians describe it by the pain they experience in their body.

The literature demonstrates that SCD affects patients in different areas. The totality of these areas reflects a biopsychosocial effect. One effect of SCD is biophysical. It places a lot of biological and physical limitations on patients. Biologically, organs in the body are affected and they do not function optimally. Physically, mild to severe pain places limitations on the movements and physical exertion of patients (Asnani, 2012). Sickle cell crisis, an episode of pain (Gil, Abrams, Phillips & Williams, 1992) is the most common reason for hospitalization in SCD. The pattern may occur as follows:

- In general, the risk for a sickle cell crisis is increased by any activity that boosts the body's requirement for oxygen, such as illness, physical stress, or being at high altitudes. In more than half of episodes, however, the trigger is unknown.
- Episodes typically begin at night and last 3 - 14 days, accelerating to a peak over several days and then declining.
- The pain is typically described as sharp, intense, and throbbing. Severe sickle cell pain has been described as being equivalent to cancer pain and more severe than postsurgical pain. Shortness of breath is common.
- Pain most commonly occurs in the lower back, leg, hip, abdomen, or chest, usually in two or more locations. Episodes usually recur in the same areas. Pain in the bones is common because blood obstruction can directly damage bone and because bone marrow is where red blood cells are manufactured.

- The liver or spleen may become enlarged, causing pain in the upper right or upper left sides of the abdomen. Liver involvement may also cause nausea, low-grade fever, and increasing jaundice.
- Males of any age may experience prolonged priapism (Konotey-Ahulu, 1991).

According to Thompson (2006) episodes cannot be predicted, and they vary widely among different individuals. Episodes sometimes become less frequent with increasing age. Generally, patients can resume a relatively normal life between crises. Most patients are pain-free between episodes although pain can be chronic in some cases. The following diagram shows normal red blood cells and sickle cells in a blood vessel.

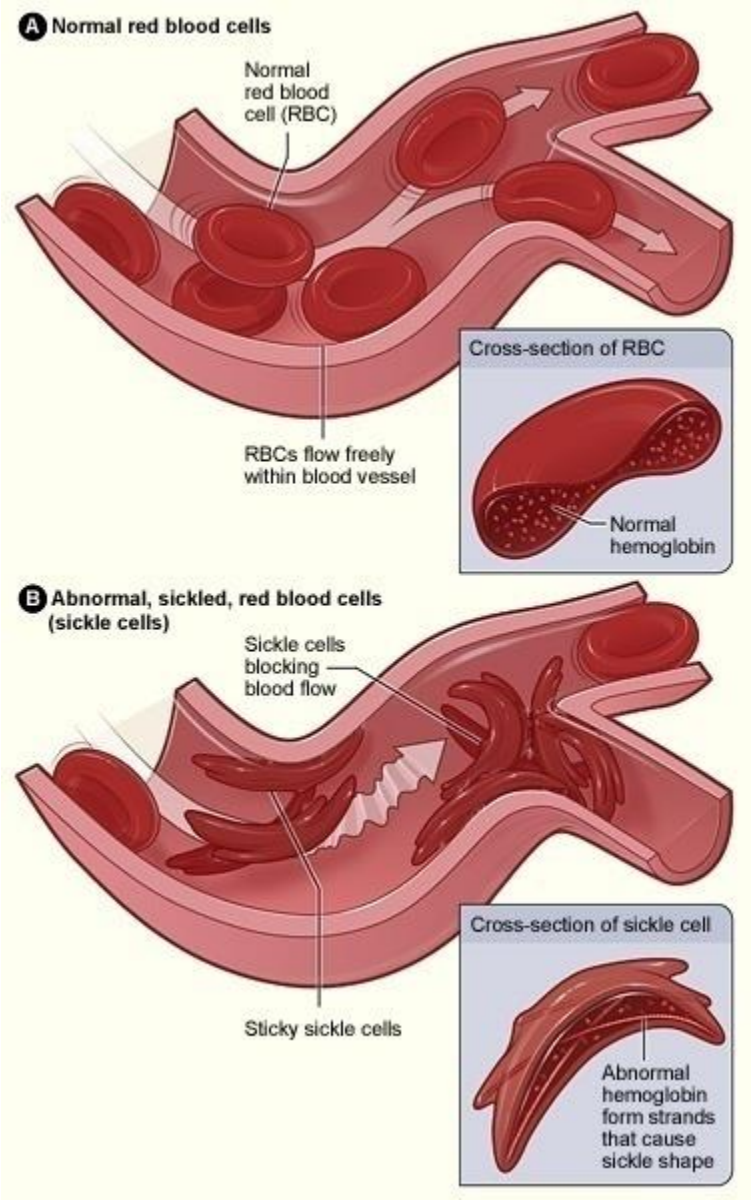


Figure 2.2. Normal red blood cells and sickle cells in a blood vessel. Source: Adapted from National Heart, Lung and Blood Institute (2011).

Figure 2.2 shows normal red blood cells flowing freely in a blood vessel. The inset image shows a cross-section of a normal red blood cell with normal hemoglobin. Figure B shows abnormal, sickled red blood cells blocking blood flow in a blood vessel. The inset image shows a cross-section of a sickle cell with abnormal (sickle) hemoglobin forming abnormal strands.

In assessing the seriousness of SCD, the emotional and social impact should not be underestimated (Asnani, 2004). The patient endures the emotional strain from unpredictable bouts of pain, fear of death, and lost time from school and work, in addition to the pain itself. Asnani indicated that psycho social factors contribute substantially to complaints of pain. Factors like age, gender, race, education and socio-economic status, as well as psychological factors like coping style, coping capacity and social support have all been used to explain differences in disability associated with sickling pain intensity, threshold and tolerance (Asnani, 2004).

Anxiety and depression are psychological complications of SCD with important social consequences for adults with SCD (Asnani, 2004; Levenson, McClish, Donna, Dahman, Bovbjerg, et al., 2008). Anie and Green (2012) argued that the source of the psychological complications in patients is mainly from the impact of pain and symptoms on their daily lives and society's attitude toward patients. Mood is a component of SCD pain experience, related quality of life and medication use (Anie & Steptoe, 2003).

Some social areas of life that SCD affects are schooling, financial cost of medical treatment, loss of employment among adults, general ability to cope with life, housing, parents, relationship with boyfriend or children, and hospitalization (Anie & Steptoe, 2012; Harris et al., 1998, p. 174). Individuals with SC anemia exhibit problems with self-concept and low self-esteem, anxiety, depression, dissatisfaction with body image, poor school performance, social isolation, and decreased participation in normal activities of daily living, and poor peer and family relationships (Edwin et al., 2011; Jacob, 2001; Porter, Gil, Carson, Anthony & Ready, 2000). Because of these social effects, children and adults with SCD often suffer from depression. Patients who attempt to live normal

lives have threats that do not always reside in the SCD condition but reside in life transitions, in changes in social relationships and racist or sexist marginalization (Atkin & Ahmad, 2001).

These social factors affect the social competence of SCD patients (Thaniel, 2013). Thaniel (2013) compared the psychosocial functioning and academic achievement in siblings with and without SCD. She found that siblings with SCD reported more internalizing behaviors (anxiety and depression) than their healthy siblings and also reported less social competence than their healthy siblings. Thaniel (2013) concluded that adolescents with SCD are at risk for psychosocial adjustment problems and poor academic achievement but given adequate family support, they can cope as well as their healthy siblings.

In summary, SCD is not properly understood when we understand the pathophysiology of SCD without thoroughly understanding the equally important psychosocial influences (Edwards, Scales, Loughlin, Bennett, Harris-Peterson, De Castro et al. (2005). The literature has not demonstrated that SCD affects the spiritual life of the patient. It rather addressed spirituality's effects on patients' health.

Spirituality and psychosocial functioning of individuals with SCD.

Some published empirical studies that explicitly examined spiritual and religion-related factors among persons with SCD have been reviewed (Cooper-Effa et al., 2001; Harrison et al., 2005; and O'Connell-Edwards et al., 2009). In Georgia in the USA, Cooper-Effa et al. (2001) studied 71 adults with SCD. They found religion's influence on coping with pain to vary, (i.e. scores on the Spiritual Well Being Scale were positively

related to coping with the psychological complications of SCD). SWBS scores were however, not related to perceived severity of sickle cell pain.

In North Carolina, Harrison et al. (2005) studied three domains of religiosity/spirituality, namely, church attendance, prayer/Bible study, and intrinsic religiosity. They evaluated the domains' association with measures of SCD pain among 50 adults with SCD. They found that prayer/ Bible study, and intrinsic religiosity were unrelated to pain. However, church attendance once or more a week was negatively correlated, and thus associated with the lowest scores on pain measures. Harrison et al. (2005) indicated that SCD patients identified religion/spirituality as an important factor in coping with stress and in determining quality of life. These findings were maintained after controlling for age, gender, and disease severity. In their study, prayer/Bible study and intrinsic religiosity were not significantly associated with pain. The researchers concluded that religious involvement and not intrinsic religiosity (spirituality) likely plays a significant role in modulating the pain experience of African American patients with SCD. Harrison et al's conclusion was not justifiable from the results of the research. However, among African Americans for whom religiosity/spirituality is a coping mechanism, this infirm finding exposes new aspects of the relationship between religiosity and chronic illness that need further investigation.

The study by O'Connell-Edwards et al. (2009) of 67 adults with sickle cell found that religious coping as measured by the frequency of church attendance and prayer had a more complex association with pain, psychopathology, and healthcare utilization. Participants who reported moderate prayer frequency had lower levels of anxiety and hostility. They had significantly more emergency department visits. Contrarily, church

attendance showed a more linear relational pattern with the outcome variables. O'Connell et al. (2009), however, observed that none of these associations was statistically significant.

It is noteworthy that the findings mentioned above do not reflect already established relationships between religiousness and spirituality and chronic pain. Patients with chronic pain from several sources such as musculoskeletal, cancer, or SCD, usually report that religiousness and spirituality are important in their lives. Prayer is the most used complementary therapy and religious coping is among the most common strategies used to deal with pain. Some studies, however, indicated that petitionary prayer is related to higher pain levels, possibly suggesting a turning to religion due to increasing pain. The best available evidence, according to Moreira-Almeida and Koenig (2008), supports a positive association between religiousness and spirituality with higher well-being and positive affect, and a negative association between religiousness/spirituality and depression and anxiety symptoms.

Findings are inconsistent about prayer having a significant relationship with chronic pain. Some researchers found and others did not find that that relationship exists. Cotton et al. (2009) used a mixed method approach, using both quantitative surveys and qualitative interviews to examine religious/spiritual coping, spirituality and health-related quality of life in adolescents with SCD. Adolescents reported high rates of religious attendance and belief in God, prayed often, and had high levels of spirituality defined as finding meaning and peace in their lives and getting comfort from their faith. Thirty-five out of 48 adolescents reported praying once or more a day for symptom management. The most common positive religious and spiritual strategies employed by adolescents

were asking forgiveness for sins (73%) and seeking God's love and care (73%). These strategies affected sickle cell pain positively. Why was prayer not significantly associated with pain in the Harrison et al. (2005) study as it is in the Cotton et al's. (2009) study? It could be differences in study methodology and use of small sample sizes. While one used a quantitative method alone, the other used mixed method. Some research has demonstrated positive associations between religiosity/spirituality and better physical and mental health outcomes (Koenig et al., 2008).

African cultural values and psychological health in SCD.

Gurung (2006) argued that cultural factors shape the experience of illness and influence how it is perceived, labeled, and explained and how the experience is valued. Since SCD is a medical condition that mostly affects Blacks, investigating cultural variables is important (Barbarin & Christian, 1999; Kaslow, Collins, Loundy, Brown, Hollins, & Eckman, 1995; Kaslow et al. 2000).

Historically, Africans have used religion, spirituality, and faith to preserve culture, family, and identity (Mattis & Jagers, 2001). Culture is defined as a set of shared and socially transmitted ideas about the world that are passed down from generation to generation (Kolko-Rivera, 2004). It is implied in culture that people who interact on a regular basis know the same unwritten rules and criteria for social life that confer status as a group member.

An Africentric worldview is a set of beliefs, values, and assumptions that are founded on African cultural traditions and that relate to definitions of the self, others, and the relationship of the self with the environment (Utsey, Adams & Bolden, 2000).

Africentric principles are codes of conduct for daily life that represent the minimum set of values that African Americans need to build and sustain an African life, family, community, and culture (Grills & Longshore, 1996). According to Karenga (1988), unity, self-determination, collective work and responsibility, cooperative economics, purpose, creativity, and faith are seven core principles (Nguzo Saba) of an Africentric worldview. Other primary Africentric values of spirituality, harmony with others and nature, balance, orientation to time as a social phenomenon, authenticity, and an emphasis on oral tradition, were noted by African -centered scholars (Belgrave & Allison, 1997; Mattis & Jagers, 2001; Mbiti, 1986; Nobles, 1986).

These values developed by African Americans, represent a mixture of traditional African philosophies and values and the historical experiences of African Americans who live in the United States of America (Constantine, Lewis, Conner & Sanchez, 2000; Myers, 1993; Nobles, 1990). Africentric values are essentially hybrids of two different cultures, one traditional African and the other North American western culture. Collective work and responsibility as a value, is the belief that African Americans are responsible for one another and should work together for the betterment of the family and community. The value of cooperative economics is the belief that African Americans must share and maintain resources among and within their community. According to Belgrave, Chase-Vaughn and colleagues (2000), self- determination refers to a belief that African Americans should make decisions for themselves, their families, and their communities. In effect, SCD individuals should make decisions for themselves and their families and communities should be included in such decisions.

Similar to what African American scholars developed as Africentric values is what the Ghanaian philosopher, Gyekye (1996), discussed as African cultural values: religious values, humanity and brotherhood, communal and individualistic values, moral values, the family, economic values, aesthetic values, knowledge and wisdom, ancestorship and tradition and human rights, among others. By arguing that "tradition is not necessarily at variance with modernity" (p. 173), Gyekye (1996) acknowledged that African cultural values have been influenced by other cultures, especially Western culture and modernity. Although influenced by other cultures, core African values and worldview still exist, and continental Africans who live with SCD may still recognize their roots and values.

Some research studied variables that are similar in concept to the Afrocultural social ethos. One study of adults with SCD showed that religious involvement was significantly related to fewer reports of pain (Harrison et al. 2005). In another sample of adults with SCD, Cooper-Effa et al. (2001) found spirituality to be positively associated with perceived control. Yet, in another sample of adults with SCD, Gil et al. (2004) found positive mood to be related to decreased pain, fewer hospital visits, and reduced absence from work.

SCD self-help and support groups have socially unifying and communal nature. These promote a sense of belongingness that enhances personal growth and positive adjustment to SCD. These factors suggest that an Afrocultural framework could widen understanding of how adults cope with SCD, its physiological and psychological effects, using psychosocial and cultural resources. Hypothetically, it is expected that an inverse

relationship between endorsement of high levels of Afrocultural social ethos and lower levels of psychological symptoms would be reported among SCD patients.

Regarding conceptualizing relation between psychological health and coping with SCD, African cultural values are important variables to consider. In some ways, African cultural values encourage positive interpersonal relationships and pro-social behaviors that are necessary for adaptation and survival (Nobles, 2006). African cultural values play a central role in the psychological experience of Blacks. Ramseur (1998) highlighted definition of mental health in African Americans as maintaining a positive self-concept, affirmative view of African American culture, developing emotional intimacy with others, and maintaining a sense of competency and productivity. Believers in culturally centered approaches to mental health argued that a person who holds positive worldview principles is likely to report better psychological functioning (Montgomery, Fine & James-Myers, 1990; Myers, 1993) and possess improved abilities to handle stress (Hill, 2006; Jackson & Sears, 1992). Given this framework, we can expect African cultural values to function prominently in the psychological health of Ghanaian SCD patients.

Belief in Africentric values is assumed to lead to a reduction in psychological symptoms such as stress, anxiety, depression, and anger, and may promote a greater sense of wellbeing, resiliency and coping among African Americans (Akbar, Chambers & Thomas, 2001; Constantine & Blackmon, 2002; Constantine, Alleyne, Wallace & Franklin-Jackson, 2006; Thomas, Townsend & Belgrave, 2003)).

The importance of culture in psychological health among SCD patients in Jamaica and London was demonstrated. Thomas, Hambleton and Sergeant (2001) used a survey (questionnaire) design to investigate possible differences in coping mechanisms between

60 Jamaican and London patients with homozygous SCD. Their results indicated that Jamaican patients in Jamaica had less general anxiety. They had lower emotional response to pain, lower levels of perceived pain, and felt better able to decrease their pain. London patients thought that the disease significantly affected their quality of life. The study concluded that to develop effective management in the United Kingdom, it requires understanding the differences between patients' response to pain and their coping ability between Jamaican and London patients. Differences in cultural coping could be the reason for the differences in psychological outcome of patients in these two different countries (See also Anie et al., 2007). Studies concluded that "It is important for Blacks to adhere to pro-Black values in order to become content with themselves and avoid psychopathology" (Nonterah et al., 2009, p. 77). See also Constantine et al. (2006) and Pierre and Mahalik, (2005).

Culture and its attendant health beliefs affect choice of treatment for SCD. Anie et al's. (2010) Nigerian study supports the idea that family support, and conditions of work could influence health beliefs. Some SCD individuals in Nigerian used prayer for religious healing as an alternative approach or to complement medical treatment for SCD. This is because causes of the disease were attributed to "divine justice" or the supernatural. Such beliefs led to positive perceptions and attitudes towards SCD and patients in Nigeria.

In Ghana, Okraku et al. (2009) studied the effects of health beliefs on coping among 100 adults with SCD and found that Ghanaians continued to use more traditional treatments than Western medical treatments. Anie et al. (2010) suggested that the ability of people to cope with SCD vary considerably. Some people cope relatively well. They

school and work and are physically and socially active. Others do not cope well. They lead more restricted and isolated lives. This, Anie et al. (2010) thought, may not necessarily result from severity of the SCD, but most likely from psychosocial and cultural reasons. These results notwithstanding, quality of life in Nigerian SCD persons may be more compromised than that of the general population (Anie et al., 2010).

Psychological health complications among SCD and other chronic disease individuals.

The psychological health of SCD individuals is determined by multiple factors that include biological (genetics), social (gender, family, and social support), individual (personal experiences), and socio-economic factors like social status and living conditions (LaBier, 2013). These factors affect peoples' perceptual and cognitive systems and affect psychological processes associated with self-esteem, belief in self-efficacy, and expectations of reward, according to the European Commission (2005). SCD persons' psychological health is defined by their ability to handle anxiety, depression, anger, stigma, social marginalization and self-esteem issues that the disease triggers in the individual. Inability to cope with these issues can generate psychological distress in which the individual suffers mentally, emotionally, behaviorally and contributes little to self- development and society.

According to the WHO (2002), individuals with chronic diseases have much higher rates of depression and anxiety than the general population. Major depression among such individuals increased the burden of their physical illnesses and symptoms, their functional impairment and their medical costs. Compared to the general population, individuals with SCD show higher rates of psychological health problems like stress

(Harris, Parker & Barker, 1998; Thomas, Dixon & Milligan, 1999), higher depression (Hasan et al. 2003; Jenerette, Funk & Murdaugh, 2005) and anxiety (Anie & Green, 2002). Bediako (2009) attributed the increased psychological risk directly to the experience of sickle cell pain. Some researchers however, suggested that it is better to see psychological variables as contributing to the onset of sickle cell pain.

Similarly, Harris et al. (1998) reported on psychological distress that out of 24 adult patients with SCD who completed the SCL-90-R measure, 16 (62.5%) had a Global Symptom Index score of more than one and were considered as experiencing psychological distress. Of this number, six (25%) had severe symptoms, fifteen (62.5%) were in the clinical range for depression, eight (33.3%) were severely depressed and ten (41.6%) had clinically significant scores on anxiety and five (21%) of these had severe anxiety (p. 176).

Pells, Edwards, McDougald, Wood, Backsdale, Jonassaint et al. (2007) studied fear of movement, pain, and psychopathology in SCD patients. They found that higher levels of kinesiophobia were associated with greater psychological symptoms, particularly Phobic Anxiety, Psychoticism, Somatization, Anxiety, Obsessive-compulsive, Interpersonal sensitivity, and depression. According to Anie and Green (2012), early research found the most frequent psychological problems encountered to include increased anxiety, depression, social withdrawal, aggression, poor relationships and poor school performance.

The story appears different in a Nigerian study of the psychosocial impact of SCD among 408 adolescents and adults attending three hospitals in Lagos, Nigeria. The

authors found depressive feelings to be present in nearly half of the population studied; but they found anxiety and self-hate to be rare (Anie, Egunjobi & Akinyanju, 2010). Although depression, anxiety and stress are highly prevalent among SCD individuals in Western cultures, these prevalence rates may not apply to all SCD individauls across all cultures. There could be something about these Nigerian SCD study participants that made anxiety and self-hate less prevalent, and this could be true also about other non-Westernized societies. This needs investigation.

In another Nigerian study, Ehiegie (2003) reported that SCD participants had a prevalence rate of depression greater than people with cancer or malaria, but less than those with HIV/AIDS. According to Laurence, George and Woods (2006) SCD may attract social disrespect, disability, and financial stress. Stigmatization for pseudo-addiction to opioid analgesics is also related to anxiety and depression (Elander, Lusher, Bevan, Telfer & Burton, 2004; Levenson et al., 2008).

SCD individuals have a higher incidence of psychological problems that include anxiety and depression, than people without SCD (Burlew, Telfair, Colangelo & Wright, 2000; Hassan et al., 2003; Molock & Belgrave, 1994). Barrett et al. (1988) attributed these increased problems among SCD individuals to chronic pain and increased anxiety that may be associated with concerns about body deterioration or mortality.

Anxiety, depression, and other psychological disorders are common in SCD just as they are in most chronic diseases (Alao & Cooley, 2001; Alao, Dewan, Jindal, & Effron, 2003; Levenson et al., 2008). Depression rates are similar in SCD to those in other serious chronic medical conditions, ranging from 18% to 44% (Hasan et al. 2003,

Lawrence, George, & Woods, 2006; Wilson et al., 1999). Depression rates, however, are higher than in the general population even after controlling for illness-related physical symptoms (Molock & Belgrave, 1994).

Levenson et al. (2008) found a high prevalence (about 28%) of depression within the range other people report. But this range is much higher than that reported in the general adult population of African Americans, but similar to that found in other chronic medical conditions such as diabetes mellitus, coronary artery disease, or hepatitis C. Levenson et al. (2008) found in the PiSCES sample that depression was a more powerful predictor of physical and mental health-related quality of life than was genotype. This is worthy of note because genotype is a known predictor of SCD severity.

Depression in SCD individuals is associated with increased emergency room treatments, hospital admissions, chronic pain flares, SCD crises, and higher levels of related psychological disorders. Some studies however report conflicting results. Some SCD individuals experience depressive symptoms at a higher rate than the general Black population (Hasan et al., 2003). Laurence et al. (2006) on the other hand, found that the prevalence of depression in Blacks with SCD is similar to that found in the general Black population.

In spite of these conflictual results, depression appears to manifest differently in SCD patients, especially when they are Blacks with SCD. Symptoms of fatigue, appetite disturbance and irritability are present both in sickle cell anemia and in clinical depression. They imitate depression symptoms in SCD patients. The way depression manifests in Black SCD patients seem to be different from the way it manifests in other

racial groups. Blacks may present with non-traditional symptoms of depression and this can result in under-diagnosis and under-treatment of depression. According to Edwards et al. (2005), Laurence et al. (2006), and Hasan et al. (2003), patients with the most clinically severe SCD pain also display the greatest prevalence of depression.

With respect to anxiety, the findings of Levenson's et al. (2008) research show an association between anxiety and more pain. Similar to depression, anxiety in SCD individuals was associated with poorer health-related quality of life, but no increase in pressing health care utilization. Levenson et al. (2008) concluded that anxiety and depression predicted more daily pain and poorer physical and mental quality of life in adult SCD individuals. Their data point out the importance of recognizing and treating anxiety and depression in adults with SCD as in other chronic diseases.

Since it is possible for SCD individuals to have good quality of life, management of the psychological and medical aspects of the disease is important (Belgrave & Allison, 2006). Thompson et al. (1996) found that good psychological adjustment among SCD individuals was promoted by lower levels of perceived daily stress, less negative thinking, high levels of family support, and low levels of conflict and control. Some of these aforementioned variables qualify as psychological coping mechanisms and others as African cultural coping mechanisms. They may play a mediating role in the psychological health of SCD individuals.

Coping methods of SCD individuals.

SCD individuals cope with the disease in absence of a cure. Different ways of coping with SCD are identified in the literature. Their totality reflects a biopsychosocial-

spiritual approach. Coping with SCD, its symptoms and stresses is a major struggle against the physical limitations as well as psychological distress (McInnis, 2002). Lazarus and Folkman (1984) defined coping as cognitive and behavioural efforts that constantly change in order to manage external and internal demands that tax or exceed available resources. Compas et al. (2001) defined coping as conscious purposeful efforts to regulate emotion, cognition, behavior, physiology, and environment in response to stress.

Coping has been linked to health status and is central to the wellbeing of persons with chronic illnesses (Compas, Worsham, & Fry, 1992). Three ways in which coping can influence health status have been described by Folkman, Lazarus, Gruen and Delongis (1986) as first, influencing the frequency, intensity, and pattern of physiological responses, such as neural firing that result from experiencing pain. Second, coping can affect health when it involves excessive use of dangerous substances or participating in dangerous situations. Third, certain forms of coping can hinder adaptive health or illness-related behavior. It is based on these factors of coping that its study in individuals with SCD is necessary.

Asnani (2004) included patient/parent information, genetic counseling, social services, prevention of infections, dietary advice and supplementation, psychotherapy, renal and other specialist care, maternal and child health, orthopedic and general surgery, pain control and physiotherapy, dental and eye care as components of comprehensive care for SCD. Spirituality and its assessment are left out of this "comprehensive" care. So far, the popular management approaches used by Western practitioners include biomedical, psychological, and social interventions. Many researchers recommend and

advocate the inclusion of spiritual interventions (Adegbola, 2011; Bediako et al., 2011; Belgrave & Allison, 2006; Busing & Koenig, 2010; Cooper-Effa et al., 2001; Harrison et al., 2005; Niziolek, 2000; O'Connell-Edwards et al., 2009; Pargament, 1997; and Sulmasy, 2002).

SCD affects the patient's biophysical, sociocultural, psychological and spiritual areas of life. According to Sulmasy (2002), a person is a being in relationships-biologically, psychologically, socially and transcendentally. While pain and complications of the disease draw some patients to significant social and to enhanced spiritual relationships, others are socially withdrawn and spiritually disappointed in themselves, God, life and existence.

"Why do I keep on taking these drugs but this pain will never, never go? Why, why? Mummy, I'll die. It is painful. Who will help me? It is better I die. Oh God, please help me," was the cry of a 26 year old Ghanaian female sickle cell patient who experienced excruciating sickling pain at home and was being taken to the clinic. Some words and phrases in this cry point to a biopsychosocial-spiritual concern. *"Why"* is an existential question; *"taking drugs"* and *"pain"* are biophysical experiences; *"Mummy"* and "*Who will help me?"* is a social call; *"I'll die"* and *"It is better I die"* is a psychological experience that show a disappointment in the biopsychosocial approach; and *"Oh God, please help me"* is a call on the supernatural for help. This patient's cry reveals a biopsychosocial-spiritual relationship. It shows the inadequacy of the biomedical model, questions the biopsychosocial model and calls on a spiritual factor for help.

Current medical treatment is usually in response to symptoms and aims at reducing them and to ease pain. It may consist of blood transfusion, hydration, warmth, prophylactic antibiotics, hydroxyurea for vaso-occlusive crisis, folic acid supplementation, and so forth. Pain is controlled with analgesics and hydration. Transfusions are given to correct severe anemia and prevent strokes. Infections are treated with antibiotics, and acute chest syndrome is treated with a supply of oxygen (Davies & Abbs, 2002). Heat application may be effective; bone marrow transplantation can prevent, stabilize or reverse complications (Walters, 2000). Treatment with hydroxyurea has been shown to be effective in preventing and reducing the rate of painful episodes and the number of hospitalizations (Charache et al., 1995). Mild pains are often relieved using INSAID medications like aspirin, ibuprofen, Naproxen, and so forth.

Some patients do not like taking medicines while others who are poor and cannot afford the expensive medicines do not use them. Akinyanju, Otaigbe and Ibidapo (2005, p. 198) discussed holistic care in Nigerian deprived patients with sickle cell anemia who cannot afford drugs. The patients achieved significant reduction in morbidity and mortality rates without the use of attested prophylactic measures such as daily oral penicillin, pneumococcal vaccination, and daily oral hydroxyurea. Significant improvement in outcomes was possible without the drugs. This should be encouraging to many health workers in Africa where hydroxyurea is usually unavailable and too expensive for most patients (Akinyanju et al., 2005).

Akinyanju et al. (2005) attributed outcome of their study to the introduction of expert counseling as a strategy. To them, this was "probably the most important low cost and low technology strategy for addressing the problems of sickle cell disorder in any

country" (p. 198). Since Akinyanju et al. (2005) identified counseling as an effective strategy that contributes to reducing mortality and morbidity in individuals with SCD, we assume that counseling and other psychological strategies are helpful in the treatment of SCD.

Many successes have been made in the medical management of individuals with SCD. The life expectancy of these patients is significantly increased but low compared with the general population (Thaniel, 2013). Given the increase in the lifespan of individuals living with SCD, research has begun to focus on how patients cope with the psychosocial factors associated with the disease. Houston-Yu, Rana, Beyer et al. (2003) found that frequent and prolonged hospitalizations are a risk factor for early mortality in patients with SCD in the USA, with depression associated with patients' early death. This is why patients need psychological coping strategies.

Second, psychological coping is another way to cope with SCD. The consequence of psychological complications in SCD is that patients employ psychological coping strategies. Research attention is being directed at understanding the degree to which coping with SCD is associated with poorer psychosocial functioning (Levenson et al. 2008). As a chronic disease with no universal cure, Anie (2005) recommended that psychological interventions be included in the management protocol of patients and given as standard care to help improve patients' general quality of life.

Anie and Green (2012) stressed giving education to improve knowledge and understanding to help patients cope better with the various manifestations of their illness. Cadena (2000) argued that while mental health service will not cure sickle cell anemia, it

helps individuals with SCD learn at a very young age how to manage their symptoms and how to prepare for symptom manifestation. In an educational class that was psychologically based, children learned about their genetic blood disorder and how to mentally prepare and manage the pain. According to Cadena (2000), there were far fewer reports of anxiety and fear as a result of educating children psychologically.

Recently, Anie and Green (2012) emphasized psycho-education as psychological intervention for SCD patients. Anie and Green (2012) explained psycho-educational interventions as primarily focusing on improving the knowledge and understanding of patients with respect to their illness while providing psychological support at the same time. In psycho-education, patients learn their trigger factors, the most common ones being dehydration, infections, stress, and exposure to excessive cold. Patients are taught pain relieving measures including starting analgesics quickly, keeping warm, using relaxation techniques and drinking fluids. Stuart and Nagel (2004) indicated that teaching patients make pain crises management at home easy. In a pre-test post-test design, Okraku et al. (2009) used psycho-education as an intervention among 100 Ghanaian adult persons with SCD. Their result found psycho-education effective, demonstrating that knowledge and coping increased significantly after the intervention.

Cognitive Behavior Therapy (CBT) improves mood and psychological coping ability. Anie and Green (2012) found one study that showed that CBT significantly reduced the affective component of pain but did not reduce the sensory pain component. To use CBT to treat SCD patients seems appropriate since the illness and pain cause much emotional distress and behavioral responses. Anie and Steptoe (2002) indicated that CBT in adults with SCD aims at reducing mental, emotional and behavioral stress and

maladjustment. It also has been shown to reduce pain and improves mood, psychological coping ability, and hospital visits (Anie & Green, 2012).

Optimism and positive emotions like happiness, pleasure and joy enable SCD patients to maintain their activity, even when they are experiencing pain. High self-esteem enhances a person's ability to cope with stress in positive ways. Assertiveness and effective communication help patients navigate the barriers that they often encounter when accessing medical help from health facilities (Anie & Green, 2012).

Additional psychological techniques that enhance coping skills include belly-breathing, guided imagery, calming self-talk, relaxation, yoga, distraction, and music, art therapy, scheduling pleasant activities and reinterpreting pain sensations. Progressive muscle relaxation shows much promise and used with abdominal breathing and guided imagery, patients report significant or complete relief from pain (Anie & Green, 2012).

Anie and Green (2012) reported the following findings about psychological interventions for individuals with SCD: psychological interventions complement medical treatment; efficacy of psychological therapies in SCD have yielded encouraging results but evidence is currently limited; peoples' coping responses determine the extent to which they are affected by SCD; patients need to acquire new coping skills to deal with the disease’s continuous demands; and psychological coping strategies are related to pain and health service utilization independently of clinical markers of SCD (Anie & Green, 2012).

These findings notwithstanding, the relation between coping with pain and various psychological symptoms in SCD is not clear (Bediako, 2009; Edwards et al.

2005). It is clear, however, that SCD individuals who show poor psychological adjustment and who have poor pain coping strategies generally tend to have more negative outcomes (Bediako, 2009; Bediako, Lavender & Yasin, 2007). Barakat, Schwartz, Simon and Radcliffe (2007) examined the role of negative thinking as a coping strategy in mediating the association of pain with symptoms of anxiety and depression in adolescents with SCD in the USA. Barakat et al. (2007) found lower family income to be associated with higher reports of pain and negative thinking and concluded that negative thinking is a factor that compromises adolescents' adaptation to sickle cell pain.

Third, social coping is employed in SCD. Social coping is the reliance on some other person(s) other than one's self to deal with SCD. Atkin and Ahmad (2001) found in a qualitative research with young 10 to 19 year olds with SCD and thalassemia that social support is a valuable coping resource for girls. Some respondents indicated that at times solitude and crying were therapeutic. However, they sought social support when they felt overwhelmed by the condition. Social support helped them to talk about the illness and provided an alternative focus of attention. This response was especially popular among girls and younger children who kept on becoming depressed and distressed if they kept things to themselves. One respondent said she talked to her parents about her pains in order to get it out of her system. Many of the boys, however, did not seek social support and saw talking as futile that did not change the situation (Atkin & Ahmad, 2001, pg. 621).

According to Anie and Green (2012), health beliefs can be influenced by a patient's culture, family support and work responsibility. SCD patients with good psychological adjustment have better family support, lower levels of perceived stress,

lower negative thinking and higher efficacy. Thus, social support is beneficial to psychological health. This includes religious social support. In the USA, a Mayo Clinic report (2007) indicated that stress can be reduced and avoided by praying, seeking help from family relationships and friends. Thus, praying, which is a spiritual activity, and seeking help from family and friends that amount to social resource, as well as having a positive attitude, can all be helpful in coping with the SCD (American Academy of Family Physicians, 2002).

Some studies have indicated that the socially cohesive and communal nature of SCD self-help and support groups may increase a sense of belongingness among participants that enhance personal growth and positive adjustment to SCD (Nash, 1989; Nash & Kramer, 1993; Shelley, Kramer & Nash, 1994). These helpful social resources were reported in the USA. What is not known about Ghanaian SCD individuals is whether they also use SCD self-help and support groups to cope.

Fourth, spiritual and religious resources are used to cope with SCD. Cotton et al. (2009) studied spirituality in patients with SCD and concluded that spiritual wellbeing could help patients cope more effectively with SCD pain. This effect appears to be through a perception of more life control measured through the perception of social support. Considering oneself to be spiritual was correlated with perceiving oneself to have a supportive network. Cotton et al.'s (2009) study showed the importance of spiritual wellbeing in coping with the complications of SCD. Existential wellbeing (a component of spiritual wellbeing) was associated with general coping ability. The effect of religious wellbeing on coping was not so strong.

Some chronic pain patients who frequently use complementary and alternative medicine interventions to cope with their pain base such treatments in a spiritual framework. Prayer was the most common complementary therapy used by 44% of the total sample of 307 community participants with musculoskeletal complaints, 57% of whom had arthritis (Cronan et al. 1989). In another multivariate analysis in the United States of adults with musculoskeletal pain, prayer was mostly used by women, blacks, and better-educated patients (Tindle, Wolsko, & Davis, 2005). Yoga was effective for patients with chronic low back pain (William, Petronis & Smith, 2005). Spiritual meditation led to greater decreases in anxiety, depression, and frequency of headaches, as well as more positive mood and pain tolerance in migraine patients (Wachholtz et al., 2007). The complementary treatments are mostly based in spiritual therapy.

Spiritual healing is, however, a controversial therapy. Spiritual healing or therapy has been tested in some trials with chronic pain patients. Although these trials mostly used small sample without blinded outcome assessment, one Randomized Controlled Trial in Scotland found that spiritual healing in the form of laying on of hands and guided visualization were associated with less pain and more improvement in neck mobility in patients with restricted neck movement (Gerald, Smith & Simpson, 2003). In another study, a Finnish non-blind Randomized Controlled Trial with 24 chronic pain patients found that spiritual healing did not affect pain measures, but was associated with lower hopelessness and better sleep patterns. These studies seek to show that spiritual therapy's effectiveness sometimes reduces pain and other times fail to work to reduce pain.

In spite of this controversy in the efficacy of spiritual therapy, several health organizations encourage the assessment of religious and spiritual issues as an essential

part of compassionate care, especially among those suffering from chronic pain such as Hypertension, Cancer, Migraine, Systemic Lupus Erythematosus (Lupus), Arthritis, HIV/AIDS, and Sickle Cell Disease. In terms of psychological/psychiatric disorders such as schizophrenia, depression, drug/substance use and abuse and addictions, aggression, and racial identity issues, patients have been known to use spirituality as coping mechanism (Belgrave & Allison, 1997). Individuals with SCD also use spirituality to cope (Harrison et al., 2005).

Fifth, the literature demonstrates some Africultural coping in SCD. Cultural issues in psychological health have been earlier reviewed. However, cultural differences in coping with SCD need discussion. Pain experience, health service utilization, and psychological coping in adult patients with SCD were compared cross-culturally between the UK (European culture) and Nigeria (African culture) (Anie, Dasgupta, Ezenduka, Anarado, & Emodi, 2007). Patients in the UK experienced a significantly greater number of pain episodes and a longer duration, with more frequent visits to accident and emergency departments compared with those in Nigeria who applied more psychologically active coping strategies such as distraction to deal with their sickle cell pain in the community. The researchers explained these significant differences in relation to external health locus of control factors including beliefs, and the cost of healthcare in relation to the use of health services (Anie et al., 2007). It implies that culture plays some role in the psychological functioning and coping with SCD.

Finally, age plays some role in coping with SCD and utilization of health care services (Brousseau, Owens, Mosso, Panepinto, & Steiner, 2010). Individuals aged 18 to 30 years seek acute care and re-hospitalization most frequently. Older individuals tend to

use outpatient services and prayer, while younger individuals are more likely to use the emergency department and cope by ignoring pain and using heat and cold or massage (Sanders, Labott, Molokie, Shelby, & Desimone, 2010).

Summary, Critique and Implications of Literature Review for Current Study

Altogether, the above-mentioned studies demonstrate some challenges in conducting research on culture, religion-spirituality, and psychological and physical health outcomes in SCD. Some findings suggest that religion, irrespective of how it is defined, seems to be a poor predictor of sickle cell pain severity as well as psychological health (Harrison et al., 2005). It may, however, be significantly related to other aspects of the SCD condition that mediate adjustment outcomes. According to Bediako et al. (2011), very little research has been carried out in this domain to discover some more truths. SCD's effect on patients' spiritual wellbeing need research attention

Bediako's findings suggest that individuals with SCD use psychological, social, spiritual and cultural resources to reduce the harmful effects of SCD and experience overall wellbeing. However, majority of the studies were conducted in Western cultures whose ontological, epistemological, philosophical, methodological and psychological orientations and experiences are different from non-Western cultures like Ghana. Therefore those study findings might not be generalizable to non-Western cultures.

Another conclusion to be drawn from this literature review is that there are unclear and no universally accepted definitions of the constructs "African cultural values", "religion", "spirituality" and "psychological health." There are no precise or valid measurements of them for all Black people. This is because the constructs are

multidimensional in nature. All existing measures are based in Western or in African American culture. These issues make it necessary for an operational definition of the constructs "African cultural values", "religion", "spirituality" and "psychological health" in this present research and identifying measuring instruments that capture them, to be used for a Ghanaian study sample.

The literature review also revealed that the use of quantitative methods predominate in Western and African American psychosocial research on SCD with some obvious advantages, but also some major limitations. The limitation is the heavy reliance on quantitative method of research to generate psychosocial and cultural knowledge about SCD and attempts to generalize findings to other cultures. There may be unique cultural factors that are relevant to the coping of individuals with SCD that have been given minimal attention in past research (Barbarin & Christian, 1999). Since SCD is a medical condition that mostly affects Blacks, investigating cultural variables is important (Kaslow, Collins, Loundy, Brown, Hollins, & Eckman, 2000), especially by use of qualitative approach. The present body of psychosocial literature on adults with SCD has least documented this.

There are few studies that used only qualitative approach and their findings cannot be generalized or applied beyond the few sample sizes they used. It is understandable to use either quantitative or qualitative research approach when time and money resources do not allow the use of combined quantitative-qualitative studies, and more so when the population under study is "scarce" and difficult to draw an adequate sample size.

Another issue is the use of convenience sampling technique, a non-probabilistic sampling technique that previous studies used to conduct cross-sectional descriptive quantitative or survey studies. "The findings of convenience sampling may prove quite interesting, but the problem is that it is impossible to generalize the finding" (Ofori & Dampson, 2011, p. 22). The most appropriate sampling method for survey studies is probabilistic sampling for statistical inferential and generalization purposes.

Past researchers identified gaps in the research on spirituality, religion and mental health and encouraged future research to address them. Niziolek (2000) examined the relationship between religion and mental health. She suggested the examination of the therapeutic benefits of religiosity and physical illness and whether the inclusion of spirituality would contribute something more than the traditional medical treatment and psychotherapy. She further suggested that increased attention should be paid to social contextual factors and to macro-level or cultural level factors that may inform outcome expectancies in the relationship between religiosity and mental health (Niziolek, 2000).

According to Pargament (1997), further research is needed to understand ways in which religious coping may facilitate adjustment to different types of stressors among different groups of people. This is yet to be done in Ghana. Adegbola (2011) stated in her conclusion of a review of the literature on spirituality and quality of life in chronic disease patients that, "further research should help to elucidate the role of spirituality for individuals with specific chronic states and demonstrate relationships of spirituality to quality of life" (p. 45). She urged an improvement and increase in spirituality research. Majority of the aforementioned studies were conducted with samples of Blacks from the United States and little is known about continental Africans with SCD.

Finally, Oscar and Marcelle (1999) thought that effective management of SCD will be hampered by misinformation, prejudices, uncertainty, and anxiety until we adopt a broader framework for understanding individuals with SCD and their families. To deepen our understanding of adjustment to SCD, we must explore more fully the social context for coping with SCD and its cultural meanings within the African American community (Oscar & Marcelle, 1999). The biopsychosocial model alone for the study of a chronic condition as SCD is not all inclusive.

Based on this, the variables studied in the present study were examined as factors that can be represented in the biopsychosocial-spiritual model and the Afrocultural social ethos framework to determine their usefulness in SCD research in Ghana. Both theories have been adopted because they are associated with explaining the mental health of Blacks. The biopsychosocial-spiritual model has been adopted in the present research because its associated research design is correlation. Although other theoretical frameworks were used in health-related studies among Blacks, they were Western biased. To the best of the researcher's knowledge, the aforementioned variables and theoretical frameworks have not been adequately examined in SCD empirical research in Ghana. None of the previous researches combined African cultural values, spirituality, religion and social support to examine their relationships and effects on psychological health and coping in a single study.

Chronic illness is defined by physical, mental and spiritual effects of the disease (Nichols & Hunt, 2011). Although Nichols and Hunt (2011) mentioned spiritual effects of chronic illness, it is scarce to find literature on the spiritual effects of SCD. Additional research is needed to identify effects of SCD on patients' spiritual functioning.

In summary, it was difficult for past research to reach a consensus about spirituality, religiosity, African cultural values and psychological health relationships. Clarity on their definitions is lacking. Many studies used small inadequate non-random samples sizes and none included control or comparison groups. Inconsideration of the cultural environment of the samples studied characterized past research. These make findings of past research non generalizable to other cultures and conclusions reached cannot apply to all populations. These make the baseline from which to study the variables in other cultures and populations inappropriate. Ghana in particular has no baseline.

Purpose and Design for a Two-Part Study

The purpose of the research was to produce a thesis or theory, intended to function as explanation for the relationship between spirituality and psychological health. Previous research and literature have not filled this theoretical gap yet as well as some conceptual, methodological and statistical gaps. The rationale was to contribute additional knowledge to the debate on the spirituality and psychological health phenomena from the perspectives of African culture and Ghanaian adults living with a chronic illness, SCD.

First, the researcher intended to examine the certainty about the spirituality-psychological health relationship among adults with SCD in Ghana. Several factors account for psychological health in sickle cell individuals. Some are biomedical, others are psychological, social, economic, spiritual/religious, and environmental. Given that the biomedical factors have been much researched, and the psychological, social, economic and environmental are being researched, and the cultural phenomena are least researched,

the current research is mainly focused on the socio-cultural and psychological phenomena in SCD. It is focused on knowing the extent to which non-medical variables explain health and wellbeing in SCD individuals, gap that previous research in Ghana has not filled yet.

Second, the study intended looking for the most culturally relevant scales that could capture African cultural values, spirituality and psychological health, and be able to clarify meaning of these constructs through interviews.

Third, the purpose was to determine the appropriateness of the adopted Western data collection instruments on the Ghanaian SCD sample, using principal component analysis (PCA) and Confirmatory Factor Analysis, in order to adapt them.

The fourth purpose was to adopt a broader theoretical framework for understanding adults with SCD. In light of empirical research suggesting that an Africultural orientation may influence coping (Neblett, Hammond & Townsend, 2010) and the way people make sense of experiences that are stressful (Jackson & Sears, 1992; Myers et al., 1996), the study intended to use the biopsychosocial-spiritual model (correlation quantitative method) and the Africultural social ethos framework (qualitative method) to examine and better understand the relationships among African cultural values, spirituality, psychological health and cultural coping with SCD.

The fifth purpose was to approach the study from an ontological, epistemological, and methodological perspective that account for the views of the continental African-Ghanaian. The present study intended to extend previous research by doing a two-part quantitative-qualitative study that adopted an explanatory sequential mixed method for

the purpose of both method and data triangulation. Study one focused on African cultural values variables and psychological health of SCD participants in a survey research.

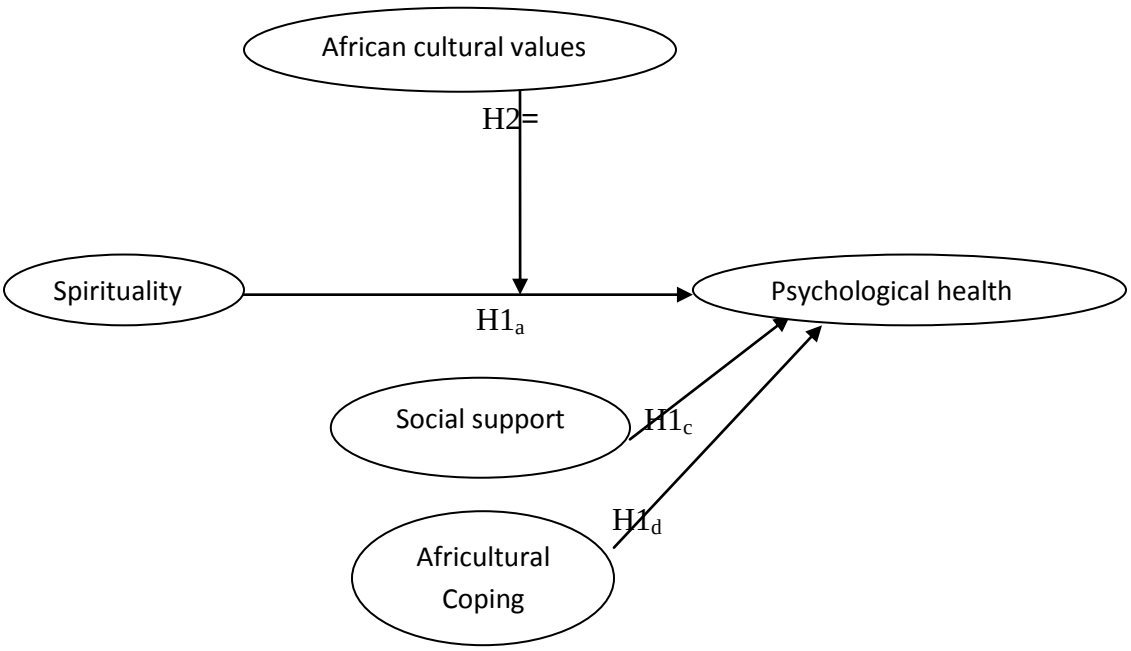
Study two intended to explore the meanings of SCD, spirituality and religiosity through qualitative research method. It aimed at understanding how specific spiritual activities and African cultural values were used to cope with SCD and why. The research focused on examining coping from an African cultural perspective rather than from a sole Western psychological or philosophical perspective. The African cultural perspective, the researcher thought, would yield more relevant information that would permit a clearer inference about the role of culture in sickle cell-related outcomes in Ghana. For example, it was difficult for previous research to establish that certain spiritual/religious behaviors like frequent church attendance and praying resulted in individuals having less disease severity because the methodology was only by survey. It was unclear because less disease severity could be the reason people attended church and prayed frequently and not the other way round. In addition, it was difficult to determine the precise mechanisms by which endorsement of particular religious/spiritual practice affected health-related outcomes because there were several potential pathways that might not lend themselves to quantitative but be amenable to qualitative research.

Based on previous studies, the research problem and study objectives listed in chapter one, this present study proposed the following "hypotheses" which cover both quantitative and qualitative studies. It is predicted that greater adherence to African cultural values would be associated with spirituality, social support, the use of African-centered coping and associated with psychological health among individuals living with

SCD in Ghana. Details of specific hypotheses relevant to the quantitative study and specific research questions relevant to the qualitative study are presented below.

Conceptual Framework of the Study Depicting the Hypothesized Model

Figure 2.3 shows the hypothesized relationships as conceptualized in the study.



NB: H1a,b,c,d and H2 are Paths to be tested at $p < 0.05$

Figure. 2.3. Hypothesized Path Model of the relationships among the studied variables and how they predict psychological health.

In Figure 2.3, a moderator (African cultural values) specifies and explains conditions under which spirituality (a predictor/IV) is related to psychological health (an outcome/DV) and when they are related. Moderation implies an interaction effect, where introducing African cultural values changes the direction or magnitude of the relationship between the two variables (spirituality and psychological health). A moderation effect could be enhancing, where increasing African cultural values would increase the effect of

spirituality on psychological health. It could be buffering, where increasing the moderator decreased the effect of the predictor on the outcome. Increasing African cultural values (the moderator) could also reverse the effect of spirituality (the predictor) on psychological health (the outcome). In this study, African cultural values would have an enhancing effect.

Operational Definition of Terms

The following operational definitions have been used for the key terms and constructs in the study. They refer to both quantitative and qualitative research constructs.

African cultural values: Is defined in this study by items that make the total scale score of the Africentric Worldview Scale grouped into six subscales namely, spirituality, intuition, sensitivity, respect for elders, communalism, and orality (Belgrave, 1997).

Spirituality: It pertains to spiritual wellbeing, existential wellbeing and religious wellbeing as measured by the Spiritual Wellbeing Scale (Ellison & Paloutzian, 1982), spirituality subscale of the Africentric Worldview Scale (Belgrave, 1997), and the spiritual-centered coping subscale of the Africultural Coping Systems Inventory (Utsey, 2000). In this study, it is defined by all these scale and subscale scores, the concept of religion/religiosity inclusive.

High spirituality: Is defined as total score of 100 or more on the Ellison Spiritual Well-Being Scale. A score of 50 to 99 is moderate spirituality. *Low spirituality* is defined as a score of 20 to 49 (Paloutzian & Ellison, 1982).

Religiosity: It is defined by the Religious Wellbeing (RWB) score on the Spiritual Wellbeing Scale. It refers to all the 10 items on the SWBS that has reference to God as well as group effort at worshipping and relating to a deity.

Psychological health: This refers to a person's Global Severity Index (GSI) and psychological symptoms dimension mean score on the Brief Symptom Inventory (BSI) that indicates that he/she has no distressing symptoms. A distressing symptom is defined as GSI mean score or symptom dimension score that is ≥ 1.0.

Coping strategies: These include mechanisms SCD persons use to minimize the effects, signs and symptoms, pain crisis and complications of SCD. These methods are broadly biomedical, psychological, and Africultural (spiritual, religious, and social).

a. *Medical "coping":* This refers to the use of hospital/clinic resources such as doctors, nurses, drugs and any biological, physical, and medical resources that patients use to manage SCD (Biomedical).

b. *Psychological coping:* Is defined by the total score of items on the Brief Cope inventory. It also refers to the use of psychotherapies such as CBT, Biofeedback, relaxation, behavior therapy, psychodynamic, psycho-education, and such like and a person's personal effort at using his mind, emotions, and behaviors to adjust to distress and pain crisis.

c. *Africultural coping:* It is defined by total items score on the Africultural Coping Systems Inventory (Utsey, 1999). It refers to coping methods that are based in African philosophy, values and religion.

Sickle cell patient: In this study, refers to an adult male or female sickle cell participants who has an HbSS or HbSC genotype and is 18 years and above.

Demographic variables: These refer to age, sex and education of SCD participants.

Research Hypotheses of Study One (Quantitative)

Based on the literature reviewed, the problem statement, the objectives set, and the theoretical frameworks for the study, the following hypotheses were formulated and tested in study one:

Hypothesis 1: There is a statistically significant inverse relationship between

a. Spiritual wellbeing and psychological symptoms.
b. African cultural values and psychological symptoms
c. Social support and psychological symptoms
d. Africultural coping and psychological symptoms

Hypothesis 2: 'African cultural values' will have a significant moderating (strengthening) effect on the relationship between spiritual wellbeing and psychological health.

Hypothesis 3: Spiritual wellbeing will account for more variance in psychological health than African cultural values, social support, Africultural coping.

Hypothesis 4: Compared with diabetic and healthy groups, SCD participants will be significantly

a. low on each of the following: spirituality, African cultural values, social support, and
b. high on psychological symptoms, after controlling for age and level of education.

Hypothesis 5: The SCD data will fit the theoretical framework/model better than the comparison groups' data.

Research Questions of Study Two (Qualitative)

Based on the general objectives of the study (Chapter One), the following qualitative research questions were asked:

1. What does sickle cell disease mean to SCD participants of the sickle cell clinic?

2. a. What do SCD participants consider as African cultural values?

   b. Are spirituality and religion used or not used in coping with SCD?

   c. How specifically are spirituality and religion used? Why or why not are they used?

3. What is psychological health?

4. What are the effects of African cultural values, spirituality/religion, and social support on psychological health?

CHAPTER THREE

STUDY ONE (QUANTITATIVE)

Methodology

Chapter three presents the first empirical research report of the quantitative study. It reports the specific methodological approach the researcher used. It is divided into two parts with part one presenting the quantitative research design and its rationale. Part one presents the methodological procedure used to achieve the objectives. They include the research setting, population, sample, sample size and sampling technique, inclusion and exclusion criteria, research instruments, their pretesting and administration, and data analysis technique. Part two presents the results of quantitative analyses and discussion of results. It concludes with recommendations for a qualitative study.

Research Design for Study One

The cross-sectional survey method was used for the first study. Surveys are used to collect peoples' opinions and how they feel about some issues under study (Smith & Davis, 2004). Therefore, this research used the survey to collect SCD participants' opinions and feelings about African cultural values, spirituality/religion, psychological health and coping with SCD in order to ascertain what they knew, thought and felt about the variables. According to Smith and Davis (2004), a cross-sectional design is a non-experimental method in which a researcher collects data from participants during the same, rather limited time span on some topic or issue that is of interest to the researcher.

Rationale for Quantitative Methodology in Study One

Cross-sectional design was used in study one because it was the most appropriate method to collect one-time data from a representative sample rather than every member

of the population (McMillan & Schumacher (2001). Quantitative methodology was used in order that what is known about SCD and the Africultural and psychological variables studied would first be surveyed. The theories that established associations among African cultural values, spirituality/religion, social support and psychological health were first tested to ascertain if they applied to this study sample. Evidence or lack of evidence about conclusions reached by previous researchers needed to be ascertained first.

Research Setting

The Korle-Bu Teaching Hospital's Sickle Cell Clinic was the main study location. It is one of three tertiary level clinics in Ghana. The rationale for choosing this site for study was that it runs adult sickle cell clinic and patients of all ethnic groups use the facility. The clinic is a referral point for all the regional and district health facilities in Ghana. This sickle cell clinic is the only adult clinic in the country and appeared better organized for adult care than other healthcare facilities that treat adult SCD individuals in Ghana.

Population and participants

The population included all adult SCD patients in Ghana. The accessible population however, comprised SCD patients who attended the sickle cell clinic at the Korle-Bu Teaching Hospital in Accra (about 25,000; 2012 KBTH records). It has an active patient population of about 11, 230 (2012 KBTH records) of patients aged 13 years and above. As at the time of data collection in January 2013 to 2014, male patients totaled 4,248 (37%) and female patients totaled 6,982 (63%). Patients with HbSS diagnosis totaled 6,911 (62%) and those diagnosed with HbSC totaled 3,934 (35%). The rest totaling 2,563 (23%) had other forms of SCD.

The Sampling Method

In order to use a more appropriate sampling technique than the convenience sampling those previous researchers heavily relied on, the researcher chose purposive (judgmental) sampling to recruit study participants. Although a non-probability sampling technique, the researcher chose purposive sampling because he aimed to recruit participants with only HbSS and HbSC disease types who are a group of special individuals with particular disease characteristics, and a particular setting. According to Bowling (2009) it is sometimes called judgmental sampling, where respondents are selected because they have knowledge that is valuable to the research process. The researcher used his judgment to select a sample (a setting and participants) that he thought would provide the data that was needed from "experts" on SCD- the patients themselves.

It is understandable to fall on a non-probabilistic sampling technique to recruit participants for a study when the population is "scarce" and participants are difficult to obtain, like SCD. However, it is advisable to use a better non-probabilistic sampling technique other than convenience sampling (Ofori & Dampson, 2011). For this reason, purposive sampling was used in the current study. This was because the purpose of the study was not to generalize findings onto other populations per se but to predict relationships among variables studied for clinical application. However, the current study used a relatively large sample size.

The Sample Size

The significant role sample size plays in a study's precision cannot be downplayed. The researcher recruited an adequate sample size to reduce risks of type II

error. Cohen (1988) suggested using power analysis to calculate the required sample size before conducting a study. Power analysis assesses risk of type II error and helps to achieve a statistically significant difference or relationship that actually exists in the given population. It is disputed whether traditional power calculations would apply directly to studies that involve multiple comparisons (Cluver et al., 2007). The current study involved one main and two comparison groups with several predictors (6). Therefore, the GPower software program was used (Erdfelder, Faul & Buchner, 1996). The sample size determination was also based on the minimum sample size determination given by Field (2009) taking into consideration the effect size and statistical power at which the effects would be detected. It took into account the level of significance that was chosen, and the planned statistical analysis to be used. This applies to performing multiple linear regression analyses. The minimum sample sizes are listed below:

For a medium effect size and high level of statistical power (.80) with 10 predictors, a minimum of 150 sample size is required. With a medium effect size and a statistical power of (.80), a minimum sample size of 200 is required for up to 20 predictors. With six or less predictors, a sample size of 100 is adequate (Field, 2009). Therefore, from this sample size determination, sub group sample sizes of more than 200 each was sufficient for the performance of multiple regression analyses so as to obtain a medium size effect and a high statistical power of .80.

The sample size for the entire study was six hundred and five (605) made up of two hundred and one (201) sickle cell, two hundred and three (203) healthy, and two hundred and one (201) diabetic persons. According to Pallant (2010),

> "It is important to take note of the number of respondents you have in different subgroups in your sample. For some analyses (e.g. ANOVA), it is easier to have roughly equal group sizes. If you have very unequal group sizes, particularly if the group sizes are small, it may be inappropriate to run some analyses" (p. 56).

Bearing in mind threats to internal validity in causal comparative research, and controlling for unidentified lurking variables, the researcher used sample and statistical matching to control for identified initial differences such as age and level of education among the three groups. These reasons guided the decision to obtain equivalent sample sizes for all subgroups, and to create homogeneous groups.

These 201 sickle cell person were sampled from the sickle cell clinic of the Ghana Institute of Clinical Genetics (GICG) at the Korle-Bu Teaching Hospital in Accra, Ghana; the diabetic persons were sampled from the Cape Coast Teaching Hospital, the Trust Hospital in Osu, Accra, the University of Cape Coast and some churches in Accra; the healthy persons were sampled from the University of Ghana, Legon, the University of Cape Coast, and some communities in Cape Coast and Accra. Purposive sampling technique was employed to recruit study participants. This is because participants of certain age group and level of education were sought for.

Inclusion Criteria

Adults living with SCD, who agreed to participate and met the eligibility criteria of age 18 years and older, able to read in English, and diagnosed with one of the two major forms of SCD- sickle cell anaemia (HbSS) or sickle C disease (HbSC), were recruited to the study. Persons 18 to 60 years who were diagnosed with diabetes types I or II, and who were able to read and write in English were recruited to the study.

"Healthy" persons who were 18 to 60 years, who were not living with any known chronic medical and/or mental disease, who could read and write in English, and were willing to participate, were recruited to the study. Age and education match guided diabetic and healthy participant recruitment.

Exclusion Criteria

The study excluded the following: patients who could not write or read the questionnaires that were written in English; patients in serious pain and restless; individuals with sickle cell trait; and participants whose questionnaires were uncompleted because the software does not work on missing data. In all 220 questionnaires were given out to adult SCD participants, but 19 of the questionnaires were not analyzed because they were not completed. The study excluded diabetic participants who could not read the English language questionnaire. It excluded participants who were above 60 years. Individuals above 60 years were a markedly poor age match for comparison with the sickle cell and healthy participants who were relatively young. More so, only few diabetics fell into such age bracket and their ages were considered as outliers.

Sample Characteristics of Study Participants

The sample characteristics of all study participants are presented in Table 3.1. The study design incorporated three separate samples for two reasons: one to examine the pattern of relationships observed and two, to examine the differences among the SCD, healthy and diabetic samples.

Almost same proportion of SCD males (51%) as females (49%) participated in the study. The average age of the SCD respondents was 27 years with the minimum age being 18 and maximum 58. SCD participants' average years of schooling were 14 years

which is equivalent to tertiary level of formal education in Ghana. Majority was unmarried (84%) and (48%) was students with few being unemployed. About two thirds (68.0%) of the SCD respondents had attained Polytechnic/Training college education. Those with university degrees were the least (9.0%). A substantial proportion of them professed Christianity (94%) while 6% were Muslims. The SS sickle cell type (65%) dominated the study (Table 3.1).

Table 3.1
Sample Characteristics of SCD, Healthy and Diabetic Study Participants

Characteristics	**SCD (n = 201)**	**Healthy (n = 203)**	**Diabetic (n = 201)**
	Frequency (Percentage)		
Sex			
Male	102 (50.7)	116 (57.1)	78 (38.8)
Female	99 (49.3)	87 (42.9)	123 (61.2)
Age			
<20	25 (12.4)	12 (5.9)	1 (.5)
20-29	118 (58.7)	143 (70.4)	24 (12.0)
30-39	40 (19.9)	33 (16.3)	25 (12.5)
>40	18 (9.0)	15 (7.5)	151 (75)
Marital status			
Married	27 (13.4)	31 (15.3)	119 (59.2)
Unmarried	169 (84.1)	166 (81.8)	78 (30.8)
Co-habitation	5 (2.5)	6 (3.0)	4 (2.0)
Occupation			
Student	97 (48.3)	89 (43.8)	14 (7.0)
Public sector workers	32 (15.9)	79 (38.9)	60 (29.9)
Private sector workers	23 (11.4)	10 (4.9)	20 (10.0)
Self employed	32 (15.9)	7 (3.4)	62 (30.8)
Unemployed	17 (8.5)	9 (4.4)	23 (11.4)

Table 3.1, continued.

Sample Characteristics of SCD, Healthy and Diabetic Study Participants

Characteristics	**SCD (n = 201)**	**Healthy (n = 203)**	**Diabetic (n = 201)**
	Frequency (Percentage)		
Religion			
Christian	188 (93.5)	191 (94)	181 (90)
Moslems	13 (6.5)	12 (6)	20 (10)
Highest education level			
Senior High School	83 (41.3)	19 (9.4)	69 (34.3)
Poly/training college	66 (32.8)	36 (17.7)	93 (46.3)
University degree	52 (25.9)	148 (73)	39 (19.4)
Family type			
Extended family	46 (22.9)	38 (18.7)	54 (26.9)
Nuclear family	136 (67.7)	108 (53.2)	85 (42.3)
Live on own	19 (9.5)	57 (27.6)	55 (27.4)
SC type			
SS	131 (65.2)	-	-
SC	70 (34.8)	-	-
Mean Age (SD); min- max	***26.96*** *(7.68); 19-58*	***27.18*** *(6.89); 18-54*	***45.98*** *(10.92); 19-60.*
Mean Sch (SD); min- max	***14.07*** *(1.86); 19-19*	***15.53*** *(2.13); 11-20*	***14.38*** *(2.30); 10-20.*

To determine severity of SCD crisis, number of visits to hospital and blood transfusion were used as indicators. Majority of respondents (69%, n = 201) visited the hospital less than three times during the year, and the majority (58%, n = 201) did not receive blood transfusion. This suggests less crises severity. In terms of coping with

crises, the majority (62%, n = 201) used medication and hospital resources as priority coping strategy. This was followed by spiritual coping (23%, n = 201), then social coping (11%, n = 201), and lastly psychological coping. Spirituality helped the majority (77%, n = 201) to cope with SCD but spirituality didn't help a few [23%] (See Appendix D).

The selection of diabetics as comparison group was based on the fact that diabetes is similarly a chronic illness. Diabetics develop medical complications that include chronic hypertension. Diabetics attend medical reviews frequently, and use maintainance medication and treatments similar to SCD patients. From Table 3.1, the age of diabetics is twice as that of SCD and Healthy samples.

Research instruments: Description and psychometric properties

Data were collected using questionnaires that measured African cultural values and African-centered coping, spirituality and religious wellbeing, psychological health and psychological coping, social support, and medical coping**.** Description of the questionnaire instruments and their psychometric properties are given as follows:

Measures of African cultural values.

The 23-item Africentric Worldview Scale (AWS) was used to measure SCD participants' African cultural values. It is subdivided into six factors of spirituality, intuition, sensitivity, and respect for elders, communalism, and orality. Belgrave (1997) developed the Africentric Worldview Scale to assess Africentric values of African Americans. Respondents answered each item on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." Two simple questions on the scale are "Attending church, mosque, or other places of worship is important to me" and " I view death as a

spiritual event." Responses were scored from 1 to 5 (1= Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4= Agree, 5= Strongly Agree. Scores could range from 23 to 115. The Cronbach's reliability co-efficient for the scale was .63 (Belgrave 1997). This test assessed the respondents' strength of African cultural values. A higher score indicates strong cultural values. This study conducted a principal component analysis to determine whether some items of the AWS are more sensitive for the measurement of Africentric cultural values in comparison to others. Cronbach's alpha coefficient for the AWS in the present study was .73, and .65, .72, .50, .40, and .25 for the subscales respectively. Although the Cronbach's alphas for some of the subscales were below .70, the scale was used because its overall alpha of .73 showed the scale to be reliable.

The Africultural coping systems inventory (ACSI).

The Africultural Coping Systems Inventory (ACSI) (Utsey et al., 2000) is intended to measure the culture-specific, spiritually based coping behaviors/strategies used by African Americans in everyday stressful situations. The ACSI is a 30-item self-report measure that requires participants to describe a stressful event that they have experienced in the past week or so. Once participants have completed all items of the ACSI, including the stressful event description, the items of each subscale is summed up to derive a total score for each category (i.e. cognitive/emotional debriefing, spiritual-centered, collective-centered, and ritual-centered) coping strategies (Utsey et al., 2000).

The "Cognitive and Emotional Debriefing" subscale describes the adaptive reaction to environmental stressors evolved out of centuries of racial oppression. The "Spiritual-Centered Coping" describes resilience derived from a sense of harmony with

the universe. The "Collective Coping" describes the resolution and comfort sought from others or a group. The "Ritual-Centered Coping" describes the performance of rituals to maintain spiritual balance (Utsey et al., 2000). The scoring scheme described below was used to derive total scores for each of the ACSI subscales.

Cognitive /Emotional Debriefing: 5, 8, 12, 14, 15, 17, 18, 19, 20, 26, 29.

Spiritual-Centered Coping: 1, 6, 10, 13, 16, 21, 27, 30.

Collective-Centered Coping: 2, 3, 4, 7, 9, 11, 22, 24.

Ritual-Centered Coping: 25, 23, 28.

Utsey et al. (2000) reported Cronbach's alphas ranging from .71 to .80 for the four ACSI subscales. Evidence of the ACSI's concurrent validity was demonstrated through a correlation study with a second coping measure. In their investigation, Cronbach's alphas of .60, .81, .66, and .66 were calculated for the cognitive/emotional debriefing, spiritual-centered coping, collective coping, and ritual centered coping subscales, respectively. In the current study, Cronbach's alpha coefficient was .88 for the ACSI. It was .73, .78, .70, and .65 for the cognitive/emotional debriefing, spiritual-centered coping, collective coping, and ritual centered coping subscales, respectively. The scale was considered reliable for the sample.

Measures of Spirituality and Religiosity

Spiritual Wellbeing Scale (Paloutzian & Ellison, 1982) is a 20-item self-administered scale designed to measure spiritual well-being in both its religious (RWB) and existential (EWB) senses. Two subscales are included: 1) RWB, 10 religious items contain a reference to God; 2) EWB, 10 items with no reference to God. In order to

control for response-set problems, half the items from each subscale were worded in positive and negative directions. The SWB Scale yields three scores: 1) a total SWB score; 2) a summed score for religious well-being items, 3) a summed score for existential well-being items. Cronbach's alpha coefficients reflecting internal consistency were 0.89 (SWB), 0.87 (RWB) and 0.78 (EWB). The test-retest reliability coefficients were 0.93 (SWB), 0.96 (RWB) and 0.86 (EWB). These are consistent with high reliability and internal consistency. In the current study, the Cronbach's alpha coefficient was .85 (SWB), .86 (RWB) and .74 (EWB) subscales respectively. This value was above .7, so the scale was considered reliable with the sample.

Considering the degree to which each item correlates with the total score, however, there were four items with low values less than .3 that indicated that these items measured something different from the scale as a whole. Because the overall Cronbach's alpha is not low (not less than .7) we may not consider removing such items with low item-total correlations. These items were "I don't find much satisfaction in private prayer with God", "I believe that God is impersonal and not interested in my daily situations," "I don't enjoy much about life," and "I feel that life is full of conflict and unhappiness."

The SWB scale appears to have sufficient validity for use as a quality of life indicator. SWB scores correlated in predicted ways with several other scales. People who scored high on SWB tended to be less lonely, more socially skilled, high in self- esteem and more intrinsic in their religious commitment. The SWB, RWB, and EWB all correlated positively with the Purpose in Life Test. The scale has been used to assess the

relationship between loneliness and spiritual well- being in a college population as well as used to assess spiritual well- being in chronically-ill adults.

Measures of Psychological Health and Coping

The Brief Symptom Inventory (BSI) by Derogatis (1993) was used to measure psychological health and the 28-item Brief COPE (Carver, 1997) assessed psychological coping strategies. The purpose of the BSI is to identify self-reported clinically relevant psychological symptoms in adolescents and adults. It is designed to reflect the psychological symptom patterns of psychiatric, medical and non-patients. It is conceptually organized to consist of 53 items covering nine symptom dimensions: Somatization, Obsessive-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism; and three global indices of distress: Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total. The global indices measure current or past level of symptomatology, intensity of symptoms, and number of reported symptoms, respectively. It takes about 8-12 minutes to complete and the method of administration is either self- or interviewer-administered. In scoring this instrument, respondents rank each feeling item (e.g., "your feelings being easily hurt") on a 5-point scale ranging from 1 (not at all) to 5 (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. 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.
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. 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).

Psychometric Support: For 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; Derogatis, 1993). No alpha reliability was 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). In this current study, Cronbach's alpha coefficients were .76, .70, .83, 79, .70, .72, and .71respectively for all seven subscales and .94 for the entire scale. References to studies attesting to the validity of the BSI are found in the BSI manual (Derogatis, 1993).

The Brief COPE (Carver, 1997) that measured psychological coping has internal consistencies for the fourteen domains that range between .54 and .90. It is a 28-item self-report measure of both adaptive and maladaptive coping skills. It was developed based on acknowledged theoretical models of Lazarus' transactional model of stress (Lazarus, 1984). This tool has been developed to assess 14 different ways people respond to stress which are self-distraction (e.g. taking mind off things); active coping (e.g. concentrating efforts on doing something); denial; substance abuse (including prescriptive medications for mood disorders); use of emotional support; use of instrumental support (e.g. getting advice from others); behavioral disengagement (e.g. giving up); venting; positive reframing; planning (e.g. coming up with a strategy); humor; acceptance; religion; and self-blame. It was used successfully in a study of women diagnosed with breast cancer.

Participants rate their degree of use of these strategies on a 4-point scale from 1 (not at all) to 4 (doing a lot). Every dimension has two items.

A score that ranges from 28 to 56 means least use of psychological coping; 57 to 84 means moderate use of psychological coping and 85 to 112 means greater use of psychological coping. In addition, the subscale with the highest mean indicates the frequently used psychological coping strategy.

Measure of Social Support and Coping

The Multidimensional Scale of Perceived Social Support [MDSPSS] **(**Zimet, Dahlem, Zimet, & Farley, 1988) measures perceived adequacy of support from three different sources: family, friends, and significant other. By description, the MDSPSS consists of 12 items with 7-point Likert-type scales ranging from "very strongly disagree" to "very strongly agree". Four items are dedicated to measure perceived social support from one particular source and the MSPSS measures the adequacy of support from three sources: family (items 3, 4, 8, 11), friends (items 6, 7, 9, 12) and significant other (item 1, 2, 5, 10).

The MSPSS has been used in the studies with 275 male and female Duke University undergraduates, 265 pregnant women, 74 adolescents living in Europe with their families, and 55 pediatric residents in training. It is self-administered. A score of 69 to 84 is indicative of high social support, 49 to 68 indicate moderate social support and 12 to 48 indicates low social support.

Reliability Coefficient alphas for the subscales and scale as a whole ranged from .85 to .91 with 275 undergraduates. In the current study, reliability coefficient alpha

was .87 for the whole scale and .86, .80, and .85 for the three subscales respectively. Also, test-retest values ranged from .72 to .85 with the same sample.

The researcher constructed an 11 item Medical "Coping" Questionnaire by adapting medically relevant items from the Health Belief Model. He used the scale to assess medical coping with SCD and diabetes. The scale is likert type and had two subscales namely positive and negative coping, respectively. The positive subscale had a cronbach's alpha of .93 and the negative subscale had .63. The overall scale cronbach's alpha stood at .88 qualifying the scale for use on the samples (See Appendices A & F and Tables 6a & 6b in Appendices K).

Based on previous studies, the research problem and study objectives, this present study proposed general research questions and hypotheses which were elaborated in chapter two and study one (quantitative study), and chapter four study two (qualitative study). The reason for adopting a sequential mixed methods research is to first conduct a quantitative survey and use preliminary results of the survey to launch a second study that is qualitative, and to use the qualitative study to explain and elaborate the quantitative findings.

Procedure for Survey

Pretesting of the questionnaires was done at the Central Regional Hospital, Cape Coast, and the sickle cell clinic in Korle Teaching Hospital, Accra, using nine participants who were sickle cell patients and five who were diabetic patients. Two research assistants and a clinical psychologist were oriented in data collection by use of questionnaire. One clinic nurse helped to recruit patients for questionnaire administration each week. The questionnaire was pretested on the sample of patients and this allowed

the researcher to assess respondents' understanding of the questions and instructions, and whether the meaning of the questions was the same for all respondents. A note including such information as the institution behind the research, contact names and researcher's address, the study aims, any potential benefits and harm resulting from the study, and what would happen to the information provided, were given to the respondents, to meet the requirements of informed consent.

Twenty five questionnaires were given out: ten in the sickle cell clinic, Korle-Bu, Accra and fifteen in the Central Regional Hospital in Cape Coast. The research team administered the questionnaires to volunteer patients who came for review and others were first time clinic attendees. In the Cape Coast Regional Hospital, the questionnaires were given to fifteen respondents to complete by themselves in the clinic. Of the fifteen patients, only five were able to complete the questionnaires within two hours on the average and returned them. These were a university graduate, two undergraduates, one middle school leaver, and one Junior High School leaver. The middle school leaver and the JSS leaver struggled with understanding the questionnaire items and were helped to complete the entire questionnaire. At the Korle-Bu clinic site, only four returned the questionnaires completed. Two were not returned at all and four were partially completed with many items left unanswered because the respondents did not understand the items content, format and instructions. In the end, only nine questionnaires out of the twenty five were completely and properly filled. During a debriefing session, respondents contributed what they thought were difficulties in completing the questionnaires.

Content validity of the questionnaire was obtained by allowing two clinical psychologists, a counseling psychologist and a cross cultural psychologist to check for

item content that is culturally biasing, ambiguous, double-barreled, and redundant. Questionnaires were given out to **a** few psychology and medical students and 2 colleague lecturers to brainstorm and critique its content, format, instructions and general outlook. In the end of the exercise that took two weeks**,** the following suggestions came up for consideration to improve the questionnaire for use.

One suggestion was about item content and meaning of some words, and the use of double negatives and reverse items. In the final questionnaire that was used for actual data collection, occupation was grouped according to the Ghana Demographic Survey format, Educational levels such as never been to school, primary school and Junior High School were omitted because they reflected a group of school achievers who could not use written or spoken English to communicate well their thoughts and understanding of the constructs under study.

Nothing at all changed about the Spiritual Wellbeing Scale because the respondents understood each item well. The meaning of some items had to be clarified in brackets in the Brief Symptoms Inventory. For example, phrases like "feeling blue" had "feeling depressed or sad" put into brackets; "Feeling inferior to others" had "compared to others, you feel less important" put into brackets; and "Numbness or tingling in parts of your body" had "ananse feelings" put in brackets. These served to aid respondents' understanding of items. The number of items (53) remained unchanged.

The Africentric Worldview Scale remained unchanged except that items have been loaded onto subscales to reflect Ghanaian cultural values. For example, onto the original item "I perform better on oral rather than written tasks", the item "When people

in my family speak and use proverbs, riddles and idioms, I understand what they say and mean" had been loaded. This would enable the researcher to, later on, do factor analyses for this instrument for use in Ghana.

The 28-item Brief Cope was also not changed in any way because the items and instructions were understood and using a Likert response format was not an issue for respondents. Its original format, content and design was used in the final study

The 30-item Africentric Coping Systems Inventory was unchanged except for the instruction that required respondents to recall a stressful experience and write the experience down on paper before proceeding to indicate what coping strategy was used to handle the stressful situation. These Ghanaian respondents were instead required to simply recall the stressful experience and without writing it down, use it to respond to the items. This did not, in any way, change the meaning of the instruction and the way it was originally intended to help respondents indicate their coping strategies. The original items were clearly understood.

No change had been made to the 12-item Multidimensional Scale of Perceived Social Support used to assess patients' social support systems and social coping strategies. Respondents found no difficulty responding to the original items. It was also easy to score and interpret.

Questionnaires used in the main study were organized logically and grouped by subject. Clear instructions were given and headings were included to make the questionnaires easily identifiable and easy to follow. The final omnibus questionnaire contained seven instruments and demographic questions.

The questionnaire length had been reduced drastically so that what took 2 hours or more to complete took about an hour and twenty minutes. The responses to all the questionnaire items were on a Likert scale format.

About the interview guide for the qualitative investigations, the researcher developed the guide based on the objectives of the study, and issues and trends identified in the preliminary findings of the first study. The initial interview guide was developed and tested on three sickle cell volunteers in Accra and Cape Coast. It had 19 items that took an hour and half to two to administer. It was reshaped by suggestions and input from the pilot participants, and thesis supervisor. The final interview guide consisted of five main questions based on the theoretical framework, with probing questions taken from issues in the first study. Some questions touched on what SCD means to the participant, how they cope with the condition and how their choice of coping affected their psychological health. The interview guide is found in the Appendix B.

Administration of the instruments in study one.

All study participants gave verbal and written consent and enrolled individually in the study during visits to the sickle cell clinic at the Centre for Clinical Genetics at the Korle-Bu Teaching Hospital, Accra, Ghana. The diabetics did same as well as healthy participants. The research personnel (i.e., the principal researcher, research assistant and clinical psychologist) approached prospective suitable patients, identified them by their ability to read, and matched their characteristics against inclusion and exclusion criteria, and solicited their participation. With help from the clinic administrator, a participant's

medical records were consulted to confirm diagnosis. All participants who consented were given a brief verbal overview of the purpose of the study to include collecting data on their coping strategies. Each participant was allowed to read the consent forms, to ask questions for clarification before signing the consent form. Research personnel explained that some of them, participants, might be eligible for a follow-up qualitative study by interview if preliminary analyses of their data showed that we followed them up.

Participants were then provided a copy of the questionnaire, moved to a relatively quiet place in the waiting area when possible and given further instructions for completion of the survey by a member of the study team. Additional clarifications were given to participants as requested. Once completed, the questionnaire was collected and an informal debriefing was provided. Each participant was refreshed with some pastry and a bottle of mineral drink and two packs of folic acid and reminded of a possible follow up.

In all 220 questionnaires were given out to SCD participants, and 19 did not qualify for analysis. Nine of these were not completed fully with a lot of missing items, 8 were disqualified on grounds of sickle cell type, and 2 were not adults. The questionnaire return rate was about 91%. Two hundred and fifty questionnaires were distributed to adult diabetes participants. Two hundred and ten (210) were returned but 201 were fully completed to be usable in data entry and analysis. 84% questionnaire return rate was achieved. The exclusion criteria of age below 18 years and above 60 years plus living with a chronic disease were applied to “healthy” participants. “Healthy” participants were contacted personally at work, in school, or in church. They completed and returned the questionnaires to the researchers as soon as completed on the same day as questionnaire

was handed to them. Although some refused to participate, there was 100% return rate of questionnaires because of the method of administration used.

The Noguchi Memorial Institute for Medical Research Institutional Review Board (NMIMR-IRB) gave approval for the research prior to data collection (See Appendix M). Study 1 (quantitative) data were collected for a period of one year and Study 2 (qualitative) data were collected for about four months.

Statistical Analyses

Quantitative data were entered and analyzed using the Statistical Package for the Social Sciences 20.0 and AMOS 18. Data were entered into SPSS software as and when questionnaires were received. Preliminary analyses were run averagely every three days on the sickle cell data to identify participants who scored high on spirituality. This was to contact high scorers on spirituality for appointments for in-depth interviews. Descriptive statistics were used to characterize the socio-demographic, disease and study variables. Passer (2014, p. 47) emphasized that in descriptive research (non-experimental research), researchers measure variables but do not manipulate them. They use the findings to describe characteristics of variables and associations between variables.

Inferential statistics (correlations, regressions, and path analyses) were used to test the linear and possible causal associations among the variables studied (spirituality, African cultural values, social support, Africultural coping, psychological coping, medical coping, and psychological health), while causal comparative analyses compared group means/medians/percentages on the variables. Factors that could affect the variables

studied were identified and statistically controlled for by including them in the model as covariates and isolating their effects.

To make the concepts and variables used in the study suitable for the Ghanaian context in which their use is intended and would be defended, the researcher performed principal component analysis (PCA) to establish the scales' suitability. Descriptive analysis was used to answer the first research questions.

Hypotheses 1, 3 and 5 were tested using Path Analyses. SEM Path analysis was used to test for model fitness to data and for moderation effects of African cultural values on the relationship between spiritual wellbeing and psychological health (hypothesis 2). SEM Path analysis statistic was chosen over regression analysis in order to determine model validity and to derive fair and error free estimates for the relations among the variables studied. Additionally, to test a path model and possible causal paths, path analysis is the most appropriate statistic to use (Byrne, 2006). MANCOVA was used to test hypothesis 4. MANCOVA was used because six dependent variables were compared across three groups while controlling for age and education as covariates. Multiple regression analyses were used to do further analyses because either one or several Africultural variables were regressed on psychological health. The results are detailed below.

Results of Study One (Quantitative)

The data analyses results are presented under preliminary, descriptive and hypotheses testing results.

Preliminary Results

Principal Component Analyses (PCA)

All items of the scales were subjected to principal component analysis (PCA) using SPSS version 20. Prior to performing PCA, the suitability of the data for factor analysis was assessed.

The Africentric Worldview Scale (AWS)

Inspection of the correlation matrix of the 23 items of the Africentric Worlview Scale revealed the presence of many coefficients of .03 and above. The Kaiser-Meyer-Olkin value was .72, exceeding the recommended value of .06 (Kaiser, 1970, 1974) and Barlett's Test of Sphericity (Barlett, 1954) ((χ^2 (253) = 859.93, p = .000)) reached statistical significance, supporting the factorability of the correlation matrix. Finally, the communalities were all above .3 further confirming that each item shared some common variance with other items.

Principal components analysis revealed the presence of seven components with eigenvalues exceeding 1, explaining 17.5%, 7.9%, 7.2%, 6.5%, 5.6%, 4.8% and 4.7% of the variance respectively. An inspection of the scree plot revealed a break after the sixth component. Using Cattell's (1966) scree test, it was decided to retain six components for further investigation. The seven component solution explained a total of 54.31% of the

variance. The sixth and seventh components explained the least of the variance, 4.8% and 4.7%, respectively. Therefore it was decided to drop them from further analysis and to force a five factor solution. It was decided to maintain items on factors that loaded at .50 and above based on views that such item loadings are stronger and yield distinct and reliable factors (Field, 2009; Kaiser, 1974; Pallant 2010). Factors 1, 2, 3, 4, and 5 were labeled communality, intuition, spirituality, orality, and sensitivity respectively (Table 3.2). The details comprising initial scree plot, communalities and pattern matrix of the AWS are presented in Appendix K.

Table 3.2

Factor Analysis of AWS

Item Number	Item content	Loadings
Factor 1: Communalism		
22	I usually arrive at meetings, classes, and work before or at the exact time.	.70
15	When things don't work out, I try to see the positive side.	.66
18	Older members of my family are relied on for advice/guidance.	.64
8	Attending churches, mosques, or other places of worship, is important to me.	.57
Factor 2: Intuition		
4	I listen to my inner voice	-.89
5	I am likely to listen to my inner voice.	-.86
3	I feel that I do things "just because it feels right."	-.65

Extraction Method: Principal Component Analysis

Table 3.2, continued

Factor Analysis of AWS

Item Number	Item content	Loadings
Factor 3: Spirituality		
10	I believe in a spiritual force or power.	.79
11	When stressed, I put my faith in a higher being.	.68
14	I view death as a spiritual event.	.60
Factor 4: Orality		
1	I perform better on oral than written tasks	.67
2	When greeting someone I prefer verbal acknowledgement	.64
Factor 5: Sensitivity		
7	I can tell when a close friend is in trouble or feels bad.	.66
12	When I hear music I respond actively to it	.58

The Spiritual Wellbeing Scale (SWBS)

Inspection of the correlation matrix of the 20 items of the Spiritual Wellbeing Scale revealed the presence of many coefficients of .03 and above. The Kaiser-Meyer-Olkin value was .83, exceeding the recommended value of .06 (Kaiser, 1970, 1974) and Barlett's Test of Sphericity (Barlett, 1954) ((χ^2 (190) = 1204.43, p = .000)) reached statistical significance, supporting the factorability of the correlation matrix. The communalities were all above .3 further confirming that each item shared some common variance with other items.

Principal component analysis revealed the presence of four components with eigenvalues exceeding 1, explaining 26.79%, 12.68%, 7.75%, and 5.43% of the variance respectively. An inspection of the scree plot revealed a break after the fourth component. Using Cattell's (1966) scree test, it was decided to retain four components for further investigation. The four component solution explained a total of 39.48% of the variance. The third and fourth components explained the least of the variance, 7.75% and 5.43%, respectively. Items 8 and 16 of Factors 1 and 2 respectively loaded below .50. Therefore they were dropped from further analysis and to force a two component solution (Table 3.3).

Table 3.3

Factor Analysis of SWBS

Item Number	Item content	Loadings
Factor 1: Religious Wellbeing (RWB)		
20	I believe there is some real purpose for my life	.73
7	I have a personally meaningful relationship with God	.73
17	I feel most fulfilled when I am in close communication with God	.71
11	I believe that God is concerned about my problems	.70
15	My relationship with God helps me not to feel lonely	.69
19	My relationship with God contributes to my sense of well-being	.67
4	I feel that life is a positive experience	.65
3	I believe that God loves me and cares about me	.60
10	I feel a sense of well-being about the direction of my life	.58
14	I feel good about my future	.56

Extraction Method: Principal Component Analysis

Table 3.3, continued

Factor Analysis of SWBS

Item Number	Item content	Loadings
Factor 2: Existential Wellbeing (EWB)		
9	I don't get much personal strength and support from God	.67
2	I don't know who I am, where I came from or where I am going	.63
13	I don't have a personally satisfying relationship with God	.57
6	I feel unsettled/unsure about my future	.56
18	Life does not have much meaning	.56
5	I believe that God is impersonal and not interested in my daily situations	.55
12	I don't enjoy much about my life	.53
1	I don't find much satisfaction in private prayer with God.	.52

The Brief Symptoms Inventory (BSI)

Inspection of the correlation matrix of the 53 items of the Brief Symptoms Inventory (BSI) revealed the presence of many coefficients of .03 and above. The Kaiser-Meyer-Olkin value was .843, exceeding the recommended value of .06 (Kaiser, 1970, 1974) and Barlett's Test of Sphericity (Barlett, 1954) ((χ^2 (1378) = 4626.31, p = .000)) reached statistical significance, supporting the factorability of the correlation matrix. The communalities were all above .3 further confirming that each item shared some common variance with other items.

Principal components analysis revealed the presence of seven components with eigenvalues exceeding 1, explaining 34.56%, 24%, 6.05%, 5.18%, 4.82%, 4.37%, 3.87%,

and 3.53%, of the variance respectively. An inspection of the scree plot revealed a break after the first component. Using Cattell's (1966) scree test, it was decided to retain one component for further investigation. The one component solution explained a total of 34.56% of the variance. After the clear break after the first component, the rest of the components explained small variances. Although a one factor solution is most likely for this scale, inspection of the eigenvalues indicated a possible seven factor solution. Many items loaded below .50 and many others crossloaded. Removing them resulted in a 17-item scale. The current loadings at .50 and above on each of the items are shown in Table 3.4.

Table 3.4

Factor Analysis of BSI

Item no	Item Content	Item loadings
Factor 1: Somatization (SOM)		
29	Troubles getting your breath or you have difficulty breathing.	.88
33	Numbness or tingling in parts of your body ("ananse" feelings)	.79
Factor 2: Obsessive-compulsion (OC)		
36	Trouble concentrating	.84
27	Difficulty making decision	.84
Factor 3: Interpersonal sensitivity (IS)		
20	Your feeling being easily hurt	.94
21	Feeling that people are unfriendly or dislike you	.88
42	Feeling very self-conscious with others.	.82
Factor 4: Depression (DEP)		
16	Feeling lonely	.80
17	Feeling blue/depressed or sad	.73
50	Feeling worthlessness; that you have no value	.72

Table 3.4, continued.

Factor Analysis of BSI

Item no	Item Content	Item loadings
Factor 5: Anxiety (ANX)		
49	Feeling so restless you couldn't sit still	.83
45	Spells of terror or panic	.77
19	Feeling fearful	.75
Factor 6: Hostility (HOS)		
46	Having urges to break or smash things	.78
41	Having urges to beat, injure, or harm someone	.71
Factor 7: Phobic anxiety (PHOB)		
43	Feeling uneasy in crowds, such as shopping or at a movie	.79
31	Having to avoid certain things, places, or activities because they frighten you	.73

The Africultural Coping Systems Inventory (ACSI)

The original scale is made up of 30 items constituting four components: cognitive-emotional, spiritual-centered, collective-centered, and ritual-centered. Inspection of the correlation matrix of the 30 items of the Africultural Coping Systems Inventory (ACSI) revealed the presence of many coefficients of .03 and above. The

Kaiser-Meyer-Olkin value was .827, exceeding the recommended value of .06 (Kaiser, 1970, 1974) and Barlett's Test of Sphericity (Barlett, 1954) ((χ^2 (435) = 1682.53, p = .000)) reached statistical significance, supporting the factorability of the correlation matrix. Communalities that were below .3 were very few further confirming that each item shared some common variance with other items.

Principal components analysis revealed the presence of eight components with eigenvalues exceeding 1, explaining 22.36%, 7.40%, 6.23%, 4.88%, 4.57%, 4.17%, 3.89%, and 3.70% of the variance respectively. An inspection of the scree plot revealed a break after the fourth component. Using Cattell's (1966) scree test, it was decided to retain four components, which explained a total of 40.89% of the variance, for further investigation. Some items cross-loaded and others loaded below acceptable levels of .50. For example, the variable 'I sought out people I thought would make me laugh' under the domain of cognitive emotional, cross loaded with ' I sought emotional support from family and friends' under the collective-centered construct. The latter made theoretical sense and was retained and the former deleted. Chances are that resorting to friends and families would be the first point of call during crisis rather than through amusement. Such crossloading items were deleted from the structure. The data was re-analyzed and loadings showed an improvement over the initial loadings. Consequently, the PCA yielded three factors namely cognitive-emotional, spiritual-centered and collective – centered (Table 3.5).

Table 3.5
Factor Analysis of ACSI

Item No	Item content	Loadings
Factor 1: Cognitive-emotional		
8	To keep from dealing with the situation, I found other things to keep me busy.	.77
15	I hope that things would get better with time.	.66
12	I tried to convince myself that it was not that bad.	.66
26	I attended a social event to reduce stress caused by the situation.	.65
17	I spent more time than usual doing more things with friends and family.	.61
14	I spent more time than usual doing group activities.	.56
5	I tried to forget about the situation.	.51
18	I tried to remove or separate myself from the situation.	.51
Factor 2: Spiritual centered		
30	I left the matter in God's hands.	.82
1	I prayed that things would work themselves out.	.74
10	I read a scripture from the Bible for comfort and/or guidance.	.67
13	I asked someone to pray for me.	.61
16	I read a passage from a daily meditation book.	.62
21	I asked for blessing from a spiritual or religious person.	.60
Factor 3: Collective-centered		
3	I shared my feelings with a friend or family member	.67
4	I remembered what a parent (or other relative) once said about dealing with these kinds of situations	.62
22	I helped others with their problems.	.51
7	I thought of life's struggles people endure and it gave me strength to deal with the situation	.64
2	I got a group of family or friends together to help with the problem.	.50
24	I sought emotional support from family and friends.	.60

Extraction Method: Principal Component Analysis

The Multidimensional Scale of Perceived Social Support (MDSPSS)

Inspection of the correlation matrix of the 12 items of the Multidimensional Scale of Perceived Social Support revealed the presence of many coefficients of .03 and above. The Kaiser-Meyer-Olkin value was .859, exceeding the recommended value of .06 (Kaiser, 1970, 1974) and Barlett's Test of Sphericity (Barlett, 1954) ((χ^2 (66) = 1207.43, p = .000)) reached statistical significance, supporting the factorability of the correlation matrix. The communalities were all above .3 further confirming that each item shared some common variance with other items.

Principal components analysis revealed the presence of three components with eigenvalues exceeding 1, explaining 26.79%, 12.68%, 7.75%, and 5.43% of the variance respectively. An inspection of the scree plot revealed a break after the third component. Using Cattell's (1966) scree test, it was decided to retain three components for further investigation. The third component solution explained a total of 69.45% of the variance. Therefore it was decided to retain a three factor solution (Table 3.6), with Factora one, two and three as "Family", "Friends", and "Significant Others", respectively.

Table 3.6

Factor Analysis of MDSPSS

		Component 1
Number	Item	Loadings
Factor 1: Family		
4	I get the emotional help and support I need from my family.	.86
3	My family really tries to help me	.82
8	I can talk about my problems with my family	.76
11	My family is willing to help me make decisions.	.67
Factor 2: Friends		
7	I can count on my friends when things go wrong.	.81
12	I can talk about my problem with friends.	.78
6	My friends really try to help me.	.77
9	I have friends with whom I can share my joys and sorrows.	.68
Factor 3: Significant Others		
5	I have a special person who is a real source of comfort to me	.83
1	There is a special person who is around when I am in need	.79
2	There is a special person with whom I can share my joys and sorrows.	.76
10	There is a special person in my life who cares	.65

Extraction Method: Principal Component Analysis

Summary of Factor Analysis

The factor loadings on all the scales used in the study are .5 and above and are deemed strong and satisfactory. The SWBS and the MDSPSS had the same factor structures as the original scale developers had them. The BSI, ACSI, and AWS had different factor structures from the original developers'. The details comprising initial eigenvalues, scree plot, communalities and component and pattern matrices of the scales are put in Appendix K.

Descriptive statistical results of study variables

The following descriptive results have been obtained on the level of scores on all scales. Participants scored average (56%) to high (44%) on the Spiritual Well Being Scale. All participants indicated high (66%) and moderate (34%) religious wellbeing. The majority (64%) responded moderate life satisfaction and (36%) responded high on existential wellbeing. Only 1 participant (0.5%) indicated low satisfaction.

On the Africentric Worldview Scale, majority of participants (91%) indicated strong or high Africentric worldview. Few indicated moderate to low/weak (9%) Africentric worldview scores. The majority (70%) indicated "moderate use" to "used it a lot" on the Africultural Coping Systems Inventory. The minority (30%) showed that they least used Africultural Coping. Those who indicated moderate to greater use of psychological coping (65%) were in the majority while 34% indicated least use of psychological coping. The majority (93%) indicated receiving moderate to high social support, while only 17% indicated that they received low social support. The entire BSI symptoms indicated mean scores below one (Table 3.7).

Table 3.7

Descriptive Statistics of Study Variables among SCD Participants

Demographic variables (n = 201)	**Mean**	**F**	**%**
Spiritual Well Being Scale (SWBS)			
High (100-120)		88	43.8
Moderate (41-99)		113	56.2
Low (20-40)		-	-
Religious Well Being (RWB)			
High (50-60)		132	65.7
Moderate (21-49)		69	34.3
Low (10-20)		-	-
Existential Well Being (EWB)			
High (10-20)		72	35.8
Moderate (21-49)		128	63.7
Low (50-60)		1	0.5
Africentric Worldview Scale (AWS)			
High/strong (70-115)		182	90.5
Moderate (47-69)		10	5.0
Low/weak (1-46)		9	4.5
Africultural Coping Systems Inventory (ACSI)			
High Africentric coping/ Used a lot (61-90)		11	5.3
Medium Africentric Coping/ Moderately used (31-60)		138	63.7
Low Africentric Coping /Not used (0-30)		62	30.8
Brief Symptom Inventory (BSI)			
GSI	.23		
SOM	.25		
0-C	.29		
I-S	.27		
DEP	.33		
ANX	.26		
HOS	.31		
PHOB ANX	.25		
PARID	.33		
PSY	.23		

Hypotheses Testing Results

The key findings and statistical decisions from the inferential statistical tests are summarized and additional findings that are not part of the main hypotheses are also presented briefly.

Hypothesis one predicted a significant inverse relationship between spirituality and psychological symptoms and African cultural values and psychological symptoms. Additionally, it predicted a significant negative relationship between social support, Africultural coping and psychological symptoms. These reflect relationships in the theoretical and conceptual models of the study.

Theoretical model for the study.

Given that the study had initially shown the suitability of the scales employed for the study, the measurement models were converted into a configural structure (Figure 2.3) based on the theoretical underpinning of the study. Hypothetical paths were proposed and tested. Commonly recommended indices were used to ascertain the model fitness. Hence as shown on Table 3.8, the overall fit indices of the theoretical model were not acceptable with CFI. = 62; IFI = .65; GFI = .93; RMSEA = .28 (Byrne, 2010; Hair et al. 2010).

Table 3.8

Structural Model Showing Standardized Parameter Estimates: Summary of Path Estimates for SCD Group.

Path			**Estimates**	**S.E**	**P**
SWB	→	AWS	.03	.07	.83
SWB	→	MDSPSS	-.08	.07	.29
MDSPSS	→	AWS	.08	.07	.29
MDSPSS	→	ACSI	.32	.06	.00
MDSPSS	→	BCOPE	.32	.07	00
SWB	→	BCOPE	.09	.07	19
SWB	→	ACSI	.13	.06	.05
AWS	→	ACSI	.24	.06	.00
AWS	→	GSI	-.06	.07	.52
ACSI	→	GSI	.14	.08	.17
SWB	→	GSI	.03	.07	.99
MDSPSS	→	GSI	-.18	.07	.03
BCOPE	→	GSI	.26	.07	.00
MEDCOPE	→	GSI	-.12	.07	.08

Note: SWB (Spiritual Well Being); AWS(Africentric worldview; MDSPSS(social support scale); BCOPE(Psychological Coping); ACSI(Africultural Coping); GSI (Global Severity Index); MEDCOPE (Medical coping)
Model fit: *CFI = .62, IFI=.65, NNFI= .63, RMSEA=.28; GFI =.93;
Source: Field data, 2014.

Given the theoretical advancement that each of the variables studied, and specifically spiritual wellbeing and African cultural values would have significant negative relationships with psychological symptoms, the results declared that only social support and medical coping had an inverse relationship with psychological symptoms. However, it was only social support that significantly reduced psychological symptoms ($\beta = -.18$; $p < .05$). Spiritual wellbeing, African cultural values, Africultural coping, and psychological coping had positive relationships with psychological symptoms. Among

them, only psychological coping significantly associated with psychological symptoms (β = .26; p < .05). The results revealed that there was no significant relationship between either spiritual wellbeing or African cultural values and psychological health. Hypothesis 1c was supported. The rest were not.

Hypothesis two predicted that 'African cultural values' would have a significant moderating effect on the relationship between spiritual wellbeing and psychological health. The results showed that spirituality did not have a significant influence on psychological health (β = -.03; p > .05). However, with the introduction of African cultural values as a moderating variable, the relationship improved (β = -.09), although not significant. This implies that psychological symptoms relatively dropped by 9% as participants employed African cultural values (Table 3.9).

Table 3.9

Moderating Effect of African Cultural Values

Path	**Estimate**	**S.E**	**P**
SWB → GSI	-.03	.08	.97
SWB*AWS→GSI	-.09	.05	.22
AWS → GSI	-.02	.07	.75

Note: SWB = Spiritual Wellbeing; GSI = Global Severity Index; AWS = Africentric Worldview Scale

In hypothesis 3, spiritual wellbeing was expected to account for more variance in psychological health than African cultural values, social support, and Africultural coping.

The path analysis results did not support the third hypothesis that spiritual wellbeing has a significant positive influence on psychological health more than the other

variables. Spiritual wellbeing had a very small relationship with psychological health (β = .03), compared to, Africultural coping (β = .14), social support (β = -.18), African cultural values (β = -.06). Given the theoretical advancement that each of the coping methods was expected to have a significant inverse relationship with psychological symptoms, none of them did except social support (Table 3.8).

For hypothesis 4, in order to compare SCD, Healthy and Diabetic groups on spiritual wellbeing, African cultural values, and psychological health, a one-way between groups multivariate analysis of covariance was conducted. The results are presented in Tables 3.10 and 3.11.

The independent variable was the groups and the dependent variables were five scale and their subscale scores. The entire model demonstrated a significant difference in the groups on the combined variables, $F (5, 595) = 28.89$, $p < .01$, after controlling for age and education. Both age ($\rho < .01$) and education ($\rho < .01$) significantly influenced the combined variables while controlling for the groups' influence, although their effect sizes were small ($\eta^2 = .04$ & $.03$), explaining only 4% and 3% of variance in the entire model respectively. There was significant difference in spiritual wellbeing among the three groups, $F (5, 595) = 161.37$, $\rho < .01$, partial eta squared = .35, after controlling for age and education. The independent variable (groups) explained 35% of the variance in spirituality. This effect size is medium according to Cohen (1988). Since the adjusted mean for the SCD group (m = 3.89) was smaller than either of the two groups, the result suggested that SCD participants were lower than the other comparison groups on spirituality. Similarly, significant group differences were noted on EWB and SWB (Table 3.11). Hypothesis 4a is therefore supported.

SCD participants scored significantly lower than the two groups on the "Spirituality" subscale of the AWS. They scored higher than healthy participants but lower than diabetics on the "Intuition" subscale. Significance difference was, however, not observed among the three groups on total scale score of the Africentric Worldview (AWS) (Table 3.10).

After controlling for age and education, significant differences were observed among the three groups on social support, $F(5, 595) = 4.31$, $\rho < .05$, partial eta squared = .01, and its subscales with the means suggesting that SCD participants were low compared to healthy and diabetic participants (Table 3.11). The groups explained 1% of the variance in social support. This effect size is very small according to Cohen (1988). Hypothesis 4c was supported.

In reference to hypothesis 4d, SCD participants scored significantly lower than the comparison groups on OC symptoms. They scored significantly higher than diabetics but lower than healthy sample on ANX, and significantly higher than comparison samples on PHOB symptoms. There was, however, no significant difference among the three groups on GSI scores (Table 3.10).

Table 3.10
One-way MANCOVA Comparing SCD, Healthy, and Diabetic Groups on GSI and AWS While Controlling for Age and Education

Variables	SCD (n=201)		Healthy(n=203)		Diabetes(n=201)		F (5, 595)	*p*	η^2
	X (SD)	Adjust. X (SE)	X (SD)	Adjust. X (SE)	X (SD)	Adjust X (SE)			
Age				33.38			5.19	00	.04
Sch				14.66			3.46	00	.03
Groups							28.89	.00	.20
[a]SOM	.76	.82	.59	.70	.85	.69	1.28	.28	.00
	(.88)	(.06)	(.71)	(.06)	(.77)	(.07)			
[b]OC	.79	.72	.78	.76	.95	1.03	3.68	.03	.01
	(.93)	(.07)	(.75)	(.07)	(.86)	(.08)			
[c]IS	1.02	.98	.97	.96	.72	.78	1.72	.18	.01
	(.92)	(.06)	(.88)	(.07)	(.69)	(.08)			
[d]DEP	.76	.71	.77	.79	.56	.59	1.72	.18	.01
	(.92)	(.06)	(.85)	(.07)	(.69)	(.08)			
[e]ANX	.50	.47	.54	.57	.36	.36	3.15	.04	.01
	(.68)	(.05)	(.66)	(.05)	(.55)	(.06)			
[f]HOS	.51	.47	.45	.44	.29	.34	1.33	.27	.00
	(.76)	(.05)	(.59)	(.05)	(.48)	(.06)			
[g]PHOB	.68	.65	.60	.57	.28	.35	3.95	.02	.01
	(.94)	(.06)	(.80)	(.06)	(.59)	(.07)			
[h]**GSI**	.72	.69	.67	.69	.59	.60	1.08	.34	.00
	(.57)	(.04)	(.53)	(.04)	(.41)	(.05)			
[i]Spirituality	3.58	3.63	3.82	3.90	3.95	3.82	6.36	.00	.02
	(.66)	(.06)	(.84)	(.06)	(.71)	(.07)			
[j]Intuition	3.84	3.85	3.67	3.63	3.95	3.98	4.18	.02	.01
	(.91)	(.07)	(1.05)	(.08)	(.93)	(.09)			
[k]Sensitivity	3.66	3.68	3.58	3.51	3.66	3.66	1.56	.21	.01
	(.62)	(.05)	(.73)	(.05)	(.70)	(.06)			
[l]Communality	3.75	3.82	3.79	3.78	3.40	3.90	.67	.51	.00
	(.64)	(.06)	(.88)	(.06)	(.65)	(.07)			
[m]Orality	3.47	3.52	3.26	3.39	3.75	3.54	1.67	.31	.00
	(.87)	(.07)	(.90)	(.07)	(.97)	(.08)			
[n]**AWS**	3.66	3.70	3.62	3.61	3.85	3.79	2.45	.09	.01
	(.41)	(.04)	(.59)	(.04)	(.50)	(.05)			

Note: SOM= somatization; OC= obsessive-compulsion; IS= interpersonal sensitivity; DEP= depression; ANX=anxiety, PHOB=phobic anxiety; HOS-hostility; GSI = Global Severity Index; AWS = Africentric worldview Scale.

Table 3.11

One-way MANCOVA Comparing SCD, Healthy, and Diabetic Groups on ACSI, SWB, Social Support, While Controlling for Age and Education

Variables	SCD (n=201)		Healthy(n=203)		Diabetes(n=201)		F (5, 595)	*p*	η^2
	X (SD)	Adjust. X (SE)	X (SD)	Adjust. X (SE)	X (SD)	Adjust X (SE)			
Age				33.38			5.19	00	.04
Sch				14.66			3.46	00	.03
Groups							28.89	.00	.20
[o]Cog-emotion	1.32	1.32	1.36	1.36	1.44	1.45	2.02	.13	.01
	(.53)	(.04)	(.47)	(.04)	(.45)	(.05)			
[p]Spiritual-	1.62	1.61	1.66	1.68	1.60	1.59	1.03	.36	.00
centered	(.62)	(.04)	(.52)	(.04)	(.49)	(.05)			
[q]Collective-	1.28	1.30	1.40	1.40	1.37	1.36	2.02	.13	.01
centered	(.54)	(.04)	(.48)	(.04)	(.53)	(.05)			
[r]**ACSI**	1.41	1.41	1.47	1.48	1.47	1.47	1.64	.19	.01
	(.47)	(.03)	(.37)	(.03)	(.36)	(.04)			
[s]EWB	3.79	3.79	4.76	4.69	4.39	4.47	99.67	.00	.25
	(.55)	(.05)	(.72)	(.05)	(.64)	(.06)			
[t]RWB	3.99	3.93	5.20	5.12	4.75	4.89	152.60	.00	.34
	(.58)	(.05)	(.79)	(.05)	(.68)	(.06)			
[u]**SWB**	3.89	3.86	4.98	4.90	4.57	4.68	161.37	.00	.35
	(.49)	(.05)	(.67)	(.05)	(.58)	(.05)			
[v]Family	5.60	5.44	5.19	5.05	5.31	5.61	6.56	.00	.02
	(1.38)	(.10)	(1.33)	(.10)	(1.26)	(.12)			
[w]Friends	4.47	4.42	4.67	4.59	4.75	4.88	3.21	.04	.01
	(1.47)	(.11)	(1.32)	(.11)	(1.33)	(.13)			
[x]Sig. others	5.67	5.62	5.43	5.37	5.67	5.78	3.33	.04	.01
	(1.41)	(.10)	(1.28)	(.10)	(1.02)	(.12)			
[y]**Social**	5.25	5.16	5.09	5.00	5.24	5.42	4.31	.01	.01
Support	(1.12)	(.08)	(1.09)	(.08)	(.95)	(.10)			

Notes: ACSI = Africultural Coping Systems Inventory; EWB= existential wellbeing; RWB=religious wellbeing; SWB = Spiritual wellbeing

Hypothesis 5 sought to do cross validation. As part of validating the theoretical model that guided the study, two comparison groups involving diabetics and healthy participants were cross validated with the model. The decision to use diabetic participants was because the diabetic population has characteristics of chronicity that are similar to the sickle cell population. Therefore, it was the proposition of the study that diabetic data could as well fit the theoretical model perfectly or even better. As regards the healthy group, the assumption was that since they also use coping strategies to handle life stressors, they also have coping experiences and properties that may resemble that of diseased populations. Utsey (2000, 2005) tested the validity of the Africultural coping systems inventory among a sample of University and community people. The Africentric Worldview scale was also used to survey adolescents in a community sample (Belgrave, 1997).

Prior to fitting the data to each of the three main groups, the scales were confirmed using the factor analysis technique based on maximum likelihood. Subsequently, the estimated model results had shown that the data for the sickle cell participants had not fitted the biopsychosocial-spiritual model and the Afrocultural social ethos framework better than the healthy and diabetic comparison groups. This is shown in Table 3.8 & 3.13. For instance, based on the root mean square error of approximation (RMSEA) [.28] measurement index, the Biopsychosocial-spiritual model and the Afrocultural social ethos framework had not fitted the sickle cell sample data perfectly. This applied to the other two groups as well. Their RMSEAs were larger than the minimum of about .05 to .10 required to achieve a perfect model fit. Also the models failed to reach the minimum of three other model indices (CFI, NNFI, IFI) that can

validate a model's fit. Only two of the model fit indices have been met. These are the chi-square and GFI indices.

Nevertheless, the sickle cell model was able to explain 13% of the variation in psychological health. The healthy and diabetic models explained 23% and 26% variations in psychological health respectively. They accounted for about a quarter of variables that increased psychological health (Figures 3.1; 3.2; 3.3). Therefore, it can be argued that the theoretical model appeared applicable to the comparison groups better than it was for the study group. This suggests that there might be other factors (about 87%) unaccounted for by the model among SCD participants. Against this reasoning, a new model was proposed to significantly attain a further increase in psychological health among SCD participants. Figure 3.1 shows the observed conceptual model for the SCD group.

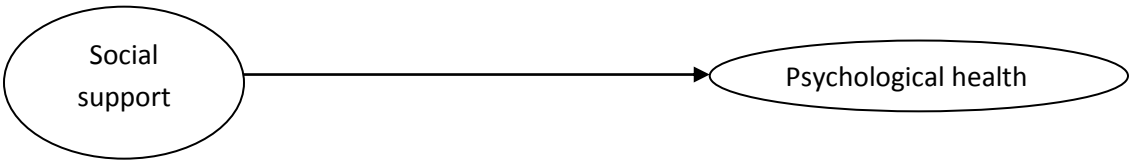


Figure 3.1. Observed Conceptual Model for SCD Group.

Figure 3.1 showed that only social support was significant in reducing psychological symptoms. It alone contributed 18% of the variance in psychological health (Table 3.8). Spiritual wellbeing and other factors in the biopsychosocial-spiritual model were not significant in reducing psychological symptoms, although they explained 13% in psychological health.

In Table 3.12, it is observed that the proposed significant inverse relationship between spiritual wellbeing, African cultural values and psychological symptoms was

achieved among the healthy group, whereas it was not achieved among the main study sickle cell group. Psychological coping had significant positive relationship.

Table 3.12

Summary of Path Estimates of the Healthy Group

Path	**Estimate**	**S.E**	**CR**	**P**
SWB → AWS	.37	.07	5.64	.00
SWB → MDSPSS	.29	.07	4.32	.00
SWB→BCOPE	-.17	.07	-2.41	.02
MDSPSS→BCOPE	.18	.07	2.50	.01
MDSPSS→ACSI	.08	.07	1.08	.28
SWB→ACSI	-.08	.08	-.98	.33
AWS→ACSI	.09	.08	1.26	.21
AWS→GSI	-.14	.07	-2.12	.03
BCOPE→GSI	.33	.06	5.19	.00
SWB→GSI	-.20	.07	-2.84	.01
MDSPSS→GSI	-.09	.07	-1.41	.16
ACSI→GSI	-.09	.06	-1.40	.16

Note: SWB (Spiritual Well Being); AWS (Africentric worldview; MDSPSS(social support scale); BCOPE(Psychological Coping); ACSI(Africultural Coping); GSI (Global Severity Index).
SMC =.39
Model fit: *CFI = .93, IFI=.93, NNFI= .96, RMSEA=.29; GFI =.92; X^2= 53.91.

Subsequently, Figure 3.2 depicts the observed conceptual model for healthy participants with spiritual wellbeing explaining 20% of the variance in psychological health while African cultural values explained 14% of the variance. All the factors in the biopsychosocial-spiritual model explained 23% of the variance in psychological health among healthy participant.

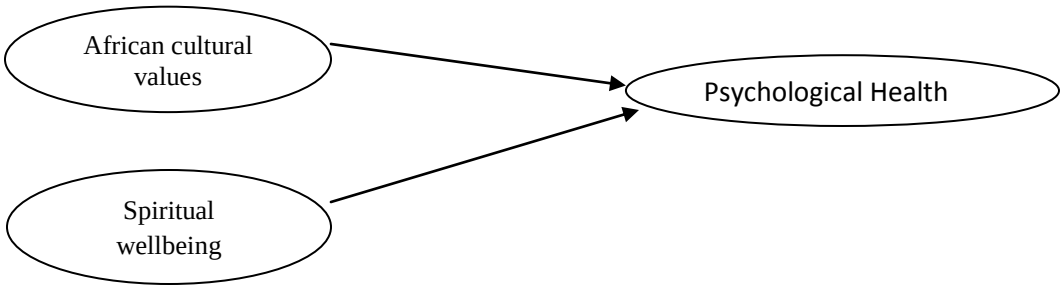


Figure 3.2. Observed Conceptual Model for Healthy Group

Similarly, it is demonstrated in Table 3.13 that the hypothesized inverse and significant relationship between spiritual wellbeing and psychological symptoms and social support and psychological symptoms were achieved among diabetic participants, whereas it was not achieved with the sickle cell group. African cultural values and Africultural coping demonstrated inverse but non-significant relationships with psychological symptoms.

Table 3.13

Summary of Path Estimates of the Diabetes Group.

Path	**Estimate**	**S.E**	**CR**	**P**
SWB → AWS	.11	.07	1.64	.10
SWB → MDSPSS	.14	.07	1.94	.05
SWB→BCOPE	-.13	.07	-1.90	.06
MDSPSS→BCOPE	.24	.07	3.47	.00
MDSPSS→ACSI	.18	.07	2.69	.01
SWB→ACSI	.03	.07	.42	.67
AWS→ACSI	.21	.07	3.14	.00
AWS→GSI	-.03	.06	-.53	.60
BCOPE→GSI	.24	.06	3.81	.00
SWB→GSI	-.30	.06	-4.82	.00
MDSPSS→GSI	-.27	.07	-4.09	.00
ACSI→GSI	-.10	.07	-1.53	.12
MEDCOPE →GSI	.04	.06	.67	.51

Note: SWB (Spiritual Well Being); AWS (Africentric worldview; MDSPSS (social support scale); BCOPE (Psychological Coping); ACSI (Africultural Coping); GSI (Global Severity Index).
SMC =.163
Model fit: *CFI = .69, IFI=.72, NNFI= .70, RMSEA=.25; GFI =.94; X^2= 41.01.

Figure 3.3 shows the observed conceptual model for diabetic participants with spiritual wellbeing explaining 30% and social support explaining 27% of the variance in

psychological health. All the factors in the biopsychosocial-spiritual model explained 27% of the variance in psychological health among diabetic participanst.

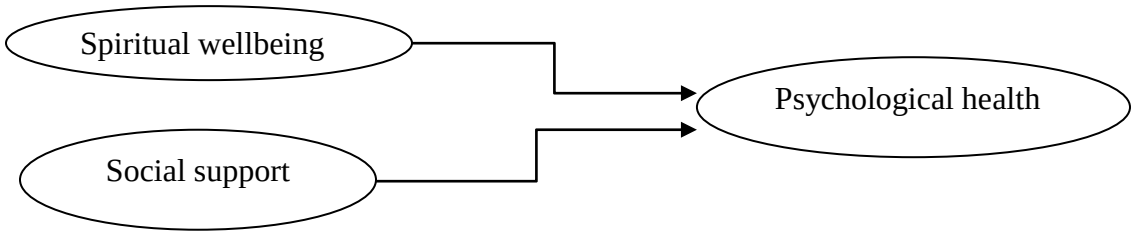


Figure 3.3. Observed conceptual model for diabetic group

Tables 3.12 and 3.13 summarize the model fit indices for the healthy and diabetic groups respectively. Therefore, the hypothesis that the sickle cell data would fit the theoretical model better than the comparison groups was not supported.

Further Analyses and Findings

Follow-up analyses to further determine how specific spiritual, social, African cultural values and coping and psychological coping factors related to psychological health were planned. Consequently, exploratory hypotheses and research questions were formulated.

Exploratory hypothesis one.

Spirituality (Africentric Worldview subscale) would more likely account for more variance in psychological health than intuition, sensitivity, communalism, and orality

The spirituality subscale indicated a non-significant negative relationship with psychological symptoms (Table 3.14). However, it contributed about 20% of the variance in psychological health far above the other subscales, suggesting that an increase in

spirituality was associated with a 20% decrease in psychological symptoms. The hypothesis was supported.

Table 3.14

Standard Multiple Regression of African Cultural Values Subscales on Psychological Health among SCD Participant

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Spirituality	-.20	.15	-.20	-.1.33	.19
Intuition	.10	.09	.10	1.10	.27
Sensitivity	.13	.11	.13	1.25	.21
Communalism	.05	.10	.05	.55	.58
Orality	.09	.08	.09	1.20	.23

R^2= .02; Adjusted R^2 = -.01; Overall p-value = .69

Dependent Variable: Psychological Health

Exploratory hypothesis two.

Spiritual-centered coping of the Africultural Coping Inventory would more likely account for more variance in psychological health than collective-centered and cognitive emotion-centered coping among SCD participants.

Although the entire model did not reach significance at the .05 level, F (3, 197) = 2.69, p = .05, and none of the subscales reached statistical significance, the spiritual-centered coping explained more variance in psychological symptoms (β = .13) than cognitive (β = .12) and collective-centered coping (β = -.02) (Table 3.15). The hypothesis was not supported.

Table 3.15

Standard Multiple Regression of Africultural Coping Subscales on Psychological Health among SCD Participants

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Cognitive-Emotion	.12	.08	.12	1.40	.16
Spiritual-centered	.13	.09	.13	1.47	.14
Collective-centered	-.02	.09	-.02	-.20	.84

R^2= .04; Adjusted R^2 = .03; Overall p-value = .05
Dependent Variable: Psychological Health

Exploratory hypothesis three.

Religious wellbeing would predict psychological health better than existential wellbeing. The entire model significantly predicted psychological health, F (2, 198) = 5.49, p < .05. Religious wellbeing significantly predicted psychological health as expected (β = -.21). So also did Existential wellbeing (β = .26). However, as existential wellbeing increased, psychological symptoms increased by a bigger percentage than religious wellbeing; as religious wellbeing increased, psychological health improved (Table 3.16). The hypothesis was supported.

Table 3.16

Standard Multiple Regression of Spiritual Wellbeing Subscales on Psychological Health among SCD Participants

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Religious wellbeing	-.21	.08	-.21	-.2.57	.01
Existential wellbeing	.26	.08	.26	3.15	.00

R^2= .05; Adjusted R^2 = .04; Overall p-value = .01
Dependent Variable: Psychological Health

Exploratory hypothesis four.

Family support would predict psychological health better than friends and significant others. Although the overall model is not significant at the .05 level, F (3, 197) = 1.88, p = .14, Friends (β = -.18, p = .02) significantly predicted psychological health and not Family. The hypothesis was not supported (Table 3.17).

Table 3.17

Multiple Regression of Social Support Subscales on Psychological Health among SCD Participants

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Family	.10	.09	.10	1.13	.26
Friends	-.18	.08	-.18	-2.29	.02
Significant others	-.01	.09	-.01	-.08	.94

R^2= .03; Adjusted R^2 = .01; Overall p-value = .14
Dependent Variable: Psychological Health

Exploratory hypothesis five.

Africultural coping would more likely account for more variance in psychological health than social, psychological, and medical "coping". To test this hypothesis, a multiple regression analysis was done and a significant model emerged at the 0.001 alpha level [R^2 = .07, F (4, 196) = 5.89, p = .000]. Thus, the entire model explained about 11 percent of the variance in psychological health of participants with SCD. The contributions of each of the predictor variables in explaining the variance in psychological health of SCD persons are summarized in Table 3.18 in Appendix H.

Table 3.18 (Appendix H) showed that the most significant predictor of increased psychological symptoms was psychological coping which contributed 26 percent of the variance in psychological symptoms at the .01 alpha level [B = .26, t = 3.18 p < .01]. Africultural coping did not significantly predict psychological health. So also did medical "coping." Thus, the hypothesis that Africultural coping would significantly predict psychological health was not supported.

Exploratory hypothesis six.

The religion subscale of the psychological coping instrument would more likely account for more variance in psychological health than the other subscales. Table 3.19 (Appendix H) shows that religion predicted low but non-significant reduction in psychological symptoms. Self- blame significantly predicted psychological symptoms (β = .25, t = 3.45, p = .00), predicting 25 percent of the total variance in increased psychological symptoms. This was followed by self -distraction (β = 22, t = 2.89, p = .00). The hypothesis was not supported.

Exploratory hypothesis seven.

Among the three measures of spirituality**,** spiritual-centered coping will predict psychological health better than spirituality and spiritual wellbeing. This hypothesis sought to determine whether it is spiritual-centered coping as an African cultural coping strategy, or spirituality as an African cultural orientation, or their resultant effect on the SCD participants (wellbeing) we should focus on as a factor that increases psychological health.

It is shown in Table 3.20 (Appendix H) that spiritual-centered coping was significant (β = .16, t = 2.16, p = .03), and positively associated with psychological symptoms. Although significant, it was not the best predictor of psychological health. Spirituality was the best predictor of psychological health (β = -.05, t = -63, p = .53), though not significant. The hypothesis was not supported.

Research question 1.

How much variance in psychological health scores could be explained by scores on medical, psychological, social, Africultural, socio-demographic and other disease-related variables? Which of these variables is the best predictor of psychological health? The aim was to determine the contribution socio-demographic and other disease variables make in psychological health of SCD participants apart from or in addition to Africultural variables.

The multiple regression technique was employed to estimate the influence of socio-demographic and disease determinants on psychological health. Consequently, the entire model significantly predicted psychological health, F (18, 178) = 3.59, ρ = .00, and

explaining 26% of the variance in psychological health. While none of the socio-demographic variables exerted a significant impact on psychological health, they all reduced psychological symptoms. The disease-related variables exerted significant influence on psychological health, with number of hospital visits having the most significant inverse relationship with psychological symptoms ((β = -.23, n = 201, ρ < .01), explaining the largest variance (23%) in psychological health compared to all the variables in the model (Table 3.21, in Appendix H).

The entire model was still significant in predicting psychological health when only socio-demographic and disease-related variables were maintained, F = (12, 184) = 4.03, p = .000. These explained 21 % of the variance in psychological health, separate from the main model variables (See Table 3. 21a in Appendix H).

Based on this remarkable result concerning the inverse relationships most of these socio-demographic variables had with psychological symptoms, further analyses were conducted for details. The following research questions were asked:

a. Will Gender moderate the relationship between spirituality and psychological health such that for males, the positive effect is stronger than for females?
b. Will Age moderate the relationship between spirituality and psychological health such that the effect for age < 20 and 20-29, is stronger than age 30-39 and > 40?
c. Will Education moderate the relationship between spirituality and psychological health such that the effect of high education is stronger than low education?
d. Will Disease type moderate the relationship between spirituality and psychological health such that the effect of HbSS is stronger than HbSC?

To answer the questions above, Multi-group moderation estimation was conducted on the relationship between spirituality and psychological health across gender, age, level of education and disease type. Age of the respondents emerged as the only factor that had a significant impact on the proposed relationship between spirituality and psychological health (X^2 = 8.37; p <.05) as shown by Table 3.22. SCD participants between ages 20-29 were more likely to be psychologically healthy compared to those less than 20 years. Moreover, the less severe sickle cell type (SC) stood less chance of suffering psychological symptoms. On education, though all the various cohorts compared to polytechnic students were more vulnerable to psychological symptoms, the most significant group was the polytechnic (β = -.40) [See Table 3.22 in Appendix H].

Accordingly, the supposition that age significantly moderates the relationship between spirituality and psychological health was accepted. Contrarily, disease type had no impact on the proposed relationship as indicated by the X^2 value of 1.341 (p = .247), likewise gender (Table 3.22, Appendix H).

Research question 2.

Which specific psychological symptoms do "Religious Wellbeing," the "Friends" subscales and "Hospital visits" significantly influence? To answer this question, Pearson Correlation analyses were performed. The results, presented in Table 3.23, show that increased hospital visits significantly reduced SOM (r = -.18, p < 0.01) and DEP (r = -.14, p < 0.01). RWB had significant inverse relationships with SOM, OC, DEP, ANX, and PHOB. "Friends" subscale had significant inverse relationships with IS, DEP and HOS (Table 3.23).

Table 3. 23

Summary Result of Pearson Correlation of the Relationship between Hospital Visits, RWB, Friends and GSI and BSI Subscales

Variable	SOM	OC	IS	DEP	ANX	HOS	PHOB	GSI
Hosp. visits	-.18*	-.01	-.05	-.14	-.04	-.06	-.08	-.13**
RWB	-.16**	-.12**	-.08	-.14**	-.12**	-.09	-.16**	-.19**
Friends	-.06	.01	-.14**	-.12**	-.01	-.17**	-.06	-.12**

Notes: RWB = Religious Wellbeing; SOM = Somatization; OC = Obsessive-Compulsion; IS = Interpersonal Sensitivity; DEP = Depression; ANX = Anxiety; HOS = Hostiltity; PHOB = Phobic Anxiety; GSI = Global Severity Index; **p < 0.01.

Discussion of Study One (Quantitative)

In this section, preliminary findings are briefly discussed and followed by a substantial discussion of the main findings of study one.

The preliminary results of the principal component analysis (PCA) demonstrated that the scales adapted for this study were suitable. First, the Spiritual Wellbeing Scale demonstrated a rotated solution that revealed a simple structure (Thurstone, 1947), with two components showing a number of strong loadings and all the variables loading substantially on only one component. The interpretation of the two components was consistent with previous research on the Spiritual Wellbeing Scale with positive items loading strongly on Factor 1 and negative items loading strongly on Factor 2. The results of this analysis supported the use the positive and negative items as separate subscales, as suggested by the scale authors (Ellison & Paloutzian, 1982). The present psychometric features are similar to the original scale with high reliability coefficients for the scale and subscales. They were suitable to measure spiritual, religious, and existential wellbeing of the present study samples.

Second, the social support measure (MDSPSS) demonstrated similarities with the original scale. All three components showed strong loadings and all variables loading substantially on only one factor. The three components were consistent with the original scale in factor structure and item loadings as Zimet et al. (1988) developed it. It was found to be appropriate for use to measure “Family”, “Friends” and “Significant others” as social support factors with the present study samples.

Third, the Africentric Worldview Scale had different factor structure and pattern from the original. For instance, Factor 1 in the current analysis revealed "Communality" items rather than the "Spirituality" factor and its item loadings in the original scale. While Factor 2 and its two items in the original scale remained unchanged, a third item strongly loaded making the current Factor 2 a three-item factor. Factor 3 in the current analysis indicated "Spirituality" items instead of "Sensitivity" in the original scale. Factors 4 and 5 loaded items that indicated "Orality" and "Sensitivity" instead of "Communality" and "Orality", respectively. Many items that did not load strongly or cross-loaded were deleted and the "Respect for Elders" Factor was removed from the scale. Some of the items and factors were consistent with the original while others were inconsistent.

The current analysis suggesting a five factor solution instead of six (Belgrave, 2005) suggests that the current factor solution for this study samples did not duplicate exactly the original scale. The scale developer recommended that researchers explore the factor structure of the Africentric Worldview Scale and use the scale as appropriate since she did not standardize nor publish it. It was mainly used for seminar demonstrations (Belgrave, 2005). It however, demonstrated overall good internal reliability coefficients that made the use of the items appropriate for the current samples.

Fourth, the Africultural Coping Inventory (ACSI) showed similar factor number but some item loadings differed from the original scale. With very good cronbach's alpha coefficients greater than .70, the scale was deemed usable for the current research.

Finally, the Brief Symptoms Inventory (BSI) demonstrated difference in factor structure and loadings from the original scale. The scale qualified as a single factor scale for our sample although it had several factors with very few items loading and cross loading. However, having demonstrated a good internal reliability of .94 for the entire scale, it proved to be useful for the current study. Subsequent to deletion of items and factors that had low loadings, seven adapted factors were included in the study for further analyses. The current adapted 17-item scale is similar in item number to the 18-item BSI that Derogatis later developed in 2001.

There was an apparent nonsupport for the original/primary hypothesis one that assumed that African cultural values would significantly reduce psychological symptoms. A statistically non-significant inverse relationship was found, with African cultural values scores contributing about 6% of the total variance in psychological health. It implies that for every unit increase in psychological symptoms as a result of SCD issues, African cultural values variables reduced them by six points or six percent. Although not statistically significant, this 6% reduction has theoretical and practical significance. It confirms the theory that African cultural values reduce psychological symptoms. It also demonstrates that including African cultural values in clinical practice can reduce psychological symptoms. It contributed to psychological health in the majority of Ghanaian SCD participants.

This finding reflects arguments of scholars and believers in culturally centered approaches to mental health. Individuals who hold positive African worldview beliefs are likely to report a reduction in psychological symptoms such as stress, anxiety, depression, and anger, and report better psychological functioning (Montgomery, Fine & James-

Myers, 1990; Myers, 1993; Nobles, 2006). They have an improved ability to cope with stress (Hill, 2006; Jackson & Sears, 1992). Africcentric values promote a greater sense of wellbeing and provide factors that give protection and coping strategies to adherents (Constantine & Backmon, 2002; Constantine et al., 2006; Thomas et al., 2003).

The above assertions were presented as beliefs and assumptions that no one tested to know exactly how much of Africentric values would reduce psychological symptoms. A cross sectional study by Thomas et al. (2001) among homozygous SCD patients in Jamaica and London however, found Jamaican SCD patients as having less general anxiety and low emotional response to pain. Jamaican SCD patients felt better able to cope with pain than their London patient counterparts who believed that the disease had a more marked effect on their quality of life. Anie et al. (2007) concluded that differences in cultural coping could be the reason for the differences in psychological outcomes of patients in these two different countries.

The literature is sometimes conflictual about the relationship between Africentric values and psychological health. Nonterah et al. (2009), for example, found that higher levels of Africentric beliefs were related to higher levels of psychopathology. In another vein, people with lower levels of African self-consciousness reported higher levels of anxiety, hostility and phobic anxiety (Joseph et al., 2006). The reason was that people of African descent who appeared to be more psychologically unhealthy might interpret questions asked about their psychological health differently from Whites. This might lead to an exaggeration in the expression of psychological symptoms. Joseph et al. (2006) stressed the importance of getting scales which are reliable and also valid, in measuring the psychological health of Blacks. There was no conflict however, between the current

findings and studies that show that stronger Africentric values or higher levels of African self-consciousness benefitted the mental health of Blacks who lived in and struggled with Western and European cultural values (Pierre & Mahalik, 2005; Constantine et al., 2006).

Cultural values are enduring traits and irrespective of the culture in which one lives, once such African cultural values are invoked, they have psychological health benefits. Research showed that individualistic persons show high levels of depression and anxiety compared with collectivistic individuals (Eckersley, 2005; Walker & Danquah, 2009). It is therefore, understandable why these collectivistic Ghanaian SCD participants living in their own cultural environment had low psychological symptoms compared with Western findings. There are Western and European cultural influences in the Ghanaian and African society (Assimeng, 2010; Gyekye, 2006; Nobles, 2006). However, SCD participants who still recognized their roots and values and maintained high African cultural values experienced psychological health. They coped using the spiritual, religious and social support systems in their culture.

The results from the descriptive statistical and factor analyses that assessed the strength of Africultural variables and psychological health symptoms showed that participants with SCD had moderate to high amount of all African cultural variables. SCD participants agreed having African cultural values orientations with emphasis on especially intuition, followed by communality, sensitivity, spirituality and the least was orality. This strength of African cultural values was expected because it is consistent with reports of African centered researchers who assert that Blacks in general have an Africentric worldview (Belgrave & Allison, 1997, 2006; Mattis & Jagers, 2001; Nobles, 2006, Nonterah, et al., 2009; Utsey et al., 2000). As a set of beliefs, values, and

assumptions that are founded on African cultural traditions, Africentric principles relate to the definition of the self in relationship with the environment (Utsey et al., 2000). They are codes of conduct for daily life.

It was expected, however, that participants' illness experiences would reflect a greater endorsement and a strong orientation toward spirituality, and communalism (Thompson, 2003). This is because many scholars of African descent believe that spirituality, religiosity and African cultural values cannot be separated; that an Africentric worldview is essentially a spiritual worldview (Nobles, 1986). On the contrary, SCD study participants saw very small or minimal relationship between spiritual wellbeing and African cultural values. Participants rather had a strong orientation toward intuition and communalism than toward spirituality.

Given that this research group of sickle cell participants was 94% Christian and 6% Moslem (Table 3.1) and that Ghanaians are purported to assent to the spiritual worldview (Assimeng, 2010; Gyekye, 1996), if SCD participants did not, then there was something about them as a subculture that needed to be investigated further. Probably, the nature and impact of the chronic disease on their personal, social and community lives made SCD participants indicate having intuition and communalism orientations more than spirituality. The overwhelming nature of the disease might have made them focus on their own internal world (intuition) other than on external spiritual power (spirituality) to help them deal with their symptoms, pain and complications. This group of SCD participants might have a worldview that was probably different from other subgroups of the Ghanaian culture. This needed further investigation.

This notwithstanding, participants professed certain spiritual/religious beliefs. Majority believed that attending places of worship was important to them. Equally, they put their faith in a higher being when stressed. It might be argued that these SCD participants used spirituality/religiosity as a buffer against psychological symptoms. What is not understood yet is how they used religion and why. What purpose did religion serve in the lives of SCD participants?

When participants used religious coping, they did so as a subset of psychological coping. Participants possibly used religion to self-distract attention from sickle cell related pain and stresses. In psychological coping, there are secular activities (i.e., turning to work and watching movies) and religious activities (i.e., praying/meditating and finding comfort in religion and spiritual beliefs). SCD participants used these secular and religious distracting activities "a little bit" to give some comfort but did not take away pain. Harrison et al. (2005) reported a similar finding where they did not find any association between spiritual wellbeing/spirituality and sickle cell physical pain. They thus concluded that spiritual wellbeing did not reduce high levels of physical pain but might reduce emotional pain. It is also possible that the psychological coping of SCD participants might be based in religion. Utsey et al. (2000) reported similar findings among African Americans when they developed the Africultural coping inventory.

When it comes to Africultural coping with SCD, however, adult participants with SCD employed spiritual-centered coping a lot. This was followed by cognitive-emotional debriefing before collective-centered coping. This spiritual-centered coping was possibly done through religion since participants' religious wellbeing score was high. By use of religion to cope, we expect participants to have high spiritual wellbeing. They reported

rather moderate spiritual wellbeing. There seems to be some difference between spiritual wellbeing that was possessed moderately and spiritual-centered coping that was used a lot. Qualitative data might throw some useful lights into the dynamics of these constructs.

It is possible, however, that SCD participants did not ascribe to a spiritual worldview. Due to ill-treatment by communal systems like the family, friends, neighbors, and society, they resorted to religion and spirituality as useful coping resources. These might have practical and instrumental value in our Ghanaian religious landscape and circumstances than a mere ascription to an orientation that has theoretical and no practical value. The nature of the sickle cell condition made participants to require practical help rather than a mere worldview. The question of what these SCD participants considered as African cultural values needed further exploration. Did they consider the family and other social support systems as African cultural values?

With respect to social support, SCD participants mildly agreed to receiving social support. They emphasized receiving social support more from family than they did from significant others or friends. However, social support from friends rather significantly reduced psychological symptoms while family social support increased psychological symptoms (For an explanation of this phenomenon, see Discussion of Study Two, p. 180).

Research among African Americans indicated that their children and adolescents adhered strongly to Afrocultural values because of active parental teaching of these values to make children resilient in a hostile discriminatory and highly stigmatizing American society (Nonterah et al., 2009). Contrarily, children of continental Africans

pick these cultural values by vicarious or social or observational learning (Belgrave & Allison, 2006). This raises a question about whether the high scores in African cultural values in this study were indicative of mere beliefs in African cultural values or they were actually translated into coping with SCD. Participants' least to moderate scores on the Africultural coping measure gave some evidence that they merely believed in the values but least to moderately used them in coping with their illness. They probably used other coping strategies more compared to using African cultural coping strategies.

Hypothesis one further expected Africultural coping to be significantly inversely associated with psychological health symptoms, as suggested by previous research (Belgrave & Allison, 2006; Utsey et al., 2000, 2005). The results found Africultural coping to be associated with poor psychological health, although not significant. Although inconsistent with previous research, the result suggests two possible interpretations. First, increased use of Africultural coping resulted in increased psychological symptoms. Second, increased psychological symptoms led to increased use of Africultural coping. Since the interpretation is not clear by the quantitative results, further qualitative inquiry could clarify the possible causal relationship. The path estimate, however, suggested that it was increased Africultural coping which led to increased psychological symptoms.

Hypothesis one again expected spiritual wellbeing to significantly predict psychological health. The study found a non- significant relationship. It suggests that spiritual wellbeing had minimal or negligibly small relationship with psychological health among adults with SCD. The result was inconsistent with previous literature that alleged spiritual wellbeing to be related to psychological health (Belgrave & Allison,

2006; Koenig, 2008; Niziolek, 2000; Nobles, 2006). Previous research with adult SCD participants about spirituality and SCD outcomes investigated sickle cell pain and not psychological health. Such research also found non-significant relationship with pain outcomes (Harrison et al., 2005; Cotton et al., 2009).

One explanation for the present negative result is that one of the premises in the hypothesis could be wrong. One premise assumed that spiritual wellbeing is an African cultural value. The other premise assumed that African cultural values promote psychological health. Perhaps, it is not true that spiritual wellbeing is an African cultural value. The result showed that spiritual wellbeing is not an African cultural value, demonstrating a negligibly small relationship. Therefore spiritual wellbeing does not promote psycholohical health. It might have relationship with other aspects of patient wellbeing. It is spirituality that is an African cultural value that promotes psychological health. Therefore, there is need to distinguish between spiritual wellbeing and spirituality. This needs further qualitative inquiry.

Similar to the above hypothesis is hypothesis three which expected spiritual wellbeing to account for more variance in psychological health than other coping variables in the study. Spiritual wellbeing failed to significantly account for more variance in psychological health compared with other coping variables. Its account of 3% of variance in psychological health was negligibly small. It suggests that factors other than spiritual wellbeing were responsible for psychological health among adults with SCD in Ghana. For example, social support accounted for more variance (18%) in psychological health. This was significant. Since the result, together with previous findings stated above, consistently found negligibly small relationship between spiritual

wellbeing and psychological health, alternative explanations must be found for the role spiritual wellbeing plays in the life of adult SCD participants. Further research and analyses need to identify the factors that significantly associated with psychological health among adults with SCD.

Hypothesis one additionally expected social support to be significantly inversely associated with psychological health symptoms. The findings confirmed this hypothesis and thus consistent with other research findings. It suggests that among adults with SCD, increased social support resulted in increased psychological health.

Hypothesis 2 expected African cultural values to have a significant negative moderating effect on the relationship between spirituality and psychological health symptoms. According to Xiong et al. (2015), moderators and mediators are often necessary in research design, especially for solving complex and unsettled problems in theory development (p. 64). In developing the theory that spirituality positively influences psychological health, it is complex and unsettled how spirituality achieves that. This study hypothesized that a significant mechanism by which spirituality achieves psychological health for adult participants with SCD was through African cultural values. Subsequently, a moderation analysis was conducted.

The expected statistically significant moderation effect of African cultural values on the relationship between spirituality and psychological health was not evident by the result. However, as suggested by Barbarin (1999) and Bediako and Neblett (2011) and hypothesized in this study, its presence in the relationship was associated with -.09 or 9% reduction in psychological health symptoms. It strengthened the inverse relationship,

raising it from -.03 or 3% to -.09 or 9%. The change appeared statistically non-significant, but had research, theoretical, and clinical significance that are noteworthy. The result suggests that some aspects of African cultural values interacting with spirituality could improve psychological health. Admittedly some aspects of African cultural values worsened psychological health as also noted in the international literature. However, when African cultural values were introduced into the relationship between spirituality and psychological health symptoms, the direction of the relationship changed from positive to negative. African cultural values potentially have salutary effect on psychological health of adults with SCD in Ghana.

It was the study's objective to determine whether the finding about the first level models (i.e., latent variables and the question items that compose them) and second level models (i.e., variables and how they theoretically relate) were unique to SCD participants. The study expected SCD participants to be significantly low on all Africultural variables studied, on psychological coping, and high on psychological health symptoms compared with healthy and diabetic participants and after controlling for age and level of education. Age and education are known to play some role in coping with SCD (Brousseau et al., 2010; Sanders et al., 2010).

The study found that compared to the healthy and diabetic groups, SCD participants were significantly low on spiritual wellbeing and social support. SCD participants were low on African cultural values and Africultural coping too. As expected, SCD participants were high on total psychological symptoms scores and significantly high on specific symptoms such as obsessive-compulsion, anxiety and phobic anxiety compared to the other groups. SCD participants were significantly high on

psychological coping compared to the two groups. While age did not significantly affect differences in psychological health among the groups, level of education did, suggesting that higher education would associate with high Africultural orientations, coping and psychological health.

These findings are consistent with previous findings ((Burlew et al., 2000; Hassan et al., 2003; Molock & Belgrave, 1994) that compared SCD individuals with other chronic disease individuals. Although Barrett et al. (1988) attributed these increased problems to chronic pain and increased anxiety that may be associated with concerns about body deterioration or mortality, this Ghanaian SCD sample had low anxiety and somatization. Whether they are concerned about mortality would best be answered by qualitative approach. The statistical significance demonstrated by the results is only theoretical. They are not practically significant, judging from the small eta squared or effect sizes (< .5).

The study hoped to find SCD data fitting perfectly the theoretical models than the comparison groups. However, only the comparison groups' data apparently fitted the theoretical models. While the sickle cell data explained 13% of the variance in psychological health, the healthy and diabetic groups' data explained 23% and 27% of the variance in psychological health respectively. All the Africultural variables predicted psychological health in the healthy and diabetic groups, while some predicted increased psychological symptoms in the SCD model. Thus, the data for healthy and diabetic groups suggested a good theoretical fit and a model fit.

In discussing the further quantitative findings, the objective of this study to formulate a model for better coping for SCD participants must be re-emphasized. Results showed a poor model fit for the sickle cell data. However, further analyses were conducted to determine the role socio-demographic variables played and behavior of specific African cultural variables (subscales) on specific psychological health symptoms.

The results demonstrated that "Religious wellbeing," and the "Friends" subscales, significantly improved psychological health of SCD participants. This result about religious wellbeing is dissimilar to some previous Western research that found "Religious Wellbeing" to increase psychopathology (Cooper-Effa et al., 2001). The result, however, agrees with previous studies that found some aspects of religiosity to be beneficial to mental and physical health outcomes of SCD individuals (Cotton et al., 2009; Harrison et al., 2005; Koenig et al., 2008; Moreira-Almeida & Koenig, 2008). The specific psychological health symptoms that religious wellbeing significantly reduced were somatization, obsessive-compulsion, depression, anxiety, and phobic anxiety. By this result, Cotton's (2009) empirical observation that religiosity or religious coping has a more complex association with psychopathology is questioned.

Similarly, increased number of hospital visits had significant positive effect on psychological health. It implies that increased psychological health reduces frequent hospital visits. Increased hospital visits significantly reduced somatization and depression symptoms. This finding is antagonistic to previous ones that indicated that increased hospital visits is associated with increased depression or anxiety among Western adult SCD individuals (Levenson et al., 2008). This present finding suggests that increased

visit to the sickle cell clinic in Korle-Bu, Ghana, results in significant improvement in symptoms such as somatization and depression of adult SCD participants.

Increased education, marital status, type of religious group, and sickle cell type, although statistically non-significant, contributed to psychological health. Subsequently, their inclusion in the sickle cell model demonstrated an improvement in psychological health. The result about increased education and its salutary effect on psychological health has corroborated Okraku et al's (2009) earlier finding about giving increased information to adult SCD individuals to improve psychological health outcomes.

Conclusion

In conclusion, although the quantitative study apparently failed to find evidence of a statistically significant relationship between spiritual wellbeing/spirituality, African cultural values, and psychological health, it cannot be concluded that those relationships did not exist. Specific African cultural factors demonstrated statistically significant relationships with specific psychological symptoms thereby contributing significantly to improving psychological health. The researcher rather concluded that the quantitative study failed to find a convincing evidence of a statistically significant relationship between some variables. However, the results demonstrated some further research, theoretical, and practical or clinical significance. Superimposing the Afrocultural Social Ethos framework and the Religious Coping model on the Biopsychosocial-spiritual framework promotes psychological health and is enlightening. These findings notwithstanding, it remained unclear why some African cultural variables enhanced psychological health while others worsened psychological symptoms. The positive and negative roles played were variable and complex and difficult to determine by

quantitative study alone. Therefore, further investigation by qualitative explorations of the variables and their inter-relationships in Study 2 was needed to confirm or disconfirm relationships.

CHAPTER FOUR

STUDY TWO (QUALITATIVE)

Methodology

An aim of study two was to explore the psychosocial and cultural coping experiences of adult SCD participants in a Ghanaian socio-cultural context. This chapter presents the methodology and results of the second in-depth study. It presents the justification for a qualitative study, its purpose in the scheme of the research, the general and specific research questions that drove the qualitative methodology, epistemology, and analyses. The methodology includes the research design, research setting, target population, inclusion and exclusion criteria, sample size and the participant selection technique. It presents the data gathering instrument and procedure, field notes, data analysis, methodological rigor and ethical considerations. The second section of the chapter features the results of qualitative data analysis and discussed the results.

Rationale for Qualitative Methodology in Study Two

Empirical study two sought to explore the phenomenological aspects of the constructs that were surveyed in empirical study one, namely, African cultural values, spirituality/religiosity, psychological health and coping with SCD in the Ghanaian cultural context. Qualitative methodology was used in study two because what was unknown or poorly understood about psychosocial and cultural factors in SCD participants were explored. The results of hypotheses one and two of study one, for example, appeared to indicate a minimal relationship between spiritual wellbeing, African cultural values and psychological health. On the contrary, the literature suggested significant negative relationships among these variables. Given that the instruments used to measure spirituality, African cultural values and psychological health were reliable

with good Cronbach's alpha reliability coefficients greater than .7, the only reason to account for the statistically non-significant relationships among the variables might be in the instruments' validity. An instrument can be reliable without it being valid. It might not have measured accurately among the SCD sample what it was purported to measure among those for whom the instrument was originally designed. Therefore, for purposes of data and method triangulation or data validation, qualitative research methodology was necessary. This methodology helped explore old data and examine new findings that would be the basis for theory re-generation about SCD, African cultural values, spirituality and psychological health relationships.

It was the specific objectives of study two to first explore the meaning, use and role of spirituality and other African cultural values in the psychological health of individuals with SCD, how they are used and why. Secondly, to answer questions that the survey research could not address about the relationships between African cultural values and psychological health such as: Why did adults with SCD in study one have increased interpersonal sensitivity and scored low on anxiety, depression, and hostility as psychological symptoms? What accounted for participants' psychological health status? Why would spiritual wellbeing and African cultural values not relate to psychological symptoms inversely but social support and medical "coping" did: yet SCD participants indicated that spirituality was important in their lives? What did SCD participants consider as African cultural values? Why was "Family" as a social support system harmfully predictive of psychological health? Are psychological and medical "coping" methods associated with African cultural values, and in what ways?

Research Design

The researcher used qualitative interview grounded in phenomenology. Phenomenology is a qualitative research design that explores the lived experiences of the people involved in a social issue being studied. According to Welman and Kruger (1999), "phenomenologists are concerned with understanding social and psychological phenomena from the perspectives of people involved" (p. 189). The phenomenological approach allowed the researcher to collect cultural, spiritual and psychological data from the lived experiences of SCD individuals themselves.

Qualitative enquiry is most often used to describe a phenomenon about which little is known to capture meaning. Data are collected in the form of thoughts, feelings, behaviors, insights and actions rather than in the form of numbers, and to describe a process rather than an outcome (Polit & Hungler, 1995). This qualitative approach allowed the researcher to use naturalistic methods that emphasized understanding the sickle cell experience as it is lived, through careful collection and analysis of narrations. The researcher obtained African cultural values, spirituality-religiosity, and psychological health information directly from adults experiencing the sickle cell phenomenon (Polit & Hungler, 1995).

This study was conducted in a context that described the real world settings of SCD participants in an attempt to better understand social realities, processes and meanings (Flick, Kardoff & Steinke, 2004). The psychosocial and cultural phenomena of SCD the researcher explored have not been previously well described in Ghana. The study approached the phenomena from an open perspective with the understanding that SCD patients make sense of their world by various ways. This is a naturalistic and

interpretive approach since it tries to discover the way those studied view sickle cell phenomena (Jones, 1995).

For the above reason, this study used Interpretative Phenomenological Analysis (IPA) as a specific qualitative research approach committed to the examination of how people make sense of their major life experiences (Smith, Flowers, & Larkin, 2009) with SCD. By use of IPA, the researcher sought to uncover the essential nature and structures of the phenomena (Dowling, 2004). Previous quantitative researchers assumed that SCD pain was only episodic and acute and they did not thoroughly describe SCD chronic pain from the patients' viewpoint. This is why the IPA was chosen. To bridge this gap, the researcher aimed to advocate for the patient's voice in the meaning of SCD, its pain description, treatment and coping approaches.

The specific qualitative strategy in this research was the semi-structured interview, which was one-to-one interview with the participants. Because it is flexible, it allowed for a deep exploration into the social and personal worlds of the informant. In-depth interviews allowed the researcher to seek a personal relationship with the participant and engaged in deep discussions. It was in such context that both researcher and participant created personal meanings together (DieCicco-Bloom & Crabtree, 2006) about events, processes and experiences related to SCD.

Epistemological Basis of the Research Methodology and Method

It was on the basis of the methodological and theoretical underpinnings of the Interpretative Phenomenological Analysis (Smith, Flowers & Larkin, 2009) that the researcher used the semi-structured interview. This theoretical basis assumed that the

participant had a wealth of subjective knowledge about the SCD phenomenon that could be investigated. Smith (1996) developed the IPA with the aim of exploring how a person makes sense of his/her personal and social world and the meanings particular events hold for the person (Biggerstaff & Thompson, 2008; Smith, 2004).

Three theoretical bases form the pillars of IPA. The first is phenomenology. It is the study of lived experience or the life-world of a person. According to Laverty (2003) IPA explores the question "what is this experience like?" In this study, phenomenology explored what SCD represents for SCD participants in their Ghanaian cultural context in order to describe SCD as it is from the participants' perspective. To achieve this during the interview, the researcher was involved with the participant, listened carefully and probed further to learn more about the participants' experiences from their internal frame of reference (Smith et al., 2009).

The second pillar of IPA is hermeneutics. This is the art and science of interpretation (Smith et al., 2009). According to Biggerstaff and Thompson (2008) as well as Smith et al. (2009) the meanings a person gives to events are valuable. However, this meaning can only be meaningful to others when the researcher facilitates others' sense-making of the participants' experiences through an interpretation (process). Two kinds of interpretations occur during an IPA interview. One is the participants' views and interpretations about the phenomena, which in this study were SCD, African cultural values, spirituality, religiosity, psychological health and cultural coping. The other kind is the researcher's interpretation where he draws meanings from the participants' interpretation. Smith et al. (2009) refers to this as double hermeneutics. Smith and others

(2009) indicated that a successful IPA interpretation is based on the narrations that are produced by the participant and the text that the researcher produces from the narrations.

The third pillar of IPA is ideography. It is concerned with the particular (Smith et al., 2009) which operates at two levels. The first is engagement with the particular issue, phenomenon, and event in order to allow for a detailed and in-depth analysis. In this research, the particular phenomena were SCD and coping with its crisis, African cultural values, particularly spirituality and religiosity, and psychological health. The second level involves understanding how the phenomena are understood from the viewpoint of particular people in a particular context, which in this research, are individuals with SCD in Ghana. Only adults with HbSS (severe) and HbSC (less severe) sickle cell types were interviewed in their homes in the communities where they lived.

Research Setting

The research was based in the Sickle Cell Clinic, Korle-Bu, in Accra. However, data were collected in participants' homes in five communities namely, Winneba and Otuam in the Central Region; eleven suburbs in Accra (Korle Bu, Korle Gonno, Dansoman, Kaneshie, Darkuman, Lapaz, Nii Boi Town, Mempeasem-East Legon, Univ. of Ghana, Ashongman Estates and Dzorwulu); Mampong Akwapim in the Eastern Region; and Dodowa in the Greater Accra Region. The reason was to reach and tap the lived experiences of SCD individuals of diverse social and subcultural backgrounds.

Target Population

A target population is the total of cases about which the researcher would like to make a generalization (Polit, Beck, & Hungler, 2001). The aim of this research, however,

was not to generalize findings onto all SCD individuals in Ghana. Therefore, the target population was all the adult SCD individuals who registered with the Sickle Cell Clinic at the Korle-Bu Teaching Hospital. They were 11, 230 active members aged 13 years and above (2012 clinic records). The accessible population was all SCD participants who took part in study one, the survey research (n = 201). The accessible population was further defined as interview transcripts from which units of texts were sampled. In this study, the transcripts were twenty three (23).

Inclusion Criteria

The criteria for inclusion in study two were initial participation in the survey research that preceded this qualitative research. A participant must be an adult of not less than 18 years. He/she must obtain a high score on the spirituality measures in the preceding survey research, must be of HbSS or HbSC sickle cell status and in a stable phase (non-crisis phase) of the condition. He/she must be able to express in English and willing to participate in interviews by giving consent. For the interview transcripts, a transcript was included if a participant scored high on two measures of spirituality, i.e., high score on SWBS and the FACIT-Sp. Two spirituality measures were used for data validation.

Exclusion Criteria

A participant was excluded if he/she was in severe crisis, was unwilling to participate, could not verbally express in English, was not an adult of 18 years and above, and did not meet the other inclusion criteria above. Data from such persons would defeat the purpose of the qualitative enquiry, the methodology chosen (IPA) and its stipulations, and intended data collection and analysis technique.

Technique for Participant Selection and Sample Size

The researcher employed purposive sampling as the most appropriate method by which participants were chosen with an intention of representing the characteristic of spirituality of SCD patients. It was purposive also because only selected cases that were in line with the purpose of the study were included. Purposive sampling is a non-probability method in which the researcher selected study participants based on personal judgment about which participants would be most suitable to answer the research questions (Polit, Beck & Hungler, 2001). Bowling (2009) argued that convenience, purposive, snowballing, and theoretical sampling are generally restricted to qualitative research methods; that while these methods are non-random, the aim of all qualitative methods is to understand complex phenomena and to generate hypotheses, rather than to apply the findings to a wider population.

Since the researcher chose the Interpretative Phenomenological Analysis (IPA) as qualitative research methodology, IPA participants were recruited on the basis that they could understand the principles of their involvement in the research process, give consent, engage with the interviewer and show a willingness to express their experiences and opinions (Reid, Flowers & Larkin, 2005). Thus, the typical IPA participant is an adult, and not a child. The current study is about adults with SCD. On this strength, the researcher recruited 23 participants based on the inclusion/exclusion criteria and upon reaching data saturation. Data saturation was reached when no new responses were forthcoming from participant responses to the interview questions. At this point, the researcher discontinued interviews.

Data collection Tool

The researcher used a semi-structured interview guide (Appendix B) to collect qualitative data. The researcher developed the interview guide based on the theoretical and epistemological underpinnings of IPA. The questions in the interview guide were therefore open-ended and allowed for further probing of issues. Questions covered SCD and pain, African cultural values, religion and spirituality, coping and psychological health. The items were arranged to follow the logic in the research topic and theoretical frameworks. Details of questions are placed in the Appendix B.

The researcher used an audiotape to capture voice data. He also recorded with pen or pencil in a notebook field notes which consisted of observations that he made during the interviews.

Data Collection Procedure

The researcher sought permission from the Director of the Centre for Clinical Genetics, Korle-Bu Teaching Hospital, where the study was done, after making available to her office a permission letter, a proposal and an ethical clearance certificate (See Appendix M). Prospective participants were contacted by phone calls, and were reminded of their consent to be contacted for interview during their participation in the survey study. The researcher obtained directions to participants' homes with agreement about specific times of meeting them at home. Once a participant was met at home, the Principal Researcher and his Research Assistant introduced themselves, gave the purpose of the interview, and obtained participant's verbal consent again. The researcher clarified each party's role in the interview exercise. He obtained permission to audiotape the

interviews for purposes of later verbatim transcription and continued the interview according to the interview guide (See Appendix B).

The interview explored how participants understood SCD, their experiences with SCD in the Ghanaian cultural context, how they specifically used cultural resources, especially spirituality and religion to influence their psychological health and coping with SCD. The interview probed the way participants perceived medical coping resources vis-à-vis cultural resources.

The interviews were conducted mainly in the English language. The interview lasted between 45 and 90 minutes. The Principal Researcher posed the interview questions while the Research Assistant (RA) audio taped the sessions. The RA participated in further probing participants' responses, and took down notes and observations. Where participant narratives were not clear, both principal and research assistant probed further for clarity and all participants willingly expressed their opinions on the issues raised.

After the main interview session, there was a debriefing session that formed the conclusion of the interview relationship. In this session, participants shared how they felt about participating in the interviews. Many of them felt satisfied noting that that was their first time of honestly sharing their lives or talking in detail to someone else about their experiences with SCD. They were grateful for the opportunity the interviews gave them and were eager to know about the outcome of the research and how to benefit from it.

Field Notes

A notebook was used for taking key notes of participants' verbal and non-verbal responses and behaviors. Field notes help in developing subsequent interview questions, deciding future settings for the study and making theoretical sampling decisions. The field notes guided the researcher to ask relevant questions. For instance, earlier participant interest in defying death from SCD by their religious faith made researcher to include questions on death anxiety for subsequent interviewees. The notes helped to validate the pieces of information that were collected to make them credible and trustworthy. For example, the researcher observed and noted that a participant was over-enthusiastic when given snack before the main interview began. The participant asked for remuneration after the interview for sharing his personal life experiences. This behavior guided the researcher's subsequent interviews.

Some few participants were hesitant to discuss nuclear family issues. This was noted and guided the researcher to probe gently into family issues. The notes included participants' requests for professional assistance from the researcher and views expressed during debriefing sessions. For example, participant's hurried answers were noted in the field notebook. Some participants were assertive to say that the interview was too long. Others were eager to take researchers' phone number and expressed willingness to be recalled for further interviews.

Data Management

The audiotape, field notes and relevant materials were kept by the Principal Researcher and after every one or two interviews, the researcher and assistant transcribed the interview verbatim. This was to preserve fresh and accurate memory of the interview

session and to prevent loss of valuable participant information as given verbally and non-verbally with respect to each interview session. After every two or three interviews, data was transferred from the audiotape equipment onto a laptop computer to free the former's memory for another interview data.

Data Analysis Method

The researcher used the Interpretative Phenomenological Analysis (IPA) to do analysis. According to Smith et al. (2009) IPA studies need small samples in order to analyze each transcript in detail. However, this study had a relatively large sample size of 23 participants. This did not detract from detailed transcript analysis. The researcher did analyses around verbatim narratives from the data as follows: First, responses to the same questions were analyzed, looking for similarities and differences in the responses. The researcher read and assessed the key themes that emerged from responses to the same questions for all participants. This entailed reading responses to each question for each transcript, making notes of important words, phrases and statements that recurred and writing exploratory notes in the transcripts. This helped to familiarize the researcher with the data and to generate initial codes.

Secondly, there was a search for the words and phrases that respondents used to describe the constructs, and they were clustered into categories. This was the stage for the search for themes. The third step was to check for consistency within each theme and review the themes by collapsing several related themes into grouped and definable themes that were named. The named themes were arranged to follow some logical sequence that make sense. In the fourth step, the researcher illustrated the group level themes with relevant examples of quotes from individual participant's narrations. This

made the data analysis results ready for reporting. However, the researcher verified themes, summarized them and established analytical connections across them (Smith et al., 2009) while reporting them. This resulted in identifying theoretical constructs that the researcher used to develop a model of coping.

IPA, in this analysis, covered two main stages that started with a standard thematic analysis. First, expressions relating to pain experiences, for example, were listed, and then categorized according to researcher-defined categories derived from the narratives. Second, during the interpretative phase of the analysis, data was revisited this time analyzing how the expressions categorized earlier reflected respondents' individual and unique experiences.

Somehow, data analysis took into consideration the following cognitive, affective and behavioral themes. Cognitive content: What patients knew, understood, believed about SCD, African cultural values, spirituality, and psychological health. Affective/emotion: What patients felt about SCD, African cultural values, and spirituality; Behaviors: What patients did to cope with SCD; their specific spiritual/religious activities related to coping with SCD.

A qualitative data management (QDM) software NVIVO 10 Data was also used to analyze and confirm data analyzed manually. The software was used to organize themes and subthemes into nodes that were used to generate models. The models categorized similar themes that helped the researcher to generate theoretical constructs. The outputs from data analyses by the software are found in the Appendix L.

Methodological Rigor

Rigor in qualitative research refers to the trustworthiness of the research findings. Guba and Lincoln as cited in Sandelowski (1993) suggested four factors relating to the test of rigor as credibility, fittingness, auditability, and confirmability.

In this study, creditability was achieved by a review of the pilot interviews by the thesis committee members in order to critique the quality of the interview guide, skills and procedures. All potential and inherent biases, feelings, personal beliefs and values about the researcher were identified. For example, the researcher was forcing questions rigidly along the lines of the theoretical framework used. He was cautioned to be flexible. This was done to recognize and minimize personal judgment. All documents, field notes, and interview data were discussed with the supervisors to inform the emerging analysis.

Fittingness in qualitative research refers to the extent to which the reader is able to transfer the findings of the study situations to other settings. In this study, direct quotes from participants and description of the setting in which the phenomenon was described was used to determine if it would fit into similar contexts. The setting, in this study, was the participants' homes. This is the reason diverse dwelling locations of participants were purposively chosen (see Research Setting and Table 4.1).

Auditability is a systematic collection and documentation of the decision trail that was used by the researcher. This allows an independent auditor to determine whether or not he/she will come to similar conclusions about the data (Polit et al., 2001). In this study, methods of coding, categorization of data, naming of themes, as well as field and personal notes were kept and made available for scrutiny by the supervisory committee

members to see if they would come to similar conclusions with the same data. The research assistants tried to reach similar conclusions on coding and theme naming as the principal researcher. Interrater reliability coefficient reached 69%.

Confirmability refers to the objectivity of the data, such that two or more independent people would agree with the data's relevance or meaning (Polit et al., 2001). In this study, strategies that were used to facilitate the confirmability of the study included a well-documented audit trail in addition to thesis committee members' scrutiny of the data. The strategy included research assistant's independent data analysis, coding, and theme naming. Additionally, the results of the research were discussed with three interview participants (two men: one in Accra, the other in Otuam, and one woman in Accra). The purpose was to see if they would agree with the findings, and if the results represented participants' honest responses, thoughts, feelings and behaviors. These participants were chosen because they readily consented during previous post- interview debriefing exercise to be contacted. The two men largely agreed with the content and results, while the lady disagreed with portions of the conclusions of the study. For example, she disagreed with a statement that SCD participants did not use spirituality to cope when they were in severe crisis but used it only when they were not in crisis. These feedback processes from participants, research assistants, and thesis supervisors helped to cross-check and validate data, results and reporting.

Ethical Considerations

Ethical clearance was sought from the Institutional Review Board of the Noguchi Memorial Institute for Medical Research, University of Ghana, Legon. The protection of human rights was ensured throughout the study. Once a person agreed to participate,

he/she was briefed on the research topic and objectives of the study. Each participant was asked if he/she had any questions for clarification. Once all questions and concerns were addressed and voluntary participation was verbally indicated, the interviews started with the information that a participant could withdraw from the study at any time. Confidentiality and privacy matters of participants were addressed according to guidelines in the consent forms (Appendix C). Participant identification numbers, sickle cell type, age and locality were used in the research written and oral reports instead of their names. Audiotapes, transcripts and consent forms will be kept for at least five years. The only persons who had access to the transcripts and audio-tapes were the thesis supervisory committee members, the research assistant, and the principal researcher.

Results

The themes that were obtained from analyzing the interview are presented using participants' own verbal accounts. This was done with reference to the objectives and theoretical framework of the study. Afterwards, interpretation was given to the themes. The thematic findings and interpretative phenomenological analysis (IPA) results are presented.

Characteristics of Participants

There were fifteen males and eight females with ages ranging from 19 to 57 years. Five of the participants were married and eighteen were single. Eight had Senior High School education, three had post-secondary level education and twelve had Bachelors level education. Twenty-one of the participants were Christians and two were Moslems. Three participants had sickle cell type HbSC while twenty had HbSS. Participants lived in the Central, Eastern and Greater Accra Regions of Ghana, but the majority lived in Accra and its suburbs (Table 4.1).

Table 4.1
Demographic Characteristics of Interview Participants

ID	Sex	Age	Marital status	Education	Religion	Residence	Sickle cell type
1	M	57	Married	Bachelors	Moslem	Otuam	SC
2	M	33	Married	Polytechnic	Christian	Korle-Bu	SS
3	F	34	Single	Senior High	Christian	Kaneshie	SS
4	M	33	Single	Bachelors	Christian	Dzorwulu	SS
5	M	33	Single	Polytechnic	Christian	Lapaz	SS
6	M	46	Married	Bachelors	Christian	Winneba	SS
7	M	43	Married	Bachelors	Christian	Darkuman	SS
8	F	23	Single	Bachelors	Christian	Legon	SS
9	F	28	Single	Bachelors	Christian	M. Akwapim	SS
10	F	26	Single	Senior High	Christian	Dansoman	SS
11	F	30	Single	Bachelors	Christian	Odorkor	SS
12	F	19	Single	Senior High	Christian	Darkuman,O.T	SS
13	M	22	Single	Senior High	Moslem	Darkuman Q	SS
14	M	23	Single	Bachelors	Christian	Darkuman, A	SC
15	M	28	Single	Bachelors	Christian	Dodowa	SS
16	M	23	Single	Bachelors	Christian	Legon	SS
17	M	41	Married	6th Form	Christian	Ashongman, E	SS
18	M	27	Single	Senior High	Christian	Mempeasem	SS
19	M	19	Single	Senior High	Christian	Korle-Gonno	SS
20	M	39	Single	Senior High	Christian	Dansoman, M	SS
21	F	31	Single	Senior High	Christian	Dansoman, B I	SS
22	M	24	Single	Bachelors	Christian	Mamprobi	SS
23	F	24	Single	Bachelors	Christian	Nii Boye, T	SS

Thematic Findings

The researcher identified four major themes, with subthemes under each category. The themes and subthemes are

(a) *Conceptualizing SCD* (subthemes included "scientific versus superstition", "medical versus supernatural etiology", and "sickler or not a sickler"); (b) *The Paradox of Living with SCD* (subthemes included "SCD: physically constraining but intellectually advantageous," "SCD: socially crippling and socially empowering," "helplessness versus self-responsibilities," and "surviving/enduring the SCD"), (c) *Africentric coping with SCD* (subthemes included "coping tool: interdependence," "spirituality and religiosity: opposite sides of the same phenomenon," "coping with African cultural values," "people power versus drug power," "ambivalence in choice of coping," "specific spiritual/religious coping," and (d) *Psychological health* (subthemes included "conceptualizing psychological health," "Sickle cell impacting psychological health," "psychological health impacting SCD," and "Africultural coping impacting psychological health"). The four themes and their subthemes are presented in Appendix E. The four themes and their relationships are however summarized in Figure 4.1.

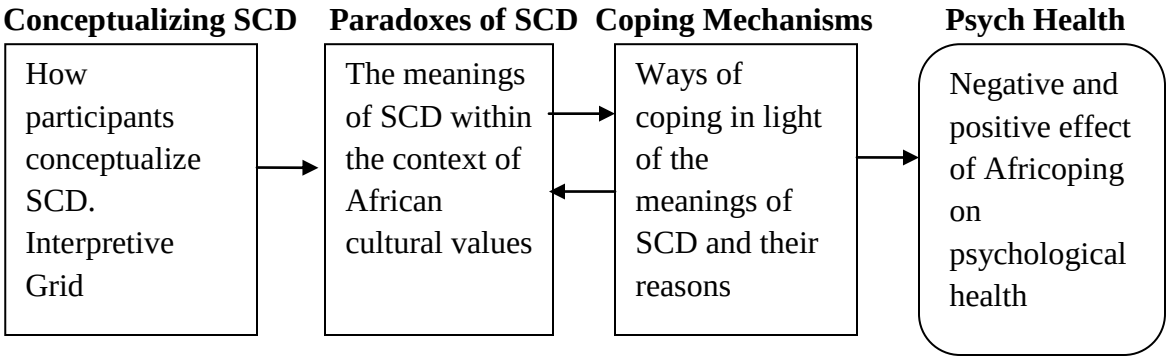


Figure 4.1. Summary of thematic findings and their relationship

The organized subthemes into larger, more abstract ideas referred to as themes, allowed the researcher to create a narrative about the subjective experience of SCD participants. Weaving together the story of the participants' subjective experience and abstract concepts brought together the two different worlds of researcher and participants. This took into account the researcher's concerns and theoretical framework.

Conceptualizing SCD.

Conceptualizing SCD is a theme that captured the interpretive grid or framework that participants used to explain their SCD condition.

"Scientific versus superstition," By the subtheme "Scientific versus Superstition," the researcher meant that in describing SCD, the participants considered it primarily as a medical condition that has scientific bases rather than spiritual. For example,

> *I see it as a mishap that can happen to anybody. It has not got any spiritual or ancestral reasons or connotations attached. It's just a medical condition which is a disorder"* (Interviewee 5, Male SS). *"I have never attributed sickle cell to any spiritual things at all. When I became aware that my father's AS and my mother's AS are what made me SS, I never shift blame to anybody or worried. You see, when you are ignorant, you keep shifting blame. But knowledge takes you far* (Interviewee 7, Male SS).

Participants used phrases that suggested that they were describing SCD. The most common description of SCD considered the etiology of the disease, followed by its nature and its effects. By etiology, participants meant that SCD is a family genetic disease caused by abnormal red blood cells that are stiff. SCD is propagated by ignorance of

parents about their sickle cell status. For instance, *"SCD is inherited, is a genetic disorder you can pass on to your offspring but is not contagious"* (Interviewee 2, Male SS).

"Medical versus supernatural etiology." By this subtheme, participants meant that SCD is a physical disease that wreaks its havoc based on ignorance. Although participants understood SCD as a medical disease that is incurable, they believed the SCD individual can be healed.

> *SCD can't be cured physically. I don't know about any remedies for it. But spiritually God has healed SCD patients. There is a difference between cure and healing. You can be healed without a cure. Miracles happen all the time and they don't have to be spectacular* (Interviewee 9, Female SC).

Participants also meant that SCD confers a medical burden or yoke but not a death sentence. *"Kidney problems are the complications I have. Right now, I'm on my kidney drugs, my normal folic acid, B-co and multivitamins"* (Interviewee 12, Female SS); *"if you take care of yourself very well, you can grow old"* (Interviewee 20, Male SS).

Based on participants' awareness of the scientific bases of their condition, although some participants were told they would die early, they still lived in hope that death was not disadvantageous. For instance, *"I was told that by 18 years I would die. Some doctors and nurses told me that because I got frequent crisis"* (Interviewee 17, Male SS, 41 years). Such participants did not have the fear of dying early from SCD. Majority had reasons based in their religious, spiritual, and existential beliefs. For example, *"I believe death is ultimate. We all have to die at one time, so if God sees fit*

that I die now, I will. One thing that doesn't scare me at all is death. I'm not afraid of dying"(Interviewee 2, Male SS).

The scientific basis and medical meaning of the disease helped participants not to interpret SCD as a disability, or as an overwhelming condition, but rather as motivating them to seek God's purpose for their lives and fulfilling that purpose. To the majority of participants, having SCD did not make them "not normal" but normal individuals like anyone else. SCD sometimes imposed a threat to physical limitations on participants. This threat happened particularly during acute crisis or painful episodes. Participants, however, transcended this threat to physical limitation and led normal lives like anyone else. How they did this was through the medical, social and spiritual resources they marshaled from their cultural environment.

"Sickler or Not a Sickler" This subtheme is described as SCD making an individual either medically healthy or unhealthy and producing "a sickler" or "not a sickler" mentality. It is exemplified by the following voices:

> *It means I am a normal person with a disorder of blood or cells. It doesn't mean I'm diseased or sick. It just means I have a disorder and not a disease. I am not a sickler like the term is used to label sickle cell patients* (Interviewee 6, Male SS).

The following voices are also apt:

> *I don't see myself as a sickler. But I see myself as there are certain things I shouldn't do. It's a name given to people"* (Interviewee 17); *SCD doesn't make me a sickler. I had a brother who had AA, but falls sick just like me. Because we get sick often that's why people refer to us as sicklers. But I'm not a sickler. For the past 6 years, I've not had*

> *crisis* (Interviewee 18, Male SS); and finally, *Me, I'm not a sickler because I do what others do. A sickler is a person who can't do anything, is at one place. But I do all things, when I get tired, I rest* (Interviewee 23, Female SS).

Contrarily, some participants' voices represented by the following said, "*To me, I don't see myself as a normal human being*" (Interviewee 10, Female SS). Therefore SCD conferred either a "normal" or an "abnormal" medical status or mentality. Depending on the participants' understanding, SCD is viewed as a disorder which is a normal condition or a disease which is an abnormal condition. Seen as normal, SCD gives an advantage. It helps the participant to live carefully and obey health laws. For example,

> *SCD is a normal sickness because those who don't suffer sickle cell also fall sick"* (Interviewee 16, Male SS). *"It's just like any ordinary disease. You fall sick sometimes. You just have to know how to take care of yourself. Compared to others...there are certain things you can't do. You can't do hard work. When you are doing something and you feel tired you must stop...If you take care of yourself very well, you can grow old* (Interviewee 20, Male SS).

However, viewed as a disease, SCD makes participants helpless, allowing the "disease" mentality to cripple their initiatives at taking control over the SCD condition. For example, *"The disease means that you become idle. When you want to do something, you are thinking that the disease will come"* (Interviewee 12, Female SS).

The Paradox of Living with SCD.

This theme examines the antithetical experiences of living with SCD. Participants although generally reported on the negative aspects of living with SCD, they nevertheless were very much aware of other positive aspects of the condition. For

example most of the participants indicated that living with SCD bring pain: *They bring the pain in the joints and waist"* (Interviewee 16, Male). Another said *"These areas experience pain and certain vital organs can be damaged in serious prolonged attacks"* (Male SS). Participants described sickle cell pain as so severe that it was difficult to breathe and breathing made the pain severer. The responses suggest that acute pain was unbearable at the time of experiencing it. A patient had to scream to contain the pain and it was only hospital treatment and injections that could reduce such pains. Respondents described their pain by indicating the site of pain on/in their body. Common pain sites were given as chest, waist, back and bone pains and experienced in multiple sites simultaneously. Interviewee 11 narrated:

> *The pain occurs in three or more places at the same time and say things you did not wish to say, like you wished you close your eyes never to open them again to see the next day, because is so severe and very very painful* (Female SS).

Participants described their pain by the nature and character of the pain as being *"like pins piercing the bone marrow, being more than labor or birth pain, like boil and more painful than rheumatism; that the pain spreads and escalates upon struggle* (Interviewee 5, Male SS). "So severe", "very severe", "terrible", and "excruciating" were phrases and words participants used to describe pain severity. Behavioral expressions like "screaming" and "bemoan" were also used to indicate pain severity. Interviewee 3 narrated that "*When the pain appears, it appears severely and it affects your bones really very much*" (Female SS).

Some participants indicated that the pain of SCD can evoke spiritual crisis in them with the intention of seeking to die by God's intervention:

"Sometimes the pain you experience is so severe that you wish God should just end it for you and you go your way. But there is hope that the pain will go away and you will come back to normal life" (Interviewee 16, Male SS).

All these pain descriptions suggest that sickle cell crisis pain was so severe that patients needed extra personal coping strategies to handle it. It also painted a strongly negative view of living with SCD. Participants expressed other disadvantages of living with SCD. For instance a participant indicated that SCD was physically limiting or constraining:

> *When you have crisis, it affects everything of you. It affects your body including your heart. You can't do anything for yourself for about a week, can't get up to ease yourself. If you don't take care, you will think that this crisis is too much and I'll end up being disable*" (Interviewee 4, Female SS).

Interviewee 19 said similarly, "*...SCD means that you have physical limitations but some of SCD patients can go far than even normal people. But as you try to go far the disease draws you back, delays your time of moving forward*..." (Male SS).

Aside the above-mentioned negative effects of SCD, participants provided positive aspects of living with SCD, namely intellectual and academic advantages. SCD meant an opportunity for intellectual development and an academic advantage. At the same time, SCD can impose an academic disadvantage especially in terms of going to school or pursuing formal education. This was voiced as,

> *To me the disease is an advantage and a disadvantage. I'll talk more about the advantage because it had been said that sickle cell patients are generally brilliant. They don't have*

> *the physical abilities but they do have the brain power. I believe that as a patient, you should rather focus your mind on things you do with your brain and become an intellectual. If you don't have the physical strength, you just channel your energies into going to school* (Interviewee 2, Male SS).

Participants admitted that SCD negatively affects physical and not intellectual strength. Other participants considered SCD as imposing academic limitations. The researcher understood this to mean limitations in going to school and pursuing formal education. Interviewee 19 stated that "*The sickle cell has limited me when I was in school. I could not burn the midnight oil like all students did. If you tried to be like them you might enter into crisis.*

Other participants had a different experience about the limiting effect of SCD on schooling:

> *I have a different childhood and people thought I wouldn't make it. But I use education as an escape latch to show them that I can do it. I left home to live on my own when I was 19 years, fetched my own water, cooked my own meals and tried to live independently to prove to my stepmother and others that even though I am sickle cell, I can be independent. I'm always happy when I achieve something* (Interviewee 2, Male SS).

The above quotes suggest that participants were careful to distinguish between intellectual development and academic progression through formal education (schooling), emphasizing that SCD affects negatively the latter and not the former.

Another paradox of living with SCD was that it was socially crippling and socially empowering too, thus a social disadvantage and advantage. Socially, SCD meant a social burden and a loss of sense of wholeness. The social advantage and disadvantage

can be gleaned from the phrases of participants when they indicated that SCD made marriage choices difficult and they had to deal with social stigma and limitations in social relationships. For example, SCD has implications for marriage:

> *It means that an AS and an AS person should never get married irrespective of the kind of love they have for each other. Because giving birth to a sickle cell person is putting stress on yourself and on the child. It means that you are not normal. It means that to marry you must be extra careful* (Interviewee 10, Female SS).

Having SCD meant dealing with stigma.

> *When I was in SHS, my headmistress would not allow me to sweep, scrub bathroom, would call me when I'm doing them for fear I would have crisis. It made me feel very bad about myself. And every slight thing that would happen, people would tell you even if I touch you right now you would die. You have to deal with that. Sometimes, you look at the person telling you that, look at yourself and you are even healthier than them* (Interviewee 11, Female SS).

To have SCD meant dealing with social limitations. Interviewee 21 stated that

> *Compared to others, it is a bit disadvantageous because there are certain things you cannot do: drinking is not good, you have to monitor the weather, if the weather changes you have to change your clothing. You can't do hard work*" (Male SS). The voice of Interviewee 24 is apt: "*I really find it difficult telling people my condition. They pity you* (Female SS).

While some SCD participants found it difficult telling others about their condition, others said it was rather propelling them to tell others about their condition. For instance,

> *Right now, I feel I have a higher calling to use my experience to encourage people, be a people person and affect people. SCD is driving me toward that purpose, to help people know about SCD and help them out. I have a desire to be an evangelist, tell people that Jesus died for them. I'm a Christian. I always have a high positive mind about life that SCD cannot stop me. SCD does not mean I am crippled in my way. It does not make me feel bad. I can go anywhere and tell you that I'm sickle cell patient. You have to live life to the fullest* (Interviewee 2, Male SS).

These responses indicate that a participant's religious and/ or spiritual status or beliefs can be the bases of viewing SCD as either socially crippling or socially empowering. This makes religion a socially empowering force for SCD individuals who adhere to it.

Other paradox emerging from participants' experience of living with SCD included "helplessness versus self- responsibility." The analysis revealed that SCD does not only mean helplessness and dependence to some participants. To others it means self-responsibility, self-understanding, self-attention and care, self-acceptance and acceptance of suffering, as indicated by this voice: "*You can't change the fact that you are a sickle cell patient, it makes you feel bad, like why did this happen to you. Sometimes too, you are encouraged by the word of God, you forget about it*" (Interviewee 21, Female SS). Another narrated,

> *SCD is not an extra-ordinary disease. You just need to understand yourself and know how to react to the disease. The disease forces you to know yourself, to look at yourself again, so that you don't just live anyhow. There are certain things others do you can also do, but may be not to the extent or extreme as they do them* (Interviewee 12, Female SS).

While one participant said "*it is not possible to be at peace with yourself when you are in crisis*," suggesting a psychological effect, Interviewee 2, however, responded differently: "*Crisis time is one of the best times I have, enjoying being alone, enjoying my own self*," he said. To him and others who were likeminded, crisis time was a time to rest, to meditate, and reflect on life because nobody disturbs them. The idea that SCD can make some people psychologically dependent and make others self –responsible are represented by the voices above.

Furthermore, some participants illustrated the struggles that come along with living with SCD, yet they indicated that they survived the crises. The researcher named this subtheme "surviving/enduring the SCD."

> *My psychological health has helped me to cope with the disease. Spirituality sometimes helps me to be sound in my mind. I'm psychologically healthy. I create fun a lot and I don't become angry. What will make me angry, I turn into a joke. Sickle cell cannot negatively affect my thinking or feeling or behavior* (Interviewee 6, Male SS).

Another participant confirmed thus,

> *Spirituality sometimes helps me to be sound in my mind. Sometimes I get crisis four or five times in a month. If you don't have sound mind, you might one day gather all your medicines, take them to finish your life. We pass through a lot of stress when we are in pain so we have to know that this is a temporal thing, if not you yourself will want to end it all. Your mindset will help you to move on* (Interviewee 3, Female SS).

From the above narratives, SCD participants revealed ability to use their psychological resources to survive the crises of SCD. Another participant showed the way he survived family onslaught and their negative view of him as being lazy:

> *... Some family members will rather put you down, insulting you of being lazy. This is why I don't like to live in a family house, but live on my own to prove to everyone that I can manage my own life, and live independently. By the time they are aware, I've reached far in life* (Interviewee 2, Male SS).

Having examined all the paradoxes of living with SCD, the analysis further showed how SCD patients coped with their experiences. The next theme addresses this.

Africultural coping with SCD

The interview explored participants' views on things that describe African cultural values and coping. In addition to effects of African cultural values on SCD that emerged above, participants implied that African cultural values, viz. family, marriage, community, and religiosity/spirituality have implications for coping with SCD. "Africultural coping with SCD" is how the researcher named the theme that emerged. Participants expressed views concerning what African cultural values are: "*Yes, like the rules and norms*" (Interviewee 23, Male SS); "*Is a culture for the whole Ghanaians to follow*" (Interviewee 19, Male SS); and "*Is what we value as Africans*" (Interviewee 1, Male SC).

Participants commonly identified family, marriage and children as African cultural values. Interviewee 9 said, "*Africans value marriage, family, children and upbringing of children. It is always centered around the family, especially the extended*"

(Female SS). Participants next identified communal living as African cultural value. This was followed by worship, spirituality, religion, and celebrations and work and play. Interviewee 1 described African cultural values thus,

> *high regard for marriage, festivals and funerals where everybody must be present. Births are cherished to the point if a person does not give birth, they are frowned upon. We also cherish the extended family where we have uncles, aunties, sisters, and so forth.* (Male SC).

African Cultural Values defined as family, marriage, children, religion, and community therefore determine healthy and/or unhealthy coping with SCD.

"Coping tool: Family interdependence" The narratives reflected ways of coping that are African cultural centered, especially on extended family, marriage, children and the community. The narratives supported the underlying notion that personal independence is impossible for the individual who lives in a family and community that "own" him/her. This became the basis for a subtheme named "Coping tool: Family interdependence." The subtheme implies that both the SCD individual and the family and community that "own" him/her depend on each other. A participant narrated, "*We cherish the extended family because my mother's brother can help me with any problems I have.*" He ended that, "*…in society, it is difficult for a person to break away just like that*" (Interviewee 1, Male SC).

> Another respondent said
>
> *The family helps in SCD, part of the community also helps. In my family, everyone knew how my disease is. My mother becomes worried when I'm crying during crisis. My sister*

> *pampers me with petty courtesies. If it wasn't for my sister, I wouldn't know how my wound would be. I see her more like a mother than a sister. My family positively affects my disease. My aunt is always here to see how I'm doing. My mother side, they care. I know who to call to make me happy* (Interviewee 11, Female SS). Yet another respondent said, "*Good marriage makes you free in mind and heart. Another Ghanaian value that helps us is the extended family. We are Moslems. We love each other in the same house*" (Interviewee 13, Male SS).

Few participants implied that African cultural values were disadvantageous to their health. For instance,

> *But the family does not like me. They compare me to others, so they don't like me. I'm in my nuclear family. Now that I'm 27 years, my family expects me to be higher than this. They see me to be someone who is slow. So they don't cherish me hundred percent. Sometimes I ask myself why I am in this family. Once you do a mistake and they remind you of your sickle cell. That's painful* (Interviewee 18, Male SS).

It seems respondents who lived in extended families viewed African cultural values as beneficial to their experience of SCD while respondents who lived in nuclear families saw African cultural values as disadvantageous to SCD. The voice of Interviewee 6 aptly captures this:

> "*Sometimes you hear negative comments from my spouse that affect the disease experience. I ask myself, why me? It brings me down spiritually. It doesn't encourage you to positively do things you want to do. Certain negative comments rather come instead of positive ones that it will be okay, so it puts me down spiritually* (Male SS).

In spite of these negative effects some African cultural values had on SCD, majority of participants affirmed that they used African cultural values to cope with SCD. A participant puts it this way,

> *If I fall sick, I get someone who's not within my family to come to my aid to go through any stresses I have, that your brother's son is also your son. If you don't see it that way and I'm in crisis, if he doesn't help, I could die* (Interviewee 1).

This participant attributed his longevity partly to the existence of the extended family. This way, the extended family appears to play a key role in sustaining SCD patients. Interviewee 2 said, "*yes, because when you don't feel well, your aunties and sisters who hear about it come around or call*."

"Spirituality and religiosity: opposite sides of the same coping phenomenon"

SCD participants' spiritual and religious experiences emerged as coping frameworks and were explored. Participants' narratives suggested that spirituality and religiosity are the same and not the same; two sides of the same phenomenon. One view of spirituality was acknowledging supernatural power and transcendence. A narration portraying this was:

> *I guess spirituality is a sense of knowing there is a supernatural being not necessarily God, but just knowing that there is a greater force that cannot be scientifically proven and acknowledging the presence of that supernatural power in your life and activities, that's spirituality* (Interviewee 9, Female SS).

Some participants conceived spirituality as not being materialistic or worldly, and it possibly meant transcending the physical world as shown by this voice: "*Spirituality is making use of the things you study from the Bible, because through that you are able to*

free yourself from many things. Spirituality means freeing yourself from the things of the physical world" (Interviewee 11, Female SS).

Secondly, participants viewed spirituality as dependence on God through some rituals or practices such as using private/personal spiritual activities to relate to God or draw closer to God. A participant narrated, for example that: "*Your relationship with God, between me and God. I was born into the Methodist, but came to know God more at Accra Academy. Your way of living, reading the Bible, and praying are what make me spiritual*" (Interviewee 22, Male SS).

Thirdly, participants conceived of spirituality as personal beliefs, faith and trust in God. A participant put it thus: "*So far as I believe that God is a spirit, I'm a spiritual person*" (Interviewee 12, Female SS). Interviewee 11 added "*As in your concept of faith, that's spirituality*" (Female SS).

Concerning description of religion, however, the majority of participants saw religion as an indirect relationship with God mostly by means of belongingness to a group. For example,

> *Religion is a group of people who believe in one thing or goal. Religion is practical, physical*" (Interviewee 15, Male SC). Another respondent emphasized, "*Religion is a society which one belongs to that one always associates himself through that to God. One chooses to belong to as a means of getting closer to God. I am religious since I have chosen a particular sector. There are certain beliefs which that sector will ask you not to do and I go by that, so I'm religious* (Interviewee 1, Male SC).

The difference between spirituality and religion/religiosity emerged. The majority responded that spirituality and religiosity are different things. For example, "*A person can be religious but not spiritual. A person may be spiritual and not religious*" (Interviewee 2, Male SS). Another participant narrated that "*Religion is different from spirituality. In religion you know there is God but you don't relate to him directly. Spirituality you relate and communicate with God. You practice what God says*" (Interviewee 21, Male SS).

What interviewee 2 said is noteworthy about being religious: "*Following a rigid path, going to church, pray, read your Bible, come back, trying to be pious*." Spirituality on the other hand, is the personal beliefs and communications a person has directly with his/her Creator and not involving anything religious. Interviewee 2 again said,

> *Spirituality has more to do than being religious. It means your personal walk with God or personal touch with the Holy Spirit. There can be similarities, but I think spirituality is deeper, an in-depth dimension than religion. I believe religiosity is letting people know that this is me, I want to be this way, I follow Christ, a Christian, letting people see you are going to church and belong. But to me, spirituality is a more in-depth feeling, your personal relationship with God or whoever you believe is your spiritual model. Being spiritual is your one-on-one contact with God. There's a person who doesn't go to church often, but what he does make him spiritual.*

The participants were saying that religion is practiced as a group activity and is a means to an end, the end being spirituality. For example, a respondent said,

> *I worship with a Christian group to express my spirituality. In my church, I'm in the choir, I play instruments, I also pray*" (Interviewee 4, Female SS). One participant

narrated, "*There is no difference between spirituality and being religious because if you don't belong to a religion, you don't get the spirit in that thing* (Interviewee 12, Female SS).

By this, the participant was implying that religion helps a person to become spiritual. Thus, religion is one means to spirituality. All respondents linked spirituality to God and something which human beings cannot see. To be spiritual, participants understood it to mean to be in direct contact with God, and be able to have one-on-one relationship with God. Most participants affirmed that they were religious and their reasons were that

I have chosen a particular sector. There are certain beliefs which that sector asks you not to do, and I go by them, so I'm religious" (Interviewee 1). Interviewee 2 said, "*Because I'm a Christian, born again, baptized, in the choir, at least I've a religion that people can see and say that this person has a religion.*

These participants appeared to be saying that to be religious was equal to membership in a group and following the group's set of beliefs and practices in order that others identify you with them. Participants meant that this is not so with being spiritual. However, spirituality and religiosity are opposite sides of the same coin.

"Coping tool: Religiosity"

Participants named religion and religiosity as ways they coped with SCD. For example,

Those who took the Christian religion also pursue it with vigor. Ghanaians also cherish religion. For some strange reason, frequent going to church, clapping, dancing and vigorous activities that should trigger crisis rather heal patients and make them feel

good. There are certain things to abstain from. You can't say that because you worship God you should be reckless about them (Interviewee 9, Female SS).

"Ambivalence in choice of coping strategy." Participants compared cultural coping with medical "coping" or treatment. They praised and at the same time were dissatisfied with aspects of medical "coping" or treatment. They also praised and were dissatisfied with aspects of cultural coping. Ambivalence is having or showing mixed feelings about a certain situation. Participants therefore had mixed feelings about choice of coping strategy.

"People power" versus "drug power" In analyzing ways of coping with SCD and the reasons for them, the researcher named a subtheme "people power" versus "drug power." This reflects participants' apparent preference for people over drugs in their healing expectations. African cultural values to these participants had a "people power" value in contrast to "drug power." This is shown in their responses to the probing questions of how hospital management compared with an African cultural value like home/family care. Their answer suggested a contrast between "people power" referring to help from extended family and "drug power" referring to help from hospital or clinic management. This subtheme implies that sometimes participants considered medical "coping" as better than cultural coping and sometimes cultural coping as better than medical "coping." In other words, it is "Drug Power versus People Power," depending on the circumstances. Participants narrated this in different ways. One such narration was:

Sometimes, the painkillers don't work. So you go to the nearest clinic to ease the pain for you through IV or injections. Home treatments take time 4-6 hours to relieve the pain. I

> *take paracetamol. But to quicken relief, I add Ibrufen or diclofenac or a suppository, one you insert in the anus. I take folic acid daily* (Interviewee 16, Male SS).

Another narration was, *"I try to take a first aid. I take in more fluid that swells up the cells somehow and make them able to move. I drink more fluids like Milo, porridge, and so forth."* (Interviewee 7, Male SS). These medical "coping" strategies were used because they had immediate practical value in relieving pain. Contrarily, "people power" implies that the influence of human beings during illness is more effective than the influence of chemicals or drugs.

For example, "*In severe pain, the people around you will make you forget about the stress, even though they don't give you medications to take they draw your mind away from the crisis*" (Interviewee 1). Another participant reported similarly,

> *One thing I don't like is when you are in bed sick and people come around. They give you much pity and I hate that. I'd rather be at home and people visit me than being in hospital bed with all the drips around me and people will see me in such a condition. Home care is far better than hospital care. I sometimes use the clinic as a last resort* (Interviewee 2).

"People power" appears to be a double-edged sword. It is useful or harmful to patient wellbeing depending on the setting, mostly useful in the home setting (extended family). The hospital did not give patients opportunities for spiritual practices like the home. Interviewee 2 narrated, "*I was at home one day with pain and friends just came around, started praying with me and all of a sudden, the pain just went. I like those kinds of things better than being in the hospital.* Interviewee 2 corroborated that *"The hospital*

too can give much stress so that your SCD pain increases. Instead of handling you with care, they rather impact you with anger."

The responses above could be interpreted to mean that hospital treatment is scientific and home treatment is humanistic. This suggests that hospital treatment is mechanical while home treatment is patient-centered. Interviewee 1 put it this way: "*At times, you will be older than the nurses who attend to you, but the way they talk to you, you will be thinking, why don't I remain in the house, stay there and die.*" The interviewee, however, endorsed the two, claiming both home and hospital treatments are helpful, probably implying that they complement each other. "Scientific versus humanistic treatment" could be a way to name this subtheme that emerged from the analyses.

Whether or not African cultural values help reduce some psychological symptoms, respondents thought it depended on the patient's family. This response suggests that participants always took African cultural values to mean the extended family. If the family insults the patient's integrity as "nobody" because he/she has sickle cell then psychological problems develop. But if the family encourages the patient, this facilitates psychological health.

A third choice is captioned "Both 'drug power' and 'people power' are equally good." Here, participants said that medical and cultural coping methods are complementary. In other words, it is "People Power AND Drug Power." The reason they gave for the different relative usefulness of medical and cultural coping can be

summarized in this subtheme: "Medical Coping as Having Practical Value and Religious Coping as Having Transcendental Value."

Based on their reflected meanings and also based on their context as Ghanaians who experience African cultural values, participants provided clues that suggested how they coped with SCD. Responses of participants referred to actions taken to reduce pain crisis and why. They are classified under "Reasons for Using a Coping Strategy."

"Prayer Power and Drug Power: Specific Coping Ways" The researcher inferred from the data that participants used spirituality and religion/religiosity to cope with SCD. Specific ways that the majority of participants commonly used them were personal and others' prayers as well as verbal and silent praying. Praying was done in the context of taking medications. Interviewee 1 indicated that,

> *I pray if it is God's will he should take this offer I am making and heal me*" (Male SC, 57 years). According to Interviewee 13, "*When I am in crisis, I pray and the results are perfect. God heals me. It takes time but I have to pray and pray. God says when you are sick pray and take your medications. Then he'll heal you* (Male SS, 22 years).

In prayer, God gives power and strength to move on, as well as understanding of a greater or higher purpose of the sickle cell crisis being experienced. One understanding is that it (SCD crisis) is a cross the participant should carry. So the participants prayed for strength. This, participants believed, is effective because praying and questioning God and crying bring peace and comfort. Interviewee 2 said he prayed this way:

> *God, why should I have this pain every day? Christ died for our sins. By his stripes we are healed. After praying and crying, I just felt that something had been pulled out of me*

> *and I laid down cool and things begun to come to my mind like this is not it, I have more things for you to do, I have a purpose for you....*" He concluded, "*The prayer brought about all these answers and I've come to understand that it is not bad to be a sickle cell patient. God has a purpose for me* (Male SS).

Prayer, to the participants, works by bringing a sense of peacefulness, relaxation, and a knowing that God touches so that the patient doesn't break down. According to Interviewee 2,

> *The spiritual helps you to rise above your physical strength. The physical world is there, but I believe there is a higher spiritual dimension. In the context of the SCD, the higher dimension comes in when your spirit is raised up to a level... even when your body is weak, because your spirit is high, you are able to overcome certain things in the physical. I believe that we have a higher spiritual level that a human being can operate*.

Faith/belief, consciousness of life after death, scripture reading and attending meetings were also used by the participants. Participants felt that spiritual/religious coping was better than medical coping in certain respects although medical "coping" assured faster relief than spiritual coping. Respondents seemed to use spirituality and religiosity for psychological reasons. They used medical coping for physical other than psychological benefit. For instance,

> *I use my relationship with God, my spirituality to cope with SCD. By God's grace I have good psychological coping. I don't like the hospital by the way. Korle-Bu is not a best place to be. Weekends that the sickle cell clinic does not operate, a patient has to wait and manage the condition on their own until Monday* (Interviewee 22, Male SS).

Another response that gave spirituality/religiosity a psychological value was that narrated by Interviewee 23. She said,

> *It (spirituality) gives me hope, assurance about my future, that my illness will change from well to better. SCD is not curable, but it can change that I might not have crisis. The role spirituality/religion plays is it encourages me or it makes me know that there is a second chance* (Female SS). This looks like spirituality inoculating against depression.

Some participants believed that because God has a purpose for SCD, He is also the curer, influencing treatments and can heal. These are summarized in the words of Interviewee 1 as follows:

> *I believe God is a healer...God also influences hospital drugs to heal a person. God is the first person who blesses medicines before we take it. I have God in my mind while I take my folic acid or I pray in my mind silently to God, "God take away the Satan who may become the obstacle between taking the medicine and healing me. I pray this way and then take the medicine* (Interviewee 1, Male SC).

According to Interviewee 6,

> *Prayer doesn't cure the sickle cell or change them into normal cells. If God wants to do that, he would. But he has not. What the prayer does is to give you some relief and hope to live so the purpose of your crisis will be made known to you. If I know the purpose of my crisis is to tell me not to overexert or lead a loose life, it tells me I must live a Godlike life. I take good care of myself and have knowledge about the condition. Prayer and such give me hope and strength from God. When crisis comes prayer does not stop it. But it*

> *gives you hope during the crisis. You need drugs and injections to control severe pain* (Interviewee 6, Male SS).

Spirituality/religiosity helps other respondents to cope well by transcending difficulties through focusing on God and on a higher purpose (Interviewee 2, 13). Some religious activities like attending meetings, worshipping in church, group singing, and music serve as physical exercise and are rejuvenating. Interviewee 17 narrated it thus,

> *When I see that during crisis my relationship with God has gone down, I take my phone and play music. I feel alive, like something is coming back to me, like a child who missed the mother for a long time and is welcoming the mother who is back from a long journey. Music is very spiritual. Physically, music and spirituality give me a lot of energy...You are rejuvenated. Even though there's pain, you are rejuvenated. There's hope for life* (Interviewee 17, Male SS).

It appears from the responses that the reasons spirituality and religiosity are used to cope with SCD are for transcendental, psychological, social and physical health/wellbeing reasons. Religion/spirituality has an empowerment and a control value. It empowers SCD participants who would otherwise feel helpless and victimized. SCD participants who were religious/spiritual believed that through rituals or behaviors such as prayer, worship, attendance, attendance-based social support, and reliance on God, they can positively influence the circumstances that they face. No longer are they completely dependent on the control of powerful others like healthcare practitioners and facilities, or on resources that they do not have, such as financial and social familial. Instead, religion puts power back into the hands of the SCD individual.

Psychological Health.

Interviews on psychological health were meant to explore participants' understanding of psychological health and to examine how the Africultural coping methods affected participants' psychological health.

Conceptualizing psychological health. The researcher named this subtheme thus because participant phrases described psychological health as "health of the mind", "thinking", "feelings or emotions" and "mental wellbeing." Psychological health to Interviewee 2 "*has something to do with your mentality or your psychological framework and how you think about things*" (Male SS). Interviewee 23 simply stated, "*Like mentally stable*" (Female SS). Interviewee 20 said, "*I understand it to be sound mind*" (Male SS).

"SCD impacting psychological health" Participants indicated that they were mentally sound and did not put themselves under lots of stress. Interviewee 1, however, added that "*I'm mentally sound; emotionally, I'm not at all sound. Mentally I don't act in such a way as to get out of my mind. Emotionally, due to pain, I can shout at you. I react to people who hold painful joints or parts of my body*" (Male SC). SCD impacted Interviewee 9 differently: *"SCD affects my state of mind. When in pain I sometimes don't like the people around me…I sometimes become angry."*

"Psychological health impacting SCD." The following responses indicated that many participants were psychologically healthy both during crisis and non-crisis days:

> *I take things so lightly. I don't put myself under a lot of stress. I'm not bothered by anything. I've learnt to take it easy and be cordial with it. I always want to make fun about it. It doesn't affect me much. It has rather made me more aware of myself. I always*

> *do or say things that will make me happy and I think it has brought me this far. My psychological health has helped me to cope with the disease* (Interviewee 2, Male SS).

Interviewee 3 said similarly,

> *Sometimes, I get crisis four or five times within a month. If you don't have sound mind, you may one day gather all your medicines, take them to finish your life. We pass through a lot of stress when we are in pain so we have to know that this is a temporal thing, if not you yourself want to end it all. Your mindset will help you to move on* (Female SS).

The above mentioned responses indicate that participants' minds were not troubled much by the SCD and its crisis episodes. It is the emotions and behaviors that got affected most by the crises. For instance, "*When I'm in crisis, you'll not love me. But when I'm not in crisis, you'll love me, I'm jovial. I don't think it's someone who has put this sickness on me. I think of SCD as a normal disease*" (Interviewee 1).

"Africultural coping impacting psychological health." Participants said some African cultural values influenced their psychological wellbeing. For instance, *"My psychological health has helped me to cope with the disease. Spirituality sometimes helps me to be sound in my mind…"*

Summary of Findings

Altogether, the participants reported being psychologically healthy whether they had crisis or not. Medical and psychosocial coping with SCD were associated with religion/spirituality as shown by the following voice:

> *I believe God has a purpose for me even as sickle cell patient. …it is because of God that I have fewer crises… I can cope well because of God. When things are getting difficult*

> *God gives me the power and strength to move on. God makes you understand that this is not where I am bringing you. I have greater things for you so he is giving me the energy and power to move step by step and day by day* (Interviewee 2, Male SS).

Discussion of Study Two (Qualitative) Findings

This section discussed the way qualitative findings resolved the research problem/concern, and met the study objectives. The first objective was to explore the meaning, use and role of spirituality and other African cultural values in the psychological health of individuals with SCD, how they are used and why. Discussion of these is elaborated in Chapter five. The objective to use qualitative inquiry to answer research questions arising from the quantitative study are, however, briefly discussed.

Question one sought to address why the quantitative study participants had high "interpersonal sensitivity" scores and low anxiety, depression, and hostility scores. Why did they score high on anxiety, obsessive-compulsion and phobic anxiety symptoms as compared to diabetic and healthy samples?

According to Derogatis (1994), interpersonal sensitivity focuses on feelings of inadequacy, especially in comparison with other people. Self-depreciation, self-doubt, and marked discomfort during interpersonal interactions are typical indicators of this disorder. Additionally, individuals with high interpersonal sensitivity report acute self-consciousness and negative expectations concerning interpersonal behavior with others and others' perception of them. In this study, SCD participants were hypersensitive to comments on their abilities and looks, stigma and marginalization. Diabetics and healthy participants were not stigmatized. Compared with Western findings, however, these Ghanaian SCD participants were relatively healthy psychologically. Several factors that followed the biopsychosocial-spiritual model revealed by the qualitative study explain this.

First is because of the way participants conceptualized SCD. Although Gyekye (1996) argued that the African cosmology is more metaphysical or supernatural than scientific, participants' scientific and bio-medical understanding of the disease freed their minds from superstition and the disease's mysterious connotations that could unsettle their minds. They used medical resources that worked to reduce acute and severe crises while remembering that God has a purpose for the disease.

The second reason is that participants used positive psychological outlooks to reduce psychological symptoms. Participants accepted their sickle cell condition as normal. They accepted themselves. In less severe and non-crisis situations, participants used psychological resources to maintain mental, emotional, and social health, and to prevent bad stress from triggering sickling crisis. Third, participants consciously avoided social situations and interactions especially bad nuclear family associations that would provoke emotional and psychological symptoms. The "friends" factor in positive social support assisted them to reduce symptoms.

The fourth reason is that majority of participants professed spirituality and was religious. They used spiritual, religious and cultural beliefs to promote psychological health. In place of negative social relationships that harmed mental health, participants relied on religion and spirituality to promote spiritual wellbeing and to assure them a relatively good psychological health. In effect, they used positive factors in the biopsychosocial-spiritual model to improve psychological health.

Question two sought answers to why quantitative results demonstrated a lack of association between spiritual wellbeing, African cultural values and psychological health

and yet participants indicated that they used spirituality and possessed high African cultural values.

First, the aspect of being that SCD affected triggered participants reaction to cope in that aspect. SCD affected body organs and brought pain, so participants reacted to pain by use of pain relievers. SCD taxed participants' mind, feelings, and behaviors, so patients reacted mentally, emotionally, and behaviorally to cope with psychological effects. SCD affected participants' social relationships, so participants reacted socially to cope. Contrarily, SCD individuals saw spiritual wellbeing as an essential nature of their humanity. Spiritual wellbeing is a broader framework by which participants cope with the biopsychosocial effects of SCD, similar to Cronan et al's (1998) finding among chronic pain patients. Spiritual wellbeing or spirituality minimally related to psychological health because SCD did not harmfully affect spiritual wellbeing and participants did not react spiritually. Therefore, participants did not use spiritual wellbeing as a tool to fight symptoms. Spiritual wellbeing empowers them to have psychological and organic functioning.

Second, SCD participants did not decline to use Africultural variables to cope with the condition. Rather, they used medical resources for quick relief of acute crisis pain and used African cultural resources like spirituality to maintain general non-crisis health. These medical treatments were used because they had immediate practical value in relieving pain. For example,

> *Sometimes, the painkillers don't work. So you go to the nearest clinic to ease the pain for you through IV or injections. Home treatments take time 4-6 hours to relieve the pain. I*

take paracetamol. But to quicken relief, I add Ibrufen or diclofenac or a suppository, one you insert in the anus. I take folic acid daily (Interviewee 16, Male SS).

Question three probed what SCD participants considered as African cultural values. Participants considered the family, especially the extended family system, marriage, and children first and foremost as African cultural values. Participants considered spirituality, religion, communality, and festivals as African cultural values as well. This list is an addition to Belgrave's (1997) model, and contains items that she did not specify in her model. By considering family, marriage and children first and foremost, it implies these values affected SCD individuals and were important to their wellbeing and survival. It was expected that spirituality and religion would be prioritized as African cultural value, but it was not. This finding was inconsistent with African American and western literature.

Question four searched for reasons the family as a social support system harmfully predicted psychological health. The quality of family human resources an SCD participant interacted with determined their psychological state, not the disease characteristics per se. Depending on the type of family one interacted with, SCD conveyed the meaning of being accepted and cared for or not accepted (See "Coping tool" subtheme). Contrary to findings in study one that social support did not associate significantly with African cultural values, study two participants considered it as an African cultural value. However, it had more social disadvantages for sickle cell than social advantages.

According to participants, their family cultures reflected two roles of the family in their psychological health. One was a harmonious extended family that promoted

psychological health. The other was a nuclear family that fostered poor mental health (See "Paradox of living with SCD" theme). The stigma and interpersonal sensitivity found in study one most likely came from the nuclear family where relationships were limited, comparative, and competitive, thus putting psychological pressure on SCD participants (See "Coping per African cultural values" subtheme).

Question five searched whether psychological and medical coping methods were associated with African cultural values and in what ways. SCD participants acknowledged that their ability to use their psychological resources to cope with SCD was based in spirituality/religion (See "Paradox of living with SCD" theme). The scientific and psychosocial approaches to coping were associated with spiritual/religious beliefs and activities. The spiritual meaning of the disease is that God has a purpose for SCD. An SCD individual can survive through use of religious faith, belief, practice and dependence on God. Such individuals had good psychological health and attitude toward SCD. Individuals who did not consider spirituality/religion might have poor psychological adjustment to SCD.

Question six explored reasons participants with SCD used specific spiritual/religious coping resources. They did so for transcendental, psychological relaxation, and basic social needs satisfaction reasons, and also to meet minimum physical exercise needs. This finding is an addition to the literature. Previous research scarcely provided reasons SCD participants used specific spiritual coping strategies. It only reported the fact that participants used them to cope. In using spiritual coping, psychological health either improves or worsens. The present study, however, revealed Africentric mechanisms by which spirituality and religiosity affect psychological health.

In summary, SCD participants used factors in the biopsychosocial-spiritual model to cope. In addition, the reasons for using them have been uncovered, namely for transcendental, psychological, social, and physical exercise reasons in order to assure optimum psychological health. Spiritual wellbeing itself appeared not to be a coping tool for adult individuals with SCD in this study. Therefore, SCD participants did not use spiritual wellbeing to cope with the ramifications of SCD.

Spiritual wellbeing represents what SCD individuals have and not what they do. Spirituality is essentially their nature. Similarly, SCD participants saw sickle cell as their nature. They did not need to fight it but learn to live with it. Spirituality appears to be a disposition, serving as framework within which patients applied the other biopsychosocial coping methods. It helped patients to cope more effectively with SCD (Cotton et al., 2009). What participants revealed about their being spiritual resembles Piedmont et al's (2009) definition of spirituality as "an intrinsic, universal, motivational aspect of humanity that seeks meaning in life upon realization of our finitude on this planet" (p. 170).

The relationship between SCD, spirituality and psychological health appears clearer in Figure 4.2. SCD does not directly affect or by itself produce psychological health symptoms. Its effects pass through spiritual wellbeing and the latter's effect on psychological health.

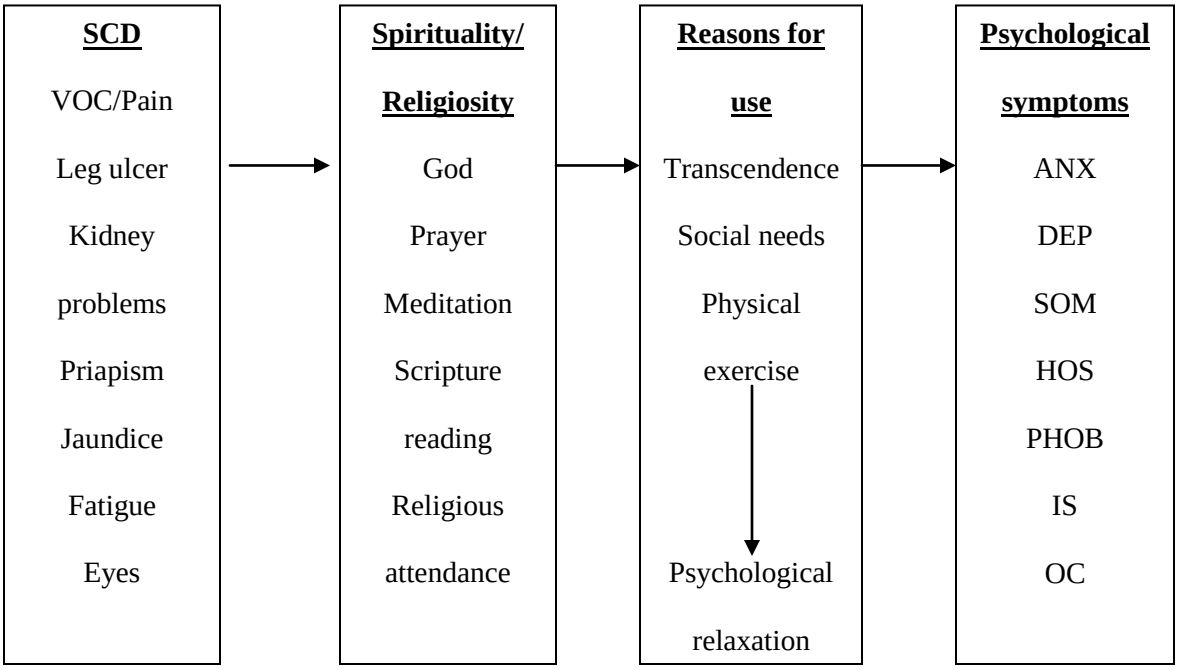


Figure 4.2. Relationship between SCD and psychological health via spiritual wellbeing.

From the analysis, a model about the basis of SCD can be conceptualized as in Figure 4.3.

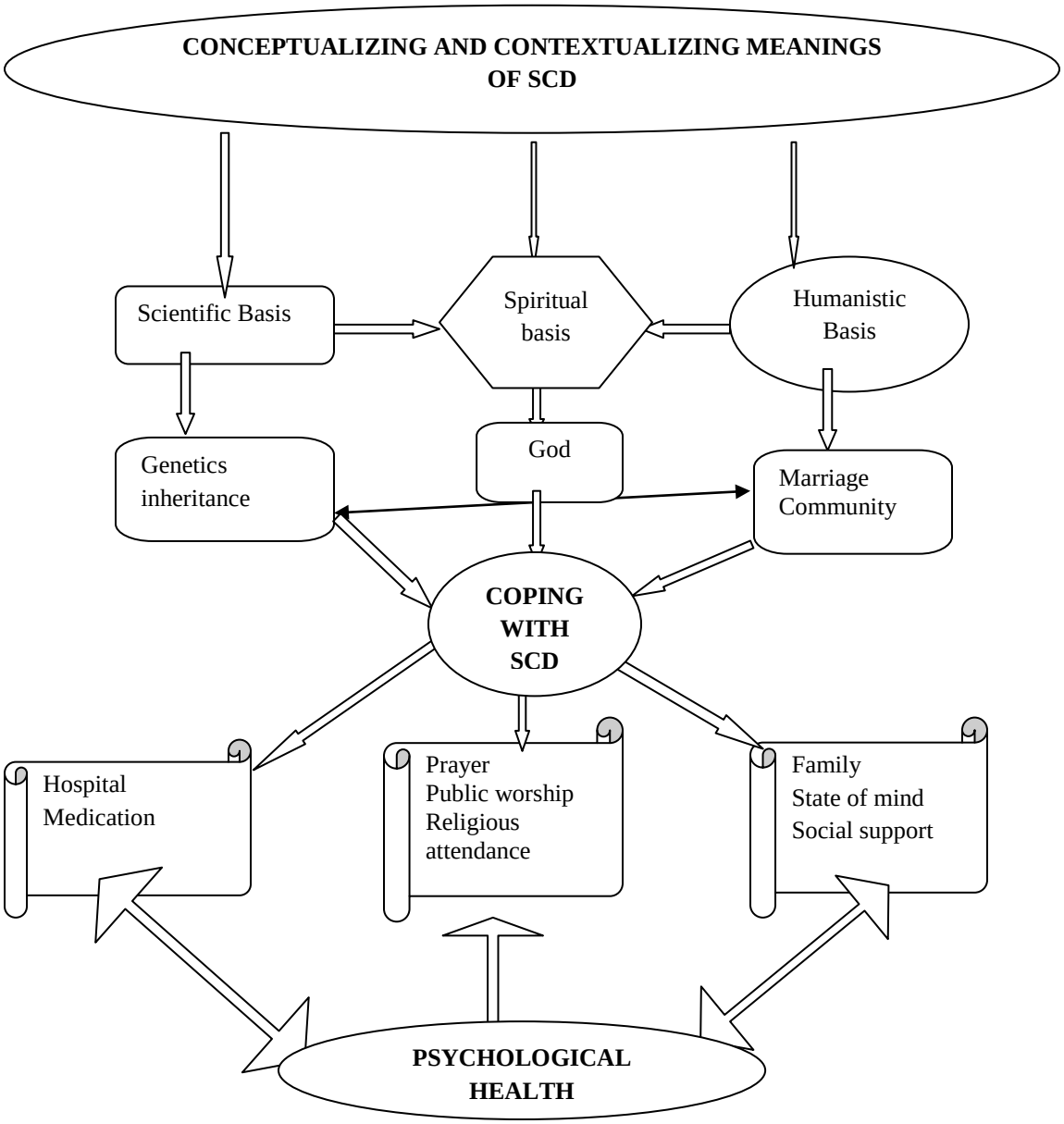


Figure. 4.3. An interactive model showing the relationships among the thematic findings, their bases, source of SCD, their coping correlates, and effects on psychological health.

In the model shown by Figure 4.3, the first oval shape features the theme that represents the way participants conceptualized SCD and the contextual meanings they gave to the disease. Participants provided scientific, spiritual, and humanistic bases for SCD. They indicated the source of SCD as being genetics or inheritance, God, and

marriage. Participants acknowledged a spiritual support for the disease while acknowledging the role human efforts play to cause, maintain, improve or worsen the condition. Accepting that SCD is no one's fault and cannot be cured, participants believed God has a purpose for it. The disease is scientific, but has spiritual/religious connotations and a purpose for humanity. The disease is not against humanity. When humans cooperate with spiritual resources and with the scientific method of managing it, the disease is not a curse or death sentence but a disguised blessing from God for the individual.

Although the disease propagates through the community and marriage, the only solution was to cope effectively. The coping styles reflected the alleged sources and bases of the disease. Consequently, hospital and medication resources, religiosity, and humanistic coping resources were sought. The model suggests that from the viewpoint of human responsibility for SCD, marriage, family and the community should be tackled to reduce the incidence of SCD and its negative social and psychological consequences in Ghana. Participants who already live with SCD should use scientific and cultural coping that are based in spiritual and religious beliefs. These coping styles positively and negatively affected psychological health which in turn affected the coping styles.

A significance of these findings and interactive model is the opportunity to investigate the appropriateness of relevant African cultural values. Although study one did not find this detail, it is an important step towards developing culturally sensitive management programs for SCD. This is indicated in the purpose and rationale for this study.

Conclusion of Study Two (Qualitative)

Psychological health of SCD participants is dependent on biomedical, humanistic (psychological and social) and spiritual factors, thus reflecting a biopsychosocial-spiritual framework. On the other hand, how these factors affect SCD depend on the psychological health of the SCD person (Figure 4.3). The biopsychosocial-spiritual factors and psychological health of the SCD individuals are mutually dependent (See also Figure 2.2). Nevertheless, SCD individuals view spirituality as a natural inclination that facilitates all psychological phenomena to occur (see Figure 4.2). Spirituality sparks life and is vital to the process of discovering purpose, meaning, and inner strength to cope with SCD and its biopsychosocial complications.

CHAPTER FIVE

GENERAL DISCUSSIONS

In this chapter, the researcher discussed the major findings in both empirical studies 1 and 2 (quantitative and qualitative respectively). He linked both findings to the general objectives of the entire research stated in chapter one and to the theoretical frameworks that grounded this study. The interpretation of the results took into account the following: Sources of potential bias and other threats to internal validity; the imprecision of measures, the overall number of tests and overlap among tests; the effect sizes observed; and other limitations or weaknesses of the study and addressed alternative explanations of the results. The discussion ended with a reasoned and justifiable commentary on the importance of the findings. The concluding section briefly returned to why the problem is important, what larger issues might hinge on the findings, what propositions are confirmed or disconfirmed by the extrapolation of these findings. It also considered the research, theoretical, clinical, and practical significance of the outcomes and what the bases of these interpretations are. It discussed the real-life psychological health phenomena that might be explained or modeled by the results if the findings are valid and replicable (i.e., the researcher proposed a model for coping for adults with SCD). Finally, the applications that are warranted on the basis of this research, the problems that remain unresolved or arose anew because of these findings have been covered.

Brief Overview of the Thesis

The main objective of the study was to understand how and why African cultural variables influence psychological health of SCD participants, by use of sequential mixed methods. In study one, SCD participants were asked by survey to identify what they

endorsed as African cultural values and whether these values moderated the relationship between spirituality and psychological health, and predicted psychological health. A subsample of study one was interviewed one-on-one about African cultural values and whether they used them to cope with SCD while comparing medical and psychological coping.

Summary of Key Findings of Study One (Quantitative) and Two (Qualitative)

1. Spiritual wellbeing/spirituality, African cultural values and psychological health appeared minimally related among SCD participants. Among the comparison groups, African cultural values and spiritual wellbeing were significantly related to psychological health. Social support significantly reduced psychological symptoms among SCD and diabetic participants but not among healthy participants.
2. African cultural values and coping variables did not significantly moderate the relationship between spirituality and psychological health of SCD participants. Some African-centered coping variables (i.e. cognitive-emotion debriefing, spiritual-centered coping, and family) reduced psychological health.
3. Some African cultural variables (i.e. social support, collective-centered coping, spirituality, religion/religious wellbeing, friends, significant others) enhanced psychological health.
4. The biopsychosocial-spiritual model contributed about one third of the variance in psychological health when socio-demographic and disease-related factors were included; otherwise, the model alone contributed a little above one tenth. The Africultural factors that predicted psychological health explained about 13%,

while socio-demographic and disease-related factors alone explained about 21%, and their combination explained 27% of the variance in psychological health. Given this result, what specific purposes did spirituality and religiosity serve in SCD participants ' life?

5. The sickle cell data did not fit well the theoretical model used for the study. An alternative model that considered socio-demographic factors was preferred.
6. The study **2** found spirituality and other African cultural variables to have an enhancing moderating relationship between spirituality and psychological health, in addition to psychological and medical factors.

Comparing SCD Participants with Diabetic and Healthy Participants on Africultural Variables, Psychological Health, and Theoretical Model

As discussed in chapter four, research found SCD participants to be more distressed psychologically than the general population (Molock & Belgrave, 1994) similar to this study's findings. Past research, however, did not compare sickle cell participants and healthy or other chronic disease participants on specific psychological health symptoms and specific Africultural variables as this study achieved.

To begin with, the three groups generally demonstrated significant differences with respect to the Africultural and psychological variables studied. This suggests that SCD participants were generally different from either healthy or diabetic individuals. SCD and diabetes are chronic diseases. The chronicity factor, however, did not make the two samples the same in coping with psychological symptoms.

Additionally, age and education made significant differences between the three groups. Generally, the diabetic participants were as twice older as the SCD and healthy participants. Nine and ten percent of SCD and healthy participants respectively, were aged more than 40 years, whereas 75% of diabetics were aged 40 years and above. On the contrary, only about 12% of diabetics were aged 30 years and below while 71% and 76% of SCD and healthy participants were aged 30 years and below. Age correlated positively with African cultural variables but negatively with psychological symptoms for all groups. This was also true for education (Table 3.25, Appendix H).

It suggests that increased age and education count in people acquiring more African cultural values and adjusting better to psychological health. This explains why diabetic participants were advanced in age and had acquired more African cultural values leading to better psychological adjustment than the SCD and healthy groups. Additionally, all the Africultural variables predicted reduced psychological symptoms in the healthy and diabetic groups while they predicted increased symptoms among SCD participants.

Specific variables in which SCD participants varied significantly from healthy and diabetic participants have been observed. One such factor was obsessive-compulsion where SCD participants experienced less "thoughts, impulses, and actions that are experienced as unremitting and irresistible but are of an ego-alien or unwanted nature" (Derogatis, 1993, p. 8) than diabetics. Second, was anxiety where SCD participants were significantly high in nervousness, tension, panic attacks and feelings of terror (Derogatis, 1993, p. 8) than diabetics but lower than healthy participants. Further studies need to

investigate why healthy participants experienced anxiety symptoms more than SCD participants, contrary to past findings (Molock & Belgrave, 1994).

Third, SCD participants were significantly high in phobic anxiety symptoms such as "persistent fear response to a specific person, place, object, or situation that is irrational and disproportionate to the stimulus and leads to avoidance or escape behavior." The specific person, place, object, or situation the SCD participants avoid have not been investigated in this quantitative study or published by past researchers. It can be speculated from participants' qualitative data that they avoided the hostile nuclear families they lived in, and persons, situations and places that stigmatized them. Healthy participants and diabetics might not be stigmatized as strongly.

Fourth, SCD participants were significantly lower on spirituality than healthy and diabetic participants. It was expected that acute and chronic pain experiences would motivate increased spiritual practices and experiences. The present evidence is on the contrary suggesting that prolonged and increased chronicity as in sickle cell experience refocuses attention away from spirituality to something else, probably intuition. This is because SCD participants were significantly high on intuition than healthy but lower than diabetic participants. Additionally, being significantly lower than healthy and diabetic participants on spiritual, existential and religious wellbeing, suggests that SCD participants' wellbeing was in something else other than these. The reasons for this were discussed elsewhere in the thesis. No previous publication was found to compare with.

Fifth, to be higher than healthy participants but similar with diabetics on social support suggests that chronic disease individuals generally need increased social support

more than healthy individuals generally. Significant others meant more to SCD and diabetic individuals as a social support system than healthy individuals. This might probably be due to their sometimes debilitating chronic disease. Finally, SCD participants were significantly low on "Friends" as a social support system than both healthy and diabetic participants. They were, however, high on "Family" than both comparison groups. This in no way suggests that the family as a support system promoted SCD participants' psychological health. Earlier sections discussed the harmful role of the family in SCD experience in Ghana while friends as a social support system provided psychological health. It probably suggests that having few or no friends helped stabilize SCD individuals psychologically.

Granted that the three groups were significantly different, they were similar but not the same in some specific Africultural and psychological symptom experiences. For example, no significant differences were observed in interpersonal sensitivity, depression, hostility, global psychological health, sensitivity, communality, orality, Africultural coping and its subscales. Even where significant differences were indicated, the eta squared or effect sizes were negligible, suggesting theoretical and not practical differences. Therefore many Ghanaians are similar with respect to African cultural values.

One reason for a poor data and theoretical fit for the SCD sample could be the nature of their disease. Their observed model showed that all the variables except social support and medical coping were having a harmful effect on psychological health. Their generally low psychological symptoms levels suggests that SCD participants employed factors other than African cultural values to promote psychological health. These 87% of

such factors must be discovered. Further investigation for a better model was therefore needed for SCD participants.

Biological factors and psychological health in SCD

The study found that participants conceptualized SCD by defining, describing, and understanding its cause, course and nature based in genetics, heredity, and propagated by a union between a man and woman who are both carriers. Thus, the biological, medical, physical, and physiological reasons for SCD's existence were similar to the scientific research and scholarly literature (Anie, & Green, 2012; Creary, Williamson, & Kulkarini, 2007; Konotey-Ahulu, 1991; Ohene-Frempong & Owusu, 2008).

Study one and two results showed that Ghanaian SCD participants somatized the sickle cell pain. They used pain severity and parts of the body the pain affected to define SCD. "Very severe", "terrible", "excruciating" pain in waist, back, leg, joints, head, stomach and chest, were some of the descriptions. This way, SCD individuals in Ghana somatized SCD and its pain rather than spiritualizing them. This is not different from how Ghanaians conceptualized SCD and pain decades ago (See Chapter 2).

What makes some difference in the conceptualization of SCD between now and five decades ago was not in reference to the reference terms that described the SCD but in its cause. Supernatural forces were blamed for causing SCD pain. According to Konotey-Ahulu (1991), ignorance of the true etiology of the disease caused bitter accusations, with women blaming their husbands for being wizards and having relatives who were known to have *nuidudui* [meaning body ache in Ewe language] (p. 462). Today, SCD individuals

attribute the cause to biological, genetic, hereditary and marriage/family factors. This reveals that while Westerners describe SCD by its microscopic morphological characteristics (see Chapter 2), Ghanaians describe it by the pain they experience in their body (somatic pain).

Compared with SCD patients in the USA on pain occurrence, episodes, duration, pattern, quality, location, intensity, as well as aggravating and relieving factors and functional status (Anie et al., 2002; Ballas et al., 2006; Bodhise et al., 2004; Booker et al., 2006; Dampier et al., 2004; Franck et al., 2002; Gil et al., 2004; Harrison et al., 2005; Hernigou et al., 2006; McClish et al., 2006; Pells et al., 2005; Sadat-Ali, 1993; Smith et al., 2005, 2008; Williams & Moskowitz, 2007), these Ghanaian SCD participants were not quite different. What seemed different and worthy of note is the value the Ghanaian patient placed on the relieving factors and his/her functional status.

Depending on the degree of pain and its exigencies, SCD participants fell on medical, psychological, and/or religious methods to cope. Participants indicated that when pain was severe, they needed a medical approach in terms of seeking medical and pharmacological resources before considering non-pharmacological or non-medical resources such as psychological, spiritual/religious and social support. Nichols and Hunt (2011) indicated that chronic illness is defined by not only the physical but also the mental and spiritual effects of the disease. That's why participants would emphasize the value of transcendence over the value of medication when pain was not severe, and used religiosity, spirituality and social support to control and prevent crisis. But they valued medication over spirituality when pain was severe.

Persistent overlooking of the cause and symptoms of less severe pain might result in SCD complications that have consequences for multiple organ damage and strokes leading to sudden deaths. Patients' religious and spiritual backgrounds made them approach everything including disease and pain also from a spiritual-religious perspective. Transcendence was one of the values religion provided to cope with pain.

In summary, study one and two found similar biological factors about the nature, etiology, course, and effects of SCD. Depending on the severity of pain, relief from its symptoms was achieved by either biomedical, psychological or cultural resources or a combination of all. These hopefully, affected the psychological health of SCD participants.

Psychological factors and psychological health in SCD

In discussing psychological factors in SCD, consideration was given to what was found in studies one and two and how these two findings compared with the literature. In contrast to the literature that asserts that SCD individuals suffer from increased bouts of depression, anxiety, hostility, anger, somatization, and low self-esteem (see references in Chapter two), these Ghanaian SCD participants had low scores on these symptoms, except interpersonal sensitivity.

Subsequently, the theme of psychological health was explored by qualitative interviews. All participants described psychological health like scholars define it by referring it to health of the mind, soundness of mind, thinking, feelings, emotional and mental wellbeing (BPS, 2005; European Commission, 2005). Thus, participants

understood psychological health and were aware of their psychological states. They did everything to promote their own psychological wellbeing.

The majority of participants in this study indicated that they were psychologically healthy during crisis and non-crisis times. The reason for this is not farfetched. All participants depended on God, religious and spiritual activities to free their minds of the burden of SCD, and to transcend the medical and physical negative effects of SCD. They accepted themselves and the sickle cell condition. Participants were personally responsible for their own health and made God also responsible for what was beyond their control by leaving what they could not do in the hands of God. They did not carry the burden alone. They shared it with God, their religious and spiritual relations, their extended families and medical facilities. This, the researcher observed, explained participants' reported psychological wellbeing.

Participants reported experiencing psychological wellbeing although they did not actively seek psychological services such as counseling, psychotherapy, cognitive-behavioral therapy or psychodynamic therapy as patients in the United Kingdom do (Anie et al., 2005). This could be why participants had a low indication for the use of psychological coping as a strategy. They did not actively seek these western psychological services as they actively sought western medical resources when they were in severe crisis. Only one participant said she consulted the clinical psychologist at the invitation of the psychologist. But that professional relationship was not sustained. She dropped out.

Anie and Green (2012) prescribed psycho-education and cognitive-behavioral therapy as psychological interventions for SCD patients in the UK; that cognitive-behavioral therapy aims at reducing mental, emotional and behavioral stress and maladjustment. It was established that psycho-education was useful to a group of SCD patients in Korle-Bu, Accra (Okraku et al., 2009). That could explain why these current literate participants from the sickle cell clinic in Korle-Bu were knowledgeable about SCD, its causes, course, development and treatment.

While these psychological interventions may benefit Western and European patient clients, it is unlikely that Ghanaian SCD patient clients would benefit from cognitive-behavior therapy that is an individualistic and expensive approach in terms of time, money, proximity and accessibility. Ghanaian patients would prefer a communalistic approach that is cheaper, accessible and within their control in terms of time, such as is provided by religion.

It is not always the case that SCD, its medical complications and pain lead to psychosocial distress and maladjustment in adults with SCD. The ability of a person to tolerate pain is decreased by depression, anxiety, and life stress in adulthood (Fadem, 2004). Low depression and anxiety levels for this SCD study sample meant high tolerance with pain. A US study found a population of SCD patients to have attained a reasonable level of psychosocial adjustment and many were leading productive lives (Abrams, Phillips & Whitworth, 1994, 2008). Similarly, this Ghanaian study found the majority of adult SCD participants were students in tertiary level institutions, working as government employees and engaged in private business enterprises. Thus, they were psychologically healthy and leading productive lives (BPS, 2005).

Social factors and psychological health in SCD

This section discusses what study one and two found about social support and psychological health among SCD participants. Social support recorded some significant positive effect on psychological health, implying that a unit increase in social support resulted in a corresponding unit increase in psychological health. This agrees with findings of a Ghanaian study (Walker & Danquah, 2009) and African-American studies (Almeida et al., 2009; Bhugra, 2005; Tailor et al., 2007). Without detailed analysis of factors, these researchers found that significant negative relationship exists between social support and depression. In this study, "Friends" as a specific social support component significantly reduced interpersonal sensitivity, hostility, and phobic anxiety as specific psychological health symptoms.

It was expected that the "Family" component of social support would increase the psychological health of SCD participants. Instead, increased family interactions resulted in increased psychological symptoms. The families of SCD individuals tended to worsen especially somatization, obsessive-compulsion, depression, anxiety, hostility and phobic anxiety, although these effects did not reach statistical significant proportions. This detailed finding contradicts the earlier ones mentioned (Almeida et al. 2009; Bhugra, 2005; Tailor et al., 2007; Walker & Danquah, 2009).

It can be recalled that majority of SCD participants in this study lived in nuclear as opposed to extended family homes (Table 3.1). There is something about nuclear family dynamics that worsened psychological health for SCD participants. Qualitative interviews in the Study Two explained that while the nuclear family possibly worsened

psychological health, the extended family promoted it. Participants identified name-calling, parental comparison with siblings, and step mother ill-relationships as culpable.

The literature gives a different picture. According to Anie and Green (2012), family social support assures good psychological adjustment. It lowers levels of perceived stress, lowers negative thinking and helps higher efficacy for SCD patients. In the USA, a Mayo Clinic report (2007) indicated that stress can be reduced and avoided by seeking help from family relationships and friends. Seeking help from family and friends amount to social resource, and can be helpful in coping with the SCD (American Academy of Family Physicians, 2002).

In this study however, some social support was gotten from marital relationships, extended family, and religious friends. SCD participants identified these in interviews as what defined African cultural values, suggesting that they cherished them. Yet due to their sickle cell condition, most of them were not married and/or had no children. Some of the few who married also had marital problems. These explain why family life predicted reduced psychological health. Compared to SCD participants, majority of diabetics in study one were married and had better psychological health scores than SCD participants.

Lastly, some studies have indicated that the socially cohesive and communal nature of SCD self-help and support groups may increase a sense of belongingness among participants that enhance personal growth and positive adjustment to SCD (Nash & Kramer, 1993; Shelley, Kramer & Nash, 1994). These helpful social resources were reported in the USA. In the present research, the "Friends" component of social support

was psychologically beneficial. Some participants belonged to sickle cell support groups. Whether they used them to cope was not explored.

In summary, generally, social support significantly predicted psychological health. The "nuclear family" component of social support however, might need help to be able to support its sickle cell members.

Spiritual/religious factors and psychological health in SCD

Findings in study one and two, their interpretations and how they compare with previous findings are discussed in this section. Study one results demonstrated that there was minimal relationship between spiritual wellbeing and psychological health. Yet Religious Wellbeing of the Spiritual Wellbeing Scale and "Spirituality" subscale of the Africentric Worldview Scale significantly predicted psychological health following further analysis. This contradiction possibly stems from the fact that different scales that measured the same abstract construct-viz. spirituality yielded different and opposing results, one result being favorable and the other unfavorable to psychological health. The measure that yielded unfavorable spiritual wellbeing scale scores was developed by western researchers (Ellison & Paloutzian, 1983). The measure that yielded favorable spirituality subscale results was developed by an African-centered researcher (Belgrave, 1997).

Subsequently, in the follow-up qualitative interviews, the majority of participants reported using "spirituality" to cope with SCD. The specific spirituality variables participants used most often were prayer, faith/belief, and consciousness of life after death, religious meeting attendance and scripture reading. They used prayer silently,

meditatively and verbally either personally or/ and congregationally to cope with SCD. This compares with western literature (Cronan et al., 1989; Wachholtz et al., 2007; William et al., 2005).

Spirituality and religiosity had transcendental, social, physical exercise/health and psychological relaxation benefits for SCD persons. Previous sickle cell psychosocial research did not explore in much detail the reasons and purposes of spirituality and religiosity. First, the type and level of physical exercise that trigger sickle cell crisis are not clear in literature. Konotey-Ahulu (1991) simply mentioned vigorous physical exercise as a known trigger of crisis. Instead of physical exercise triggering crisis as demonstrated elsewhere (Asnani, 2012; Koenig et al., 2012), it rather made the present SCD participants feel good and refreshed. It is noteworthy that this type of exercise was based in religion and spirituality. A similar previous study found a physical health benefit for religious physical exercise (Strawbridge, Shema, Cohen & Kaplan, 2001). This finding agreed with Gyekye's (1996) observation, that there was no activity of the African that was not influenced by religion.

The above-mentioned finding corroborates previous ones suggesting that there is a strong relationship between religion, spirituality, psychological health and physical health in chronic disease patients (Koenig et al., 2012). Powell et al. (2003) reviewed prospective correlation studies on religion, spirituality, and psychological health and mortality outcomes. Powell et al. found that people who attended religious services more frequently than their peers early in the study were less likely to die during the remainder of the study. That was about 25% mortality, on the average. They concluded that overall, current evidence was "persuasive" in support of the hypothesis that church/service

attendance protects against early death. The physical activities done in church service are possible explanations for longevity. Another USA poll found that 79% of respondents believed that spiritual faith could help people recover from disease. However, only 56% said that their faith had actually helped in their recovery (McNichol, 1996).

Second, pain appears to serve as catalyst for transcendence. By transcendence, SCD participants meant that they used resources such as religiosity-spirituality, psychological and socio-cultural factors to rise above SCD, its pain crisis, and constraints- such as physical, medical, academic, psychological and social limitations. Within transcendence they were able to explore meanings of their condition. The condition drew most patients to God, their Creator, whom they believed was aware of the SCD condition, had a greater purpose for their lives, and was involved in the disease's outcome. This transcendence was a drive toward achieving higher spiritual consciousness. It moved patients beyond the bodily and material experience of the pain to an essential place where they felt the pain less or the pain had a meaning. The purpose was to redirect their energies and resources into intellectual or academic developments and not physical developments.

Nelson (2009) indicated that "…scholars have started to understand religion as activities and a way of life ... having to do not only with the transcendent as it is "out there" but also as immanent in our bodily life, daily experiences, and practices" (p. 4). These SCD participants also considered religion to be both transcendent and immanent. Religion granted individuals with SCD the opportunity to distract. It became an engrossing experience that made them escape from possibly the chronic effects of the condition, but not from the acute medical effects. During acute crisis, SCD individuals

did not use religion-spirituality in isolation. They used medical resources to transcend the pain. The capacity to transcend enabled patients to enter into a certain realm or sphere where they shifted focus away from the pain (See items on Brief Cope in Appendix A & K).

Most of the participants defined spirituality as acknowledging supernatural power and transcendence. Another meaning SCD participants gave to spirituality is dependence on God through spiritual activities or the ability to use private/personal spiritual activities to relate to, draw closer to, or depend on God. A third meaning is personal beliefs, faith and trust in God. Drawing closer to God and means to do so, seem very important to participants more than any other ways of being spiritual. This perspective SCD participants had on spirituality is not different from Byrant (2007) who defined spirituality as,

> "the process of seeking personal authenticity, genuineness, and wholeness; transcending one's current locus on centricity (i.e. recognizing concerns beyond oneself); developing a greater connectedness to self and others through relationships and community; deriving meaning, purpose, and direction in life; and openness to exploring a relationship with a higher power or powers that transcend human existence and human knowing" (p. 835).

Given a meaning of spirituality as transcendence, we can conclude that SCD participants used spirituality to transcend or rise above the physical limitations of the disease. Cotton et al. (2009) defined spirituality as finding meaning and peace in patients' life and getting comfort from their faith and beliefs as a result of their relationship with something higher than the self. Such spirituality is further defined as the capacity to rise above life experiences, to celebrate life, and to experience joy despite challenges,

suffering and pain (Cotton et al., 2009). This literature-based definition and participants' experience of spirituality seemed similar. These perspectives on spirituality in the context of coping with stressors appear to be the same for all persons irrespective of race.

Third, for social support purposes, religion was useful to participants in coping with SCD. To some participants, spirituality was different from religion which they described as indirect relationship with God mostly by means of belongingness to a group. Religion entailed group activity and was a means to an end, the end being spirituality. Religion, to such SCD participants helped them to become spiritual. Thus, religion was one means to spirituality; other means to spirituality exist, such as through music. Others too thought that religion and spirituality were inseparable. These perspectives on religion were similar to the literature (Koenig et al., 2012; Nelson, 2009). They amount to what is called religious social support.

Past research found inconsistencies about the positive effects of aspects of spirituality and religiosity on psychological health (Cooper-Effa et al., 2001; Harrison et al., 2005; O'Connell-Edwards et al., 2009). More than half of recent research, however, established that spirituality positively influences psychological health (Cotton et al., 2009; Moreira-Almeida & Koenig, 2008). The current results showed that for this Ghanaian SCD sample, a change (increase) in psychological health did not depend on a change (increase) in spiritual wellbeing. It is recollected that 77% of these study participants were moderate to high on spirituality. Yet high spiritual wellbeing and psychological health had little association in SCD experience. What accounted for their psychological health therefore appeared not to be spiritual wellbeing.

Similar previous research found non- significant relationship between the two constructs. Others found aspects of spirituality to benefit psychological health and aspects of religiosity to worsen psychological health. For example, Jacqueline et al. (2004) found among African Americans that subjective spirituality and a positive relationship with God were positive independent predictors of mental health. They did not find subjective religiosity and organizational religious involvement to be predictive of mental health.

In searching for objective reasons for the above phenomenon among SCD participants in Ghana, further analyses of subscales and their effects on psychological health and symptoms were pursued. The results are noteworthy. Spirituality (not spiritual wellbeing) as a subscale that measured African cultural values accounted for more variance, a 20% decrease in psychological health symptoms far and above intuition, sensitivity, communalism, and orality.

The "intuition" subscale had a higher mean score than the other subscales that measured African cultural values. It suggests that it was the most preferred Africentric orientation among SCD persons. Specifically, SCD participants alluded that they often listened to their inner voice and were more likely to rely on it. Now, however, the regression weights demonstrated spirituality to account for more variance in psychological health than intuition. The explanation could be that spirituality had something common with intuition in the experience of SCD that only qualitative research could determine. Why intuition and not spirituality, or spirituality and not intuition, or why are both evoked in sickle cell experience?

Conceivably, Belgrave (1997) claimed that when an individual develops stress, intuition as a personal level strategy is the most resorted to. Psychologically, intuition is viewed as a still voice that prompts the individual regarding the nature of a situation he or she encounters or likely to encounter, which sickle cell crises is part. It is likely that SCD participants preferred to listen to their inner voice/feelings as a way of coping with stressors. This finding is similar to Tanabe et al's (2010) assertion that self-awareness means mindfulness of certain personal behaviors that support health or weaken it. This includes familiarity with the body to recognize over-exertion, need for rest, and when illness sets in; that it is the most vital aspect of self-management. According to Colman (2009), intuition is the immediate understanding, knowledge, or awareness, derived neither from perception nor from reasoning. It is possible that by the nature of SCD, both intuition and spirituality are relied upon to cope. This is a new finding and a re-discovery of a property that SCD individuals possess because of the nature of the disease.

When the three spirituality measures were compared, they showed that spirituality was the best predictor of psychological health compared with spiritual wellbeing and spiritual-centered coping, although not significant.

The seeming contradictory results between the quantitative and qualitative studies with regard to the spirituality- psychological health relationship show the significance of the different perspectives used in the study. The researcher's perspective approached by use of questionnaires was different from the participants' perspectives approached by use of one-on-one in-depth interviews. The possible reason for the difference in perspectives is that although the scales used in the quantitative study were reliable, they might not be valid and might not have measured exactly spirituality and psychological health as

Ghanaian SCD participants experienced them. The in-depth personal interviews gave participants voice to narrate their perspectives on spirituality and psychological health.

Another reason for the difference is that the quantitative results found or identified general patterns and relationships among data while the qualitative results interpreted spirituality and psychological health from an individual perspective and therefore have cultural and practical significance. The quantitative results demonstrated low use of spiritual coping among sickle cell participants. According to the qualitative findings, this is because during crisis, participants did not actively go about looking for spiritual/pastoral help. They rather actively sought medical help to ease pain.

Although spirituality and religiosity did not cure SCD, they gave relief, hope and purpose of being alive. Both spirituality and religiosity made a unique and statistically significant contribution to predicting psychological health. However, religiosity made the strongest unique contribution to explaining psychological health compared with spirituality. Conclusively, similar to Kliewer and Saltz (2006) submission, the spiritual and religious aspects of these SCD participants are both a potential benefit and a potential barrier to the process of psychological health.

African cultural values, Africultural coping and psychological health in SCD

This section discussed African cultural values as a general variable, the coping strategies that are based on an Africentric worldview, and their corporate moderation effects on psychological health, in light of previous research and literature.

The present quantitative and qualitative results indicated that individuals with SCD had great adherence to African cultural values. African cultural variables

contributed to their psychological health. This result was expected. If Africans in the diaspora such as African Americans upheld Africultural values although they lived in a racially hostile culture (Nonterah et al., 2009), then no less is expected of continental Africans who live in their own native culture.

The assumption that spirituality and religion are core African cultural values (Gyekye, 1996; Assimeng, 2010; Nobles, 2006) was not confirmed by these SCD participants. Most likely, facing SCD as a chronic disease and its life-threatening crisis, participants valued and relied mostly on family, marriage, and friends as African cultural values. These are close tangible supports unlike spirituality and religion.

Their description of African cultural values notwithstanding, individuals with SCD in the study had moderate to high degrees of spirituality, religiosity, existential wellbeing, and social support. These were irrespective of the level of education of participants and their disease type. Although participants defined African cultural values the way they did, majority of them were not married, had no children and lived in nuclear family homes. Thus, they did not fully make use of what they valued because they did not have the opportunity to use them.

As specific African cultural values, namely spirituality, religiosity and social support increased, participants' psychological health improved. Social support, however, made the strongest unique contribution to explaining Africultural coping and psychological health and African cultural values too. Spirituality did not make a significant unique contribution to predicting Africultural coping. This is understandable because what participants recognized as core African cultural values were social support

systems like marriage, family and children, not spiritual support systems. The purpose of the social support measure (MDSPSS) was to measure perceived adequacy of social support from family, friends, and significant others (Zimet et al., 1988). SCD participants meant that social support from these sources was necessary for Africultural coping.

The findings in both the quantitative and qualitative studies about the association between family and cultural coping were observed elsewhere. Nobles (2006) espoused the organizational purpose of the family and argued that the purpose of the African American family focused on the presence of children. The family system existed for the affirmation of life and literally existed for the growth and development of children rather than the self-actualization of the adult members of the unit (p. 199).

According to Nobles (2006) the family networking in the African community, had been seriously eroded by the continuous changes from good to bad and urgent demands of urban life. The family networking expands to accommodate new members such as non-blood relatives or "para-kin." It forms the basis of many services such as child care, financial assistance and counseling. These are otherwise not readily available to Africans. The close intra-family relations and the cohesive interfamily relations network serve both pragmatic and psychological functions (p. 200).

Many SCD participants in this current study lived in urban nuclear family homes similar to the above-mentioned African American family status. This has affected the inherent cultural coping benefits of the extended family system to family members. This possibly explains the interpersonal sensitivity symptoms that SCD participants in nuclear families experienced. Colonialism, Western education, religion and culture are reasons

for the urban family disintegration (Nobles, 2006, pp. 196- 197). Mibi (1970) observed that for Africans, the individual owes his existence to all the members living, dead and yet unborn of the family, tribe or clan. The individual does not live alone. He/she is an integral part of the collective unity, that is, the family. This is the same as the qualitative study participants defined African cultural values: "personal independence is impossible for the individual." Thus, study participants understood the African family system.

Contrarily, some participants who lived in nuclear families reported that their family members "insulted" their integrity simply because they had SCD. Such participants interpreted this to mean lack of goodwill toward them and therefore they were discriminated against, stigmatized and despised. This malicious attitude toward them might be the cause of their paranoia. Psychosocial SCD research underscored a family-based approach to coping with SCD (Baskin et al., 2000; Brown & Lambert, 1999; Wood, 2000) and focused on relationships between children's adjustment to SCD and parental functioning factors (Barbarin, 1999; Brown et al., 1993; Logan et al., 2002). The current research results have corroborated this emphasis. Where the (nuclear) family is unsupportive of healthy psychological functioning, SCD patients fell on friends as social support system to assure optimum psychological wellbeing.

Ontologically, therefore, the African believes and understands that the nature of all things in the universe is "force" or "spirit." This explains why Ghanaian SCD participants used religious, spiritual and social support resources, such as religious membership and fellowships to supplement family resources. The urban family has become "cultureless or acculturated to an alien cultural form" and accordingly, psychological disruption occurs in family members (Nobles, 2006, p. 165).

The researcher concludes from the discussion that family support as cultural coping takes a positive and a negative form. By use of positive cultural coping, SCD participants improved their psychological health and did not experience severe crisis to the point of hospitalization and frequent hospital visits. African cultural values moderated the spirituality-psychological health relationship by strengthening it, albeit statistically non-significant. The researcher concludes by these current and past findings that indeed some African cultural values are beneficial to the mental health of SCD participants while others are detrimental. The Afrocultural social ethos framework applies and is useful as a research framework for Ghanaian SCD research. The specific African cultural values that were responsible for the 6% reduction in psychological symptoms were discussed in the preceding subsections. Participants preferred cultural coping to medical "coping" but they used medical "coping" more because cultural coping could not resolve quickly severe crisis.

Preference of Coping Method among SCD Participants: Implications for Psychological Health.

When the use of coping strategies of SCD participants in this study was compared, the majority reported that medical "coping" was their first choice. This was followed by spiritual coping and social coping. The least coping they indicated was psychological. Majority of participants indicated that spirituality helped to cope with SCD. Regression analysis results revealed similarly that medical "coping" improved psychological health. Social support significantly improved psychological health. However, psychological and Africultural coping increased psychological symptoms.

Among Western SCD patients, medical and psychological treatments are the standards (Anie & Green, 2005, 2012; Cadena, 2000). For this Ghanaian SCD sample, medical "coping" and social support were their preference.

Although the study found that neither Africultural coping nor psychological coping predicted psychological health, psychological coping predicted poor health than Africultural coping. It contributed 23% to psychological symptoms while Africultural coping contributed 7%. Another way to interpret this finding is that in terms of correlations, when psychological symptoms increased, SCD participants employed more of psychological coping than they employed Africultural coping. Regression analysis revealed that almost half of the variance in psychological coping was explained by Africultural coping. This suggests that about half of psychological coping was also Africultural coping. Therefore, it is very likely that psychological coping was based in Africultural coping. The two were positively and significantly correlated. "Cognitive-Emotional Debriefing and "Spiritual-centered" coping were specific Africultural coping that worsened psychological symptoms among SCD participants. "Collective-centered" coping reduced symptoms. This is social support.

Gyekye (1996) was right by emphasizing that the African/Ghanaian was metaphysical or supernatural in worldview and approached everything from that framework. Nobles (2006) and Bediako and Neblett (2011) asserted that worldviews influenced peoples' ideas and gave a structural framework for cognitive, affective, and behavioral approaches to the world, shaping both implicit perceptions and direct experiences of realty. This includes medical and mental phenomena. Therefore,

psychological coping of SCD individuals might be based in African cultural values and coping.

Relationship of Socio-demographic and Disease Characteristics with Psychological Health.

The relationships of age, sex, education and disease type with psychological coping and health were further evaluated. Males and females did not differ in psychological health, spirituality, social support, African cultural values and Africultural coping. Sex however, made significant differences in the relationship between Africultural coping and psychological health (at the theoretical model level). Africultural coping served females' psychological health better than it served the psychological health of males. A plausible reason could be that females socialize and verbalize and emote better than males in our culture. Previous research also indicated that there were differences between the sexes on psychological health and social support (Hurtig, 2008). Such results showed that the families of girls tended to have more positive social relations than boys, although this past research was not about SCD.

Age had a significant impact on the relationship between spirituality and psychological health. In this study, younger people aged 29 years and below experienced reduced psychological health with the use of Africultural coping than older people who were 30 years and above. It suggests that older SCD participants used Africultural coping to promote psychological health better than younger SCD participants. Thus, age made a difference in the experience of psychological health among SCD participants. Additionally, the supposition that age significantly moderates the relationship between

spirituality and psychological health was accepted. This suggests that the kind of relationship that exists between spirituality as a coping strategy and psychological health varies by age cohorts. Whereas the moderating effect was negative and significantly stronger among respondents with ages between 20-29 and 30-39, it was positive and immaterial for respondents less than 20 years and those above 40 years.

Compared to studies elsewhere, Nonterah et al. (2009) in the USA did not find that an individual's age significantly affected his/her level of consciousness of Africentric values. Their finding was dissimilar to Stokes et al. (1994) who earlier indicated that age was related to self-consciousness of Africentric values. The findings of Nonterah et al. (2009) and Stokes et al. (1994) however, were not achieved with SCD participants. The researcher, therefore, concluded that the present findings applied to participants with SCD and comparing them to samples from the 'normal' population should be done cautiously.

Sickle cell type and psychological health were examined. This study found that participants with HbSS and HbSC differed on social support, psychological coping and psychological health. HbSS participants had significantly more social support, experienced more psychological symptoms and used more psychological coping methods than HbSC participants. This result was expected in the light of already existing knowledge that HbSS, the severest type of SCD (Creary et al., 2007; Konotey-Ahulu, 1991; Nettles, 2008), trigger psychological complications the most (Scott & Scott, 1999). Consequently, HbSS patients would attract more social attention than HbSC patients. The type of SCD (HbSS or HbSC) however, did not affect or change patients' spirituality,

religiosity, Africultural values and Africultural coping. Patients should be treated equally on these variables.

Alternative Model of Coping for Individuals with SCD.

It was an objective of this study to formulate a model for better coping for SCD participants. The SEM path analysis results showed a poor model fit for the sickle cell data. However, further analyses results demonstrated that age, level of education, and other socio-demographic and disease-related variables predicted psychological health. Psychological coping and medical treatments were analyzed. Subsequently, their inclusion in the sickle cell model demonstrated an improvement in psychological health. Thus, an alternative or revised model emerged as Figure 5.1 represents.

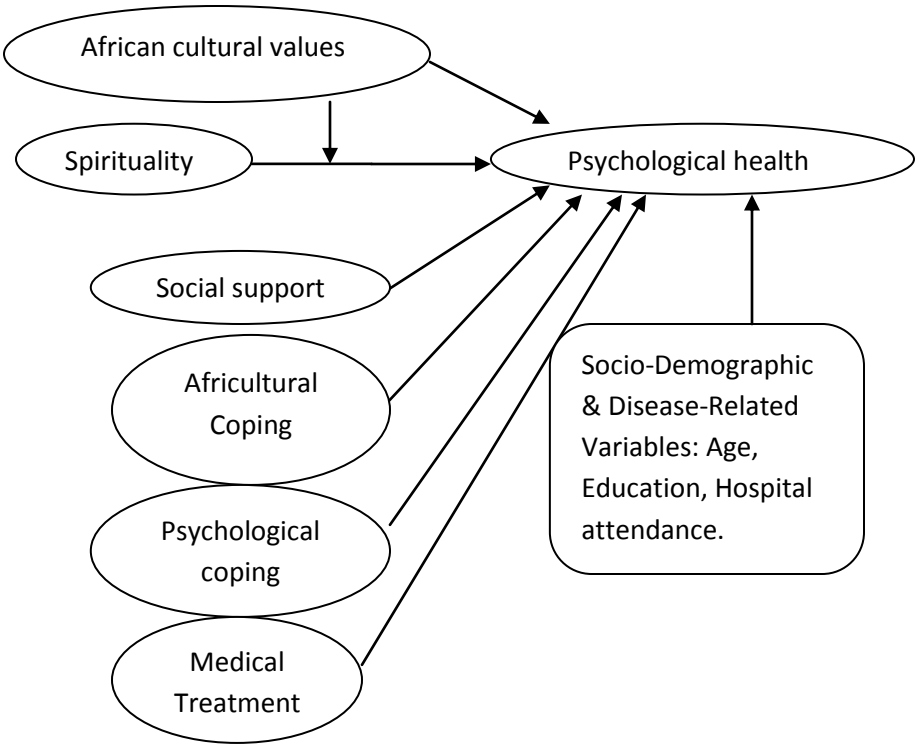


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Figure 5.1. An alternative or revised conceptual model for SCD

Figures 3.1 and 5.1 show an achievement of total variances in psychological health from 13% to 27% respectively. Socio-demographic and disease-related variables contributed 21% to the model. They explained reduction in psychological symptoms. It might be concluded that age, school education, family type and disease-related variables contributed some substantial amount to improving psychological health among SCD individuals, and not adherence to Africultural variables per se. The role of medical treatments or "coping" implies that the mainstay of coping for SCD is largely medical while psychological coping, African cultural values, and socio-demographic factors help to improve psychological health. Left to some African cultural values alone, patients' psychological health symptoms might worsen as the qualitative inquiry revealed.

Altogether, a model of coping for participants with SCD emerged. Empirical studies 1 and 2 results revealed that adults used medical, psychological or cultural coping depending on the personality domain that was most affected by the SCD. Therefore, necessity, exigency or pressure dictated the type of coping method to use. The reason for use of medical treatment was based in urgency and not value. Very severe debilitating pain affecting three or more areas of the body called for a more radical approach and medical treatment was the priority. Manageable crisis that could be contained required psychological coping that was based in culture (spirituality, religiosity and social support). We could further speculate that spiritual/religious coping was more related to emotional and psychological pain, health utilization, social marginalization and stigmatizations. Choice of coping strategy was therefore on a continuum that followed the degree of pain severity and type of pain. In summary, patients used medical resources

to cope with the clinical markers of SCD and used more cultural coping to deal with psychosocial challenges. A model of coping can be formulated as in Figure 5.2.

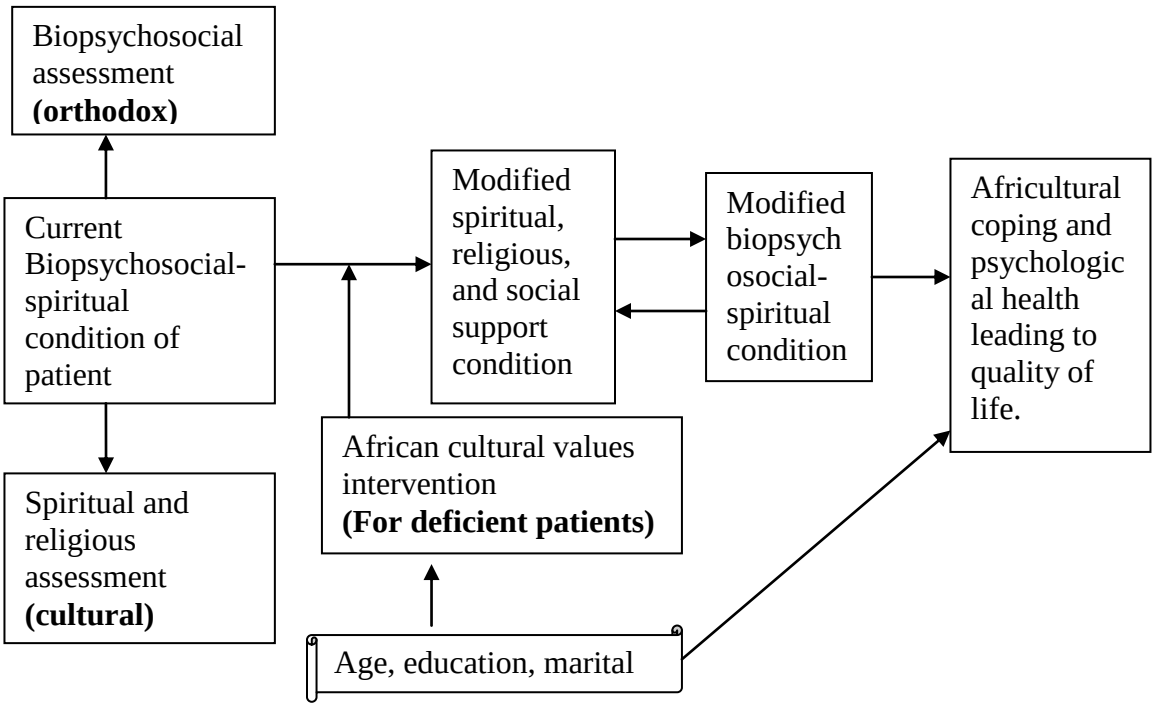

Figure 5.2. An African- centered biopsychosocial-spiritual practical model of the care of adults with SCD (Source: Analysis of Field Data, 2015).

The model (Figure 5.2) resembles the biopsychosocial-spiritual model with the Africultural Social Ethos framework superimposed on it. By reason of the sickle cell crisis, the patient presents with biological, psychological, social and spiritual issues to the clinic/clinician. The patient thus, has a medical, psychological, social and spiritual history that must be equally assessed to determine their current state, in the face of sickle cell illness. According to the model, the "African cultural values" condition of the patient can modify his/her biopsychosocial-spiritual condition and the biopsychosocial-spiritual condition can modify the patient's African cultural values condition. The net effect is

increased use of African cultural coping methods that promotes psychological health and leading to good quality of life and longevity.

This combination of variables notwithstanding, without including the roles of socio- demographic and disease-related variables, the model is capable of explaining only 13% of variance in psychological health. With their inclusion, the model explains 27% of the variance in psychological health.

Contributions of Thesis to Knowledge

The problem investigated in this thesis and the solutions found have made useful conceptual, theoretical-hypothetical, methodological, and statistical analytical contributions. It added to science, the generation of knowledge, clinically relevant applications and contribution to existing literature.

Conceptual/Theoretical Significance of the Study

Factor analysis revealed that some items in some scales did not meet the criteria of factor loadings, convergent and discriminant validity. Subsequently, some subscales in those instruments were dropped. The modifications to the instruments revealed a major test of utility of the scales in an environment different from the scales' home of origin. This is a major contribution to knowledge, knowing that some items and subscales did not honestly reflect the Ghanaian sickle cell individual’s worldview. It revealed that the African American and Ghanaian socio-cultural environments have inherent differences. All Blacks are similar and different. This test of utility was at the scale and conceptual/variable level, (i.e. first order level). Additionally, the qualitative study

clarified the concepts of spirituality, religiosity, Africentric values and psychological health, from Ghanaian SCD participants' perspectives.

At the theory testing level (i.e. second order level), the research found a confirmation of the spiritual/religious coping theory. This research found a strong predictive power of religious wellbeing and spirituality subscales of African-centered measures on psychological health but found no such relationship on the western-type measure of spirituality (SWBS). Therefore, claims made in theories, and the scales used to test such theories must be chosen with great care. The conclusion of western theoretical assertions that Africans use religion and spirituality as coping mechanisms (Belgrave & Allison, 2006; Koenig, 2010; Nobles, 2006; Utsey, 2000), has been confirmed. There is some relationship between spirituality/religion and positive psychological health outcomes. However, the way the relationships are interpreted must be specific to each subgroup. For example, the way SCD individuals view spirituality, religion, social support and other African cultural variables as enhancing psychological health might be different from diabetics, healthy or other subgroups of the population.

The findings illuminated the predictors of psychological health outcomes and better coping among SCD patients. By establishing that there was some strong relationship between spirituality and psychological health and better coping, health professionals can predict that an SCD patient assessed high on spirituality copes and can handle stresses better than a patient assessed low on spirituality. We can predict or hypothesize about the cultural factors that contribute to good psychological and medical health outcomes and identify those that predict crisis. We can explain why some SCD

patients in Ghana do not use orthodox medical and psychological facilities frequently as expected and cope with the condition at home.

At the third order level which involved testing the utility of a theoretical framework, the study found that the biopsychosocial–spiritual theoretical model propounded by Western researchers is useful for adult individuals living with SCD. However, the model cannot be imported and used wholesale without some modifications. African cultural variables and socio-demographic variables must be integrated into the model to contribute some increased proportion of variance in psychological health. The Afrocultural Social Ethos Framework is therefore a useful addition to the biopsychosocial-spiritual theoretical model. In theorizing about psychological health and coping with SCD in Ghana, these two theories are valuable both in clinical practice and in research. We can theorize that African cultural values enhance coping (whatever form it takes: medical, psychological, or religious) and predict psychological health in SCD individuals.

The research extends previous research by including spirituality in the biopsychosocial framework and grounding the research in an African cultural framework. The frameworks are relevant to the context of the study and are an addition to previous theoretical frameworks. They help base the study in both positivism and interpretive epistemologies. While the study findings validated the biopsychosocial-spiritual model as a credible framework for guiding research and practice in psychology, the study provided alternative theoretical, conceptual, and practical models for testing and use in Ghana. There exist theoretical models but no practical models for clinical use among adults with SCD. One is now formulated.

Methodological Contributions and Significance of Research Approach

Without the combined effects of the quantitative and qualitative approaches in this study, the behaviors among the studied variables would not have emerged. The mixed method was suitable for investigating the topic which had both quantitative and qualitative approach potential. The constructs of the topic "African cultural values and psychological health" could be investigated numerically because they are theoretically-driven but studied in a cultural context in which those theories have never been tested. This needed qualitative findings to explain and enlighten the quantitative results. The combined positivistic and phenomenological philosophies and methodological underpinnings made this study unique in Ghana. With similar others, Ghanaians can conduct research that is not only theory-driven but also exploratory and theory-generating. The qualitative component of this study has generated theories that need to be hypothesized and tested (Appendices E & M).

It was a methodological contribution for this study to achieve methodological and data triangulation. According to Berry, Poortinga, Breugelsman, Chasiotis, and Sam (2011) and Sam (2014, p. 237), the rationale for doing triangulation is based on two philosophical and theoretical positions in the study of human nature: universalism and relativism. These positions concern the extent to which psychological functions and processes are common to humankind, that is universalism, and the extent to which they are unique to specific cultural groups, that is relativism. There is ground to conclude that cultural values and psychological health indicators have respect for who and where they are studied.

All human beings have no one underlying common cultural characteristic that is "true" and can be recognized, described and used to explain psychological health. There are no absolutes. Therefore, culture cannot be excluded from psychological studies. The qualitative study results aligned with the relativist position. We cannot understand Ghanaian SCD participants from an external (American) cultural viewpoint. The results tell us to conduct cross cultural comparative psychological studies cautiously and avoid hoping to find similarities across cultures. It is best to describe human psychological behavior such as anxiety or depression or hostility, within its cultural context.

This research also contributed to the absolutist position. This position relies greatly on quantitative approach. It uses supposed standardized scales with the assumption that the behavioral phenomenon of interest can objectively and adequately be measured anywhere it is examined. When standardized measures are used, absolutists do comparisons in human behavior to understand the underlying psychological principles. Observed psychological differences are shown quantitatively. They show some people as being less or more depressed. The danger in making comparisons when differences are detected is the drawing of ethnocentrically based conclusions. It is easier to conclude from quantitative findings that depression is unknown among Africans, just as it was once concluded (see Lipsedge & Littlewood, 1977). Similarly, it was easier to conclude in this present quantitative study that Ghanaian SCD participants experienced less anxiety and depression compared with American prevalence rates. To avoid making this ethnocentric conclusion, the relativist position approaches research differently using qualitative approach and dislike comparisons. This study's qualitative finding showed that some individuals experienced anxiety and depression or expressed them differently.

Universalists use both qualitative and quantitative methods. Before supposed standardized measures are used, researchers subject them to rigorous testing to establish their appropriateness. Universalists use adapted standardized instruments but undertake comparisons cautiously. While comparisons are not avoided, they are neither carried out with impulse. This is what the present research achieved.

Contribution to Data Analyses Techniques and Practices in Ghana

Past researchers who studied predictors of psychological health used mainly the traditional data analyses techniques to test correlations. They regressed predictors on psychological health. This yielded linear relationships and little was known about interactional effects among studied variables. The present study however, included a modern generation statistical practice, the structural equation modeling (SEM) path analysis and CFA techniques. This considered interactions and possible causal relationships among the variables. Thus, we have idea of which variable may be possibly causing an effect, its direction, and how much effect relative to other variables.

Contributions to Literature

The study adds to the literature on SCD and contributes a psychological perspective and African cultural perspective to SCD knowledge and coping. It contributes to worldwide theories on human chronic illness behavior. It adds to existing literature on African cultural studies, their relevance in psychological health and complications in a chronic medical condition, sickle cell. Much of the data that was generated may serve as baseline data for future research reference. At present, few unpublished theses are available for reference in Ghana, whereas much medical literature is already available.

Some of the findings of this study conform to what has been reported in other studies. Such similarities in findings have been highlighted and discussed. There are however, other findings made in this study that have not been addressed by the literature and constitute this study's contribution to the body of knowledge on the spirituality and psychological health relationship among individuals with SCD.

Past research did not consider the role of subscales of Africentric measures on psychological health although the subscales of the BSI had been much investigated. This research did and found that the existential wellbeing subscale predicted poor psychological health whereas the religious wellbeing subscale predicted a significant positive effect on psychological health. Again the "Family" subscale of the social support measure predicted significant harmful effect on psychological health while the "Friends" subscale significantly improved psychological health. The research confirmed that social support had a significant positive influence on psychological health. But we must be wary of some aspects of social support and of some aspects of religious coping. We can also now add to the sickle cell literature the substantial influence socio-demographic variables can have on psychological health.

Given the high prevalence of SCD among African Americans, it surprised Ballas (2005) and Barbarin and Christian (1999) that so little is known about the ways in which socio-cultural factors intensify or reduce aspects of the sickle cell illness. The present research builds on current literature that reason that culturally centered frameworks might provide insights that can be used to better explain how SCD individuals manage the disease. This approach to integrate culturally relevant constructs into a research model is relatively new in SCD research in Ghana.

Clinical Implications of the Findings

There are several clinical implications of the findings for clinical assessments, diagnosis, treatment and prognosis of SCD physical and psychological symptoms. This is where the practical model may be useful (See Figure 5.2). A comprehensive assessment that follows a biopsychosocial-spiritual and an Afrocultural social ethos paradigm must be carried out. Holistic initial intake and ongoing assessments that cover medical, psychological, social, spiritual and cultural domains, as well as gender, age, level of education, marital status, occupation and patient's phenotype, are necessary.

Next, according to Sulmasy (2002), a sick person is in a relationship biologically, psychologically, socially and transcendentally. Thus, a clinician cannot diagnose an SCD patient as having a medical complication without assessing psychological state and their effect on the social and spiritual relationships and wellbeing of the patient. In diagnosis of a psychological problem, a clinician can predict by the patient's spirituality, religiosity and social support scores the psychological health status of the patient. This is because these variables are positively correlated, and have salutary effects on psychological health.

In treatment, the clinician's over reliance on the medical model to the exclusion of other equally valuable psychosocial and spiritual/religious models is queried by this research results. According to Sulmasy (2002),

> The healing professions should serve the need of patients as whole individuals. Individuals can be considered beings-in-relationships, and illness can be considered a disruption in biological relationships that in turn affects all the other relational aspects of a person. Spirituality concerns a person's relationship with transcendence. Therefore,

> genuinely holistic health care must address the totality of the patient's relational existence- physical, psychological, social, and spiritual (p.24).

Treatment of SCD requires a multi-disciplinary or multi-professional approach that considers the inputs of the clinical health psychologist, social worker, and clergy among other medical and para-medical professionals. The biomedical model of treatment alone is not enough in the Ghanaian socio-cultural context. HbSS and HbSC participants did not differ on the spirituality and psychological health relationship (See Table 3.22). They should not be discriminated with respect to promoting such variables. Similarly, although SCD participants differed significantly from comparison groups on some variables, these statistical differences are only theoretical. Due to their small effect sizes, the differences lack practical significance to suggest emphatic treatment differentiation among adults with SCD.

Additionally, clinicians can use the psychological and cultural assessment results of the patient to do prognosis, predicting treatment outcomes from psychosocial-spiritual test scores. A patient who scores high on (or better still practices) social support, religiosity and spirituality would cope better with psychological complications of SCD with good treatment outcome than one who does otherwise.

Finally, the identification of common psychological health symptoms and antecedent cultural factors could form the basis for re-strategizing psychological services and care in the overall treatment plan of patients. The findings might equip clinicians with knowledge, attitudes and skills to attend to the psychological health needs of SCD individuals in Ghana. This is one of the few studies in the area of SCD and psychological

health outcomes that encourage adjusting management protocols and basing treatment in culture.

It is implied by the research findings that whatever the purpose and target of intervention, African cultural values must be included. Jackson-Gilfort et al. (2001) tested whether they could use, in a systematic way, culturally specific content themes to facilitate family-based treatments of African American adolescents. They hypothesized that study youth would show higher levels of therapy participation when cultural themes were discussed in therapy sessions. The results showed that inclusion of cultural themes in therapy improved the level of therapy engagement. The lesson this American study and the current Ghanaian study teaches is that including African cultural values themes in therapy discussions, make Africans open up more to therapists and thereby experience greater psychological health than when themes raised in therapy are foreign.

Policy Implications of the Study

This study has policy implications for the Korle-Bu Teaching Hospital and its Centre for Clinical Genetics. Less use of the sickle cell clinic and its orthodox medical and psychological services by SCD individuals was a concern of this study (See Problem Statement, Chapter 2).

The sickle cell clinic is definitely serving some medical needs of adults with SCD. Patients would almost never stay at home when experiencing severe pain but would always get care at the clinic. Although pain medications sometimes made participants sick and very often worried about having to take more medications, the doctor always

took care and relieved pain. Patients always felt good about the quality of medical care today.

However, for the reasons participants gave in study two, the clinic was not fully used because it was not meeting some cultural needs of clients. Depending on pain severity and oblivious of the insidious nature of less severe pain, interviewees chose between treating pain in clinic and at home using cultural resources (See subthemes 4, 5 & 6 of Theme 3, "Africultural coping with SCD"). This might explain the apparent low attendance of the clinic. Participants would have preferred incorporating Africultural coping in their medical coping. This has implications for clinic policy.

Adults with SCD would like assessment, treatment, care and management of their condition to be based in African cultural ethos. This has implications for retraining of staff, redesigning of intake forms, designing of culturally sensitive assessment instruments, and incorporation of indigenous traditional personnel and resources. It has implications for introducing psychologically and physically refreshing services that are based in appropriate religious, spiritual, and social activities in treatment. It is hoped, these will make the clinic serve its purpose to clients in a culturally relevant way. They might rekindle SCD individuals' interest and use of the clinic for severe complications and for less severe pain treatment.

Limitations of the Research

Specific limitations to study one that could limit the usefulness of the analyzed data, and weaken the robustness of the findings and conclusions made, are noteworthy. Consequently, the limitations could weaken generalization of results, and the findings'

practical or clinical utility. First, the data might have suffered from participant reporting bias since they gave subjective reports. This could affect results obtained and conclusions drawn.

Second, opinions and views of many folks in rural Ghana were not sampled and considered. In addition, the sample was limited to adults with SCD. Results could not be generalized to children and adolescents with sickle cell.

Third, the study design and data analysis techniques had limitations. The study suffered from parameter instability. There was the tendency for relationships between spiritual wellbeing and psychological health to change over time due to changes in peoples' values, education, experience, exposure, culture, growth, and age. These variables were assessed cross-sectionally by survey method. Thus the relationship between spiritual wellbeing and psychological health found during one period may not persist through the future. Compared to cross-sectional design, a longitudinal study would have allowed inferences about the phenomena over time.

Path analysis estimates and describes causal relationships through the use of correlational data. Although by use of path analysis technique, the researcher was able to ascertain interactional relationships among Africultural variables and psychological health, certainty about underlying causal mechanisms is difficult. The variables and their relationships lend themselves to longitudinal and prospective or even experimental studies. If that was done, the degree of confidence we would have in the causal inferences drawn from the results of the analysis would be much more than the confidence in inferences that was drawn from the present study that was conducted by path analysis.

Fourth, the study concluded that the model for sickle cell group was not consistent with the empirical data. It implies that the model was mis-specified. The mis-specification was a matter of degree, was subjective and was evaluated by the researcher. Several re-specifications were attempted by the researcher to approximate a model fit, but to no avail. There is no statistical test that will definitely indicate whether or not the mis-specification is within reasonable limits. Those decisions are left to the researcher.

Fifth, socio-demographic information, except age and education, was limited to nominal or categorical data. This limited the variety of data analytic techniques that could be used with continuous variable data and specific statistical techniques. For example, the marital status item could have been made open or continuous for respondents to provide their actual years of marriage in addition to ticking what category of marital status they belonged to. The same could have been done for occupation, income and number of years practicing religion.

Mixed methods research can be described as using quantitative and qualitative methods in combination than in isolation. The researcher used the two methods in isolation. This might prevent their proper integration and different forms of data might not be put together to make a more coherent, and rigorous whole. As a mixed methods research, the questionnaire should have included some open-ended items to enable respondents to express their subjective views in writing. Omission of this subtracted from the method of data collection a true mixed methods approach.

In spite of the limitations, the study made important findings and observations about relationships and interactional effects among African cultural variables,

psychological, biomedical, and socio-demographic variables. The individual, group, and corporate effects of these variables and their specific contributions to psychological health of adults with SCD in Ghana were worthwhile researching. This has set the pace for further research in this virgin area of study in Ghana.

Reflexivity: Ethical and Methodological Issues

Doing a combined methods research for the first time was exciting and challenging. It was challenging learning unfamiliar qualitative research skills and data management softwares (i.e., NVIVO version 10, and Amos 20 for SEM path analysis technique). The research process was a challenge, converting the research idea into a specific testable hypothesis and getting valid, reliable and culturally appropriate data collection instruments. Yet the researcher adapted standardized and psychometrically good instruments for use. It was challenging deciding how participants would be selected and planning for their ethical treatment; and the relative importance of internal and external validity of the findings. Deciding on between-subjects (quantitative) and within-subjects (qualitative) or mixed methods design and the type, were all challenging decisions and exciting learning experiences.

In conducting the research, it took a lot of time and effort to obtain both quantitative and qualitative data from SCD participants. Their questions for clarifications indicated that they were reflective of the responses they provided. Some interviewees did not keep appointments. The researcher had to consult widely to have the data collected evaluated correctly. He consulted on using the appropriate descriptive and inferential statistics as well as qualitative data analysis technique to summarize and interpret the

results. This developed his consultation skills, learning that research of this size is a collaborative effort. These were challenging learning experiences.

Reporting the results by using the established guidelines for format and style to prepare an accurate and honest report that also protects the anonymity and confidentiality of the participants was an academic writing school for the researcher. The researcher wrote and rewrote several drafts of each chapter to meet standards. He learned painstakingly that academic writing is scientific writing and is quite different from writing other literary works.

Certain ethical issues came up during the interview and the researcher took responsibility to address them. One was arranging for emotionally troubled participants to consult the clinical psychologist at the sickle cell clinic, Korle-Bu, during and after the interview. In one case, the interview reawakened old unresolved conflicts between a male participant and his spouse which appeared to be feeding into crisis episodes now and again. Although the participant did not consult the psychologist as arranged, the interview session was therapeutic for him. The researcher reminded subsequent participants of this arrangement with the psychologist before interviews started.

Taking an insider perspective of the participant's life-world was an ethical dilemma that resulted from the use of IPA. IPA necessitated one-on-one in-depth interviews that explored the participant's life-world (Smith, 2003) of a sensitive phenomenon, SCD. A researcher needs to create rapport and use empathy to develop a relationship with the participant in order to understand their stories from the participant's internal frame of reference (Flick & von Kardoff, 2004; Smith et al., 2009), while at the

same time maintaining some professional distance. The researcher was himself a practicing clinical psychologist. Maintaining balance between research and giving professional assistance (i.e., to help or not to help a participant who had personal psychosocial needs to solve), was an ethical challenge to the researcher. This was particularly so when participants, for the reasons of stigma, uncertainty, time, money and distance to the clinic, hesitated seeing the clinical psychologist.

In order not to enter into a professional/therapist-client relationship, the researcher refused participants' requests for help. This power relationship would empower the researcher to pry into the participant's private life thereby deviating from the purpose of the interviews. This on few occasions withheld goodwill from the participant to the researcher despite constant reminders that the researcher's main role was data collector and not a therapist.

Compensation for interview participation came up as ethical issue. One male participant read, agreed and signed the consent form and gave verbal consent to participate in the interviews. He later called the researcher to demand compensation of 1,500 Ghana cedis for giving personal information to the researcher to earn his PhD. This was resolved by calling his attention to the compensation package he was entitled to in the consent form. The benefit he and society would get from the findings of the research was re-emphasized. This experience guided the researcher to further explain to participants in subsequent interviews the usefulness of their participation (i.e., becoming stakeholders in seeking culturally relevant ways of coping with SCD in Ghana and Africa). This approach proved to be a better way to get participants to willingly

participate in the research and to receive compensation that was stated in the consent form.

Finally, a research process that is executed with sensitivity and guided by ethics according to Corbin and Morse (2003) becomes beneficial to both participants and researchers (p. 335). This research brought some benefits to participants. These benefits were ascertained during debriefing sessions after each interview. They include the following:

1. Healing or therapy benefits: Some participants had personal psychological, interpersonal, psychosocial, family, and orthodox healthcare issues. Such participants reported that the interviews offered them the chance to voice out issues they kept to themselves for a long time about their sickle cell condition. They had never discussed with anyone because no one listened and gave them the opportunity as the non-judgmental interviewer did. Participants reported feeling relieved despite the long interviews thereby confirming the report of Morecroft, Cantril and Tully (2004) about the therapeutic effects of in-depth interviews. The Ethical Review Board of the Noguchi Memorial Institute for Medical Research expressed fear that long hours of interview sessions might result in tiredness that could trigger sickling crisis for the SCD participants. A research report (Jorm, Kelly & Morgan, 2007) on informant distress in psychiatric research also alluded to same. This current research however, provided contrary evidence.
2. Self-awareness and insight: Some participants indicated that partaking in the research afforded them an opportunity to introspect, look back and reflect on their life experiences with SCD. Participants shared that participating in the interview

further demystified SCD and facilitated honest discussion about the condition. They gained much insight by talking about their own experiences with SCD. This exposed them to the benefits of cultural factors in coping with SCD which they took for granted.

3. Selflessness: Few participants indicated that a benefit of participating in the interview was the opportunity to help find some answers to the numerous issues in SCD. Their motivation was to help improve the condition of fellow individuals with SCD and their families. One participant gained confidence to advocate on issues of SCD and teach SCD individuals who live in ignorance.
4. The interviews and observations helped the researcher to learn of participants' ignorance of the benefits of African cultural values to SCD. It took prodding, probing and attention calling to awaken their minds about relationships of cultural issues with SCD. Given this interview exposure and subsequently teaching patients would re-awaken and re-affirm African self-consciousness in many patients.

In summary, this research experience exposed the researcher to learn and follow the procedures in doing scientific research and reporting empirical findings orally and in writing. It also taught the researcher about the supervisor-student researcher relationship and what is involved in the review process of academic writings.

Recommendations

Mixed methods research design is recommended to future researchers to capture both numerical and textual data that complement and throw mutual light into each other. Topics like African cultural values and psychological health lend themselves to such

study designs. Future studies should include the rural folks in a mixed methods research. However, future researchers should consider using IPA in a mono-method research approach where depth is required.

It is recommended to future researchers that they use longitudinal designs and statistically filter out the potential influence of several plausible confounding (third) variables. This would increase the likelihood that correlation findings can reflect an underlying causal relation between specific spiritual/religious activities and psychological health.

Developing and validating and standardizing spirituality, African cultural values and coping, and psychological health instrument for use in Ghana is crucial. This will take care of the ontological biases of Western people and that of Ghanaians. Conducting CFA to test the utility of the scales and the theoretical models used in this research for other chronic disease research to see how they apply is recommended.

Finally, researchers may test the untested relationship paths in Figures 2.3 and 5.1: Spirituality and African cultural values, Africultural coping, social support, psychological and medical "coping" relationships. Researchers may examine the moderating and mediating roles of social support, Africultural coping, psychological and medical "coping" in healthy, SCD, diabetic, and other chronic disease populations. Future research may seek the other factors that contribute to psychological health but remain unknown by the current research.

Summary and Conclusion

1. Compared with healthy and diabetic participants, adults with SCD had reduced psychological health. Although the numerical data of the main scales did not support evidence of a relationship between African cultural values, spirituality and psychological health, some subscales and the textual data demonstrated that specific African cultural values contributed to psychological health among SCD participants. These were spirituality, religiosity, social supports of friends and the extended family.
2. The scales proved suitable for the study samples with minimal modifications. However, if the scales were developed and validated based in an African Ghanaian ontology, they would more likely demonstrate a strong African cultural values and psychological health relationship. This was confirmed by the relationship interviewees narrated existed between the two variables.
3. "African cultural values reduce psychological symptoms" is indeed a useful theory in explaining psychological health among SCD participants in Ghana. The theory is modelled by an Afrocultural social ethos framework and conceptually supported by the biopsychosocial-spiritual model. Using an etic (outsider) approach, the theory appeared partially applicable. This was because objective instruments used to measure these variables were culture-bound. Using an 'emic' (insider) approach, however, the theory applied to SCD participants. The value of the theory became evident from both an outsider and insider approach. The mixed method is the most appropriate for testing theories whose variables are culturally sensitive to ontology. Borrowing the words of Sam (2014),

> …well carried out psychological studies can help define the extent to which the (*western psychological*) theories can be generalized, and the extent to which they should be limited to some specific group of people. It is equally possible that research done in Ghana may reveal some novel aspects of human behavior, not known among other groups of people (p. 240).

4. African cultural values such as religiosity, family life, and communal relationships clarified psychological health. Borrowed Euro-American values such as the individualistic nuclear family system might be potentially injurious to the psychological health of individuals with SCD. These seem unique to individuals with SCD because of the childhood-onset chronicity and severity of their disease. Participants avoided or tactfully handled the potentially harmful cultural values to avoid distress (See pp. 208 & 209).
5. The use of mixed methods revealed that adults with SCD carefully pursued some spirituality and religiosity for purposes of transcendence, social support, physical exercise, and psychological benefits. Spiritual wellbeing was not correlated with psychological health. Patients' moderate to high spiritual wellbeing, however, signify that spiritual wellbeing or spirituality was not a coping technique. It was a framework or basis on which SCD participants used religious, psychological, social, and medical coping. It was not spirituality per se, but expressions of spirituality that determined psychological health status. Some spirituality expressions promoted psychological health while others were detrimental.
6. The role of spirituality in SCD warrants that a distinction is made among spiritual wellbeing, spirituality, and spiritual coping. This researcher suggests that spiritual wellbeing for adults with SCD connotes a state of spiritual safety condition or

strength; spirituality connotes observable actions and behaviour related to spiritual beliefs; and spiritual coping like religious coping, connotes using specific spiritual or religious methods patients consider as sacred in response to illness stressors (Pargament, 1997). Religious coping takes forms like material, emotional, social, and psychological support (George, Larson, Koenig & McCullough, 2000) from religious sources.

7. The negative and positive cultural factors are based in biopsychosocial-spiritual factors. It was in light of negative factors that SCD participants appreciated the positive factors and used both to optimize psychological health. This was evident in the quantitative path analysis. The variance explained in psychological health was reduced when either positive factors or negative factors were re-specified in the model. Removing non-significant paths reduced psychological health. Maintaining significant and non-significant paths helped to reach equilibrium in psychological health. The qualitative results appeared to corroborate this evidence. Participants' narrative of the concomitant advantages and disadvantages of SCD, suggested that the disadvantages helped to optimize the advantages to assure psychological health. Therefore, negative and positive factors are useful in maintaining psychological balance and adjustment in SCD.
8. While participants with SCD were in psychological equilibrium, the healthy and diabetic participants appeared to be in positive psychological disequilibrium, diagrammatically shown in figure 5.2 as

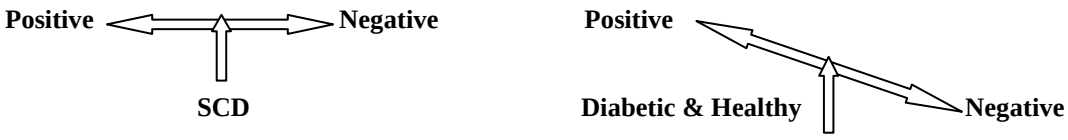

Figure 5.3. Comparing the state of psychological equilibrium of SCD and diabetic & healthy persons. Source: Data analysis results, 2015.

Figure 5.3 shows that the psychological health equilibrium of SCD participants was critical, and easily moveable towards health or distress by biopsychosocial-spiritual factors. Psychological health was higher than psychological symptoms in the comparison groups. It might take little biopsychosocial-spiritual effort to induce psychological health disequilibrium either positive or negative in SCD participants. It might take much effort to induce equilibrium or disequilibrium in the opposite direction among healthy and diabetic participants. It might take longitudinal, prospective, or intervention studies to examine this observation since the present research design suffered from parameter instability.

9. We can theorize and hypothesize about the relation of African cultural values, cultural coping, and psychological health among adult SCD participants. SCD, as a chronic disease, cannot be medically managed effectively in Ghana without managing its psychosocial-spiritual effects. The psychosocial-spiritual effects can be managed effectively by basing the medical and psychological managements in African cultural values (i.e., in spiritual, religious, and social support frameworks); and taking into consideration the strong influence of socio-demographics.

10. A cultural model for coping with SCD has emerged and the research findings contribute an African cultural perspective to the burgeoning field of spiritual-psycho-neuro-endo-immunology. Chronicity (of SCD in Ghana) requires a holistic and contextual approach in its treatment. Without this approach, orthodox medical and psychological treatments alone may not sustain the interest of patients and their families who seek alternative healthcare.

At least four features made this research novel. First, two comparison groups were included in the study. Second, an African cultural and spirituality perspective was added to the existing biopsychosocial model. The research was based in an African cultural community spirit and context. This considered the cultural environment of the samples studied. It is different from the Euro-American individualistic belief context of previous studies. Third, the suitability of the foreign instruments for the Ghanaian samples was verified. Fourth, an explanatory sequential mixed methods research was conducted. These were novel features of the research.

The conclusion is in response to the main research concern about the role African cultural values play in explaining the relationship between spirituality and psychological health using Ghanaian adult SCD participants. The research concludes that endorsement of African cultural values promotes psychological health. African cultural values perform an enhancing moderating function between spiritual wellbeing and psychological health. It implies that when African cultural values interact with spiritual wellbeing, they produce a qualitative increase in psychological health of SCD individuals, not necessarily a significant quantitative increase. This would have been lost and false conclusions drawn about the inherent salutary effects of African cultural values on psychological health if

the research was limited to quantitative analysis alone. An important finding that needs further development is the fact that not all Africultural factors have a positive impact on psychological functioning.

Quantitative analyses alone that resulted in dichotomous decisions of either statistically significant or non-significant relationships, predictions, and existing differences, were not sufficient conclusions of the research finding. Further quantitative analyses and qualitative probings helped to firm up decisions and conclusions.

The implication of scoring high in anxiety, obsessive compulsion and phobic anxiety is that endorsement of African cultural values of SCD participants is currently low compared with diabetic and healthy participants. SCD individuals need to develop their African cultural values and cultural coping skills to further improve psychological health. This confirms the Afrocultural Social Ethos (Jagers et al., 1997) theory that spirituality, communality and African centered religiosity and social support reduce psychopathologies. Consequently, superimposing them on the biopsychosocial-spiritual model produces a hybrid framework for possible treatment and research among SCD individuals in Ghana.

Compared to Western research, we learn from the current research that different cultural factors lead to different psychological health behavior intensities and outcomes. Western culture portrays the SCD individual as experiencing high prevalence of psychological symptoms. On the contrary, African culture portays the SCD individual as experiencing low prevalence of psychological symptoms. The reason for this difference is

the high positive impact of African cultural values on psychological health of the Ghanaian African SCD individual.

Compared to other chronic and healthy individuals in the same cultural environment, however, SCD individuals experience more psychological symptoms. The reason for this difference might be the childhood onset nature of chronicity of their disease. Endorsement of positive African cultural values helps to reduce psychological symptoms among adults with SCD. Psychological health of adults with SCD, therefore, is a function of factors in the biopsychosocial-spiritual model. Socio-demographic and disease characteristics that are based in the cultural context of patients and other unknown factors added up to maximize psychological health.

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APPENDIX A: Questionnaire

SOCIODEMOGRAPHIC QUESTIONS

1. **Sex:** Male ( ) Female ( )
2. **Marital Status**: Never Married ( ) Married ( ) Living Together ( ) Divorced/Separated ( ) Widowed ( )
3. **Age** (Actual age):……
   Tick your age bracket < 20 years ( ); 20 -24 ( ); 25- 29 ( ); 30- 34 ( ); 35-39 ( ); 40- 44 ( ); 45 -49 ( ); 50-54 ( ); 55-59 ( ); 60-64 ( ); 65- 69 ( ); 70-74( ).
4. **Religion/denomination**:……
   Catholic ( ); Anglican ( ); Methodist ( ); Presby ( ); Pentecostal/Charismatic ( ); Other Christian ( ); Moslem ( ); Traditional/spiritualist( );No religion( );Other ( ).
5. **Occupation**: Student ( ) Government Worker ( ) Employed in private sector ( ) Self-employed ( ) Unemployed ( ) Other specify.....
6. **Schooling** : S.H.S ( ); Polytechnic/training college ( );Bachelors ( ); Masters ( ); Third degree ( )
   How many years of schooling have you done?.....
7. **I live in**: An Extended Family ( ); A Nuclear family ( ); A Foster home ( ); Live on my own ( ) Live with friend(s) ( ); Other ( )....
8. **Residence:** Urban ( ); Rural ( ); Semi-urban ( ).
9. **Ethnic group**: Akan ( ); Ga-Adangbe ( ); Ewe ( ); Guan ( ); Mole-Dabgani ( ); Grusi ( ); Gruma ( ); Mande ( ); Other ( ).
10. When you are in pain, rank what you do immediately to cope in order of importance, using
    1 = I do this first,
    2 = I do this second,
    3 =I do this third
    4= I do this fourth.
    a. Use medication and hospital resources to control the pain =
    b. Use how I think, feel and behave/act or do things to control the pain =
    c. Call family member or friend or somebody to help me control the pain =
    d. Use my spiritual or religious beliefs and practices to help me control the pain =
11. Do you have any chronic disease? Yes ( ) No ( ); if Yes, please specify……..
12. Do you have any mental health/psychiatric or psychological problems? Yes ( ) No ( )
13. Do you think being spiritual helps you to cope better with disease/illness? Yes ( ) No ( )
14. Do African/Ghanaian cultural values help you to cope better with disease? Yes ( ) No( )

SPIRITUAL WELL-BEING SCALE (Ellison & Paloutzian, 1982)

Please, circle the choice that best describes how much you agree with each statement. Circle only one answer for each statement. There is no right or wrong answer.

6=Strongly Agree; 5=Moderately Agree; 4=Agree; 3=Disagree; 2=Moderately Disagree; 1=Strongly Disagree

		6	**5**	**4**	**3**	**2**	**1**
1	I don't find much satisfaction in private prayer with God.	SA	MA	A	D	MD	SD
2	I don't know who I am, where I came from or where I am going	SA	MA	A	D	MD	SD
3	I believe that God loves me and cares about me	SA	MA	A	D	MD	SD
4	I feel that life is a positive experience	SA	MA	A	D	MD	SD
5	I believe that God is impersonal and not interested in my daily situations	SA	MA	A	D	MD	SD
6	I feel unsettled/unsure about my future	SA	MA	A	D	MD	SD
7	I have a personally meaningful relationship with God	SA	MA	A	D	MD	SD
8	I feel very fulfilled and satisfied with life	SA	MA	A	D	MD	SD
9	I don't get much personal strength and support from God	SA	MA	A	D	MD	SD
10	I feel a sense of well-being about the direction of my life	SA	MA	A	D	MD	SD
11	I believe that God is concerned about my problems	SA	MA	A	D	MD	SD
12	I don't enjoy much about my life	SA	MA	A	D	MD	SD
13	I don't have a personally satisfying relationship with God	SA	MA	A	D	MD	SD
14	I feel good about my future	SA	MA	A	D	MD	SD
15	My relationship with God helps me not to feel lonely	SA	MA	A	D	MD	SD
16	I feel that life is full of conflict and unhappiness	SA	MA	A	D	MD	SD
17	I feel most fulfilled when I am in close communication with God	SA	MA	A	D	MD	SD
18	Life does not have much meaning	SA	MA	A	D	MD	SD
19	My relationship with God contributes to my sense of well-being	SA	MA	A	D	MD	SD
20	I believe there is some real purpose for my life	SA	MA	A	D	MD	SD

BRIEF SYMPTOM INVENTORY (BSI) (Derogatis, L. S., 1975/1993)

	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.	**not at all**	**a little bit**	**moderately**	**quite a bit**	**extremely**
1	Nervousness or shakiness inside	0	1	2	3	4
2	Faintness or dizziness	0	1	2	3	4
3	The idea that someone else can control your thoughts	0	1	2	3	4
4	Feeling others are to blame for most of your troubles	0	1	2	3	4
5	Trouble remembering things	0	1	2	3	4
6	Feeling easily annoyed or irritated	0	1	2	3	4
7	Pains in heart or chest	0	1	2	3	4
8	Feeling afraid in open space or in the streets	0	1	2	3	4
9	Thoughts of ending your life	0	1	2	3	4
10	Feeling that most people cannot be trusted	0	1	2	3	4
11	Poor appetite	0	1	2	3	4
12	Suddenly scared or afraid for no reason	0	1	2	3	4
13	Temper outbursts that you could not control	0	1	2	3	4
14	Feeling lonely even when you are with people	0	1	2	3	4
15	Feeling blocked in getting things done	0	1	2	3	4
16	Feeling lonely	0	1	2	3	4
17	Feeling blue/depressed or sad	0	1	2	3	4
18	Feeling no interest in things	0	1	2	3	4
19	Feeling fearful	0	1	2	3	4
20	Your feeling being easily hurt	0	1	2	3	4
21	Feeling that people are unfriendly or dislike you	0	1	2	3	4
22	Feeling inferior to others (compared to others, you feel less important)	0	1	2	3	4
23	Nausea or upset stomach; you feel like vomiting	0	1	2	3	4
24	Feeling that you are watched or talked about by others	0	1	2	3	4
25	Trouble falling asleep	0	1	2	3	4
26	Having to check and double check what you do	0	1	2	3	4
27	Difficulty making decision	0	1	2	3	4
28	Feeling afraid to travel on buses or trains	0	1	2	3	4
29	Trouble getting your breath or you have difficulty breathing	0	1	2	3	4
30	Hot or cold spells; you feel hot and cold at short time intervals	0	1	2	3	4
31	Having to avoid certain things, places, or activities because they frighten you	0	1	2	3	4
32	Your mind going blank; your mind becoming empty and you can't remember anything	0	1	2	3	4
33	Numbness or tingling in parts of your body ("ananse" feelings)	0	1	2	3	4
34	The idea that you should be punished for your sins	0	1	2	3	4
35	Feeling hopeless about the future	0	1	2	3	4
36	Trouble concentrating	0	1	2	3	4
37	Feeling weak in parts of your body	0	1	2	3	4
38	Feeling tense or keyed up	0	1	2	3	4
39	Thoughts of death or dying	0	1	2	3	4
40	Having urges to beat, injure, or harm someone	0	1	2	3	4
41	Having urges to break or smash things	0	1	2	3	4
42	Feeling very self-conscious with others	0	1	2	3	4
43	Feeling uneasy in crowds (among many people), such as shopping or at a movie	0	1	2	3	4
44	Never feeling close to another person	0	1	2	3	4
45	Spells of terror or panic	0	1	2	3	4

46	Getting into frequent arguments	0	1	2	3	4
47	Feeling nervous when you are left alone	0	1	2	3	4
48	Others not giving you credit for your achievements	0	1	2	3	4
49	Feeling so restless you couldn't sit still (feeling so uncomfortable you couldn't sit at one place)	0	1	2	3	4
50	Feeling worthlessness; that you have no value	0	1	2	3	4
51	Feeling that people will take advantage of you if you let them	0	1	2	3	4
52	Feeling of guilt	0	1	2	3	4
53	The idea that something is wrong with your mind	0	1	2	3	4

AFRICENTRIC WORLDVIEW SCALE (Belgrave, 1995)

People living in different cultures have different orientations in cultural beliefs, attitudes and behaviors.

Please answer each of the statements ticking the appropriate response for you.

1 = Strongly Disagree **2** = Disagree **3** = Neither Agree nor Disagree **4**= Agree **5**= Strongly Agree

		1	**2**	**3**	**4**	**5**
1	I perform better on oral rather than written tasks.					
2	When greeting someone, I prefer verbal response in return (rather than a nod or hand wave).					
3	I feel that sometimes I do things "just because it feels right."					
4	I listen to my inner voice (meaning that I listen to what my heart tells me).					
5	I am likely to rely on my inner voice (meaning that I am likely to listen to my heart).					
6	I have to see something to believe it.					
7	I can tell when a close friend is in trouble or feels bad.					
8	Attending Churches, Mosque, or other places of worship is important to me.					
9	I meditate and engage in other acts of faith.					
10	I believe in a spiritual force or power.					
11	When stressed, I put my faith in a higher being.					
12	When I hear music I respond actively to it.					
13	When speaking I am likely to use body language and hand gestures.					
14	I view death as a spiritual event.					
15	When things don't work out, I try to see the positive side.					
16	People should be judged on who they are rather than their material achievements.					
17	It is expected that the elderly will be cared for by younger generations.					
18	Older members of my family are relied on for advice/guidance.					
19	It is common for me to call close family friends "uncle, aunt, etc."					
20	The ultimate (overall) value of a person is in his/her service to others.					
21	My successful achievements are due to the support of significant others (persons with whom you feel closest).					
22	I usually arrive at meetings, classes, work, etc. before or at the exact specified time.					
23	Remembering the past is as important as preparing for the future.					

AFRICULTURAL COPING SYSTEMS INVENTORY (ACSI) (Utsey, 1999)

Instructions: Please, recall a stressful situation that you went through. Consider the strategies you used in coping with that stressful situation .Rate each coping strategy below by indicating whether you used it to cope with the stressful situation.

0 = Did not use 1 = Used a little 2 = Used a lot 3 = Used a great deal

_____ 1. I prayed that things would work themselves out.
_____ 2. I got a group of family or friends together to help with the problem.
_____ 3. I shared my feelings with a friend or family member.
_____ 4. I remembered what a parent (or other relative) once said about dealing with these kinds of situations.
_____ 5. I tried to forget about the situation.
_____ 6. I went to church (or other religious meeting) to get help or support from the group.
_____ 7. I thought of life's struggles people endure and it gave me strength to deal with the situation.
_____ 8. To keep from dealing with the situation, I found other things to keep me busy.
_____ 9. I sought advice about how to handle the situation from an older person in my family or community.
_____ 10. I read a scripture from the Bible (or similar book) for comfort and/or guidance.
_____ 11. I asked for suggestions on how to deal with the situation during a meeting of my organization or club.
_____ 12. I tried to convince myself that it was not that bad.
_____ 13. I asked someone to pray for me.
_____ 14. I spent more time than usual doing group activities.
_____ 15. I hope that things would get better with time.
_____ 16. I read a passage from a daily meditation book.
_____ 17. I spent more time than usual doing more things with friends and family.
_____ 18. I tried to remove or separate myself from the situation.
_____ 19. I sought out people I thought would make me laugh.
_____ 20. I got dressed up in my best clothing.
_____ 21. I asked for blessing from a spiritual or religious person.
_____ 22. I helped others with their problems.
_____ 23. I lit a candle for strength or guidance in dealing with the problem.
_____ 24. I sought emotional support from family and friends.
_____ 25. I burned incense for strength or guidance in dealing with the problem.
_____ 26. I attended a social event (dance, party, movie) to reduce stress caused by the situation.
_____ 27. I sang a song to myself to help reduce the stress.
_____ 28. I used a cross or other object for its special powers in dealing with the problem.
_____ 29. I found myself watching more comedy shows on television.
_____ 30. I left the matter in God's hands.

THE Brief COPE (Carver, C. S., 1997)

These items deal with ways you have been coping with the stress in your life. (For sickle cell and diabetic persons, since you found out you have sickle cell or diabetes). Answer on the basis of whether or not you are doing the following things; don't answer on the basis of whether it seems to be working or not. Make your answer as true for you as you can.

1= I haven't been doing this at all; **2**= I have been doing this a little bit **3**= I have been doing this a medium amount; **4**=I have been doing this a lot

		1	**2**	**3**	**4**
1	I've been turning to work or other activities to take my mind off things				
2	I've been concentrating my efforts on doing something about the situation I'm in				
3	I've been saying to myself "this isn't real".				
4	I've been using alcohol or other drugs to make myself feel better				
5	I've been getting emotional support from others				
6	I've been giving up trying to deal with it (the disease)				
7	I've been taking actions to try to make the situation better				
8	I've been refusing to believe that it has happened				
9	I've been saying things to let my unpleasant feelings escape				
10	I've been getting help and advice from other people				
11	I've been using alcohol and other drugs to help me get through it				
12	I've been trying to see it in a different light, to make it seem more positive				
13	I've been criticizing myself				
14	I've been trying to come up with a strategy about what to do				
15	I've been getting comfort and understanding from someone				
16	I've been giving up the attempt to cope				
17	I've been looking for something good in what is happening				
18	I've been making jokes about it				
19	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping				
20	I've been accepting the reality of the fact that it has happened				
21	I've been expressing my negative feelings				
22	I've been trying to find comfort in my religious or spiritual beliefs				
23	I've been trying to get advice or help from other people about what to do				
24	I've been learning to live with it				
25	I've been thinking hard about what steps to take				
26	I've been blaming myself for things that happened				
27	I've been praying or meditating				
28	I've been making fun of the situation				

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (Zimet, Dahlem, Zimet & Farley, 1988)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how much you agree or disagree to each statement. Use the following answers:

1= **Very strongly Disagree; 2= Strongly Disagree; 3= Mildly Disagree; 4= Neutral; 5= Mildly Agree; 6= Strongly Agree; 7= Very strongly Agree**

1	There is a special person who is around when I am in need	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2	There is a special person with whom I can share my joys and sorrows.							
3	My family really tries to help me							
4	I get the emotional help and support I need from my family.							
5	I have a special person who is a real source of comfort to me							
6	My friends really try to help me.							
7	I can count on my friends when things go wrong.							
8	I can talk about my problems with my family							
9	I have friends with whom I can share my joys and sorrows.							
10	There is a special person in my life who cares							
11	My family is willing to help me make decisions.							
12	I can talk about my problem with friends.							

HEALTH BELIEF MODEL QUESTIONNAIRE

NB: Don't answer this section if you are not sickle cell or diabetic. It is meant for persons with sickle cell or diabetes only.

Please, rate your level of agreement with each of the following statements on this 5-point scale.

1 =Strongly disagree **2** = Disagree **3** = Neither disagree nor agree **4** = Agree **5** = Strongly agree

	Perceived severity (choose the disease that applies to you)	**1**	**2**	**3**	**4**	**5**
1	Sickle cell/ Diabetes is a serious disease					
2	Living with sickle cell/ diabetes is very scary					
3	With sickle cell/ diabetes, death is close at hand					
4	Medical procedure for testing is very painful					
5	Sickle cell/ Diabetes is a chronic disease					
6	Sickle cell/ Diabetes is caused by God to punish us for our sins					
7	Sickle cell/ Diabetes is a terminal illness. It is an illness that will kill me.					
	Perceived Vulnerability					
8	It is very likely that I will develop infections					

9	It is very likely my children are/will be at risk for sickle cell/ diabetes.					
10	I am very likely to be at risk due to generational curses					
11	I am very likely to be at risk because of my clan or tribe					
12	I am very likely to be at risk due to my sex (Male or Female)					
	Perceived Benefits					
13	Taking routine medication is a good way to reduce symptoms.					
14	Attending regular reviews is a good way of preventing symptoms.					
15	The use of herbal medicine is a good way of reducing symptoms.					
16	Visiting the shrine for guidance is a good way of curing sickle cell/ diabetes.					
17	Attending Church regularly and praying is a good way of curing sickle cell/ diabetes.					
	Perceived Barriers					
18	It is difficult to get information about sickle cell/ diabetes from health professionals.					
19	It is difficult to get adequate finances for transport.					
20	It is difficult to obtain finances for medication.					
21	It is difficult to find a good herbalist for treatment.					
22	It is difficult to find a shrine for treatment.					
	MEDICAL COPING QUESTIONS					
	Use the following to indicate your response: 1=Always; 2=Very often; 3=Sometimes; 4=Almost never; 5=Never					
1	When I am experiencing symptoms, I would rather go to get care at the clinic	1	2	3	4	5
2	When I am experiencing symptoms, I would rather stay at home or get care somewhere else other than the clinic					
3	My doctor explains things we discuss well and clear enough that I understand.					
4	My doctor takes care and relieves my symptoms when they occur.					
5	I feel very good about the quality of medical care available today and have faith in the doctors who provide it.					
6	I am happy with the treatment from doctors and medical staff.					
7	I feel I receive enough detailed information from my doctor and medical staff about my illness.					
8	I have strong knowledge about medication and what works for me.					
9	I know what dose of medication to take to control my symptoms.					
10	My medication sometimes makes me sick.					
11	I am worried about having to take more medication.					

APPENDIX B: Semi-structured Interview Guide

INTRODUCTIONS

1. Introduction of interviewers

2. Introduction of project:
In Ghana, some people cope with stressful situations and diseases by using spiritual and cultural resources. Others cope by using hospital resources. We will explore what you do in particular, how you do them, and why you do them.
Aim: To ask you to share the cultural meaning of your disease and how this affects your psychological, physical and spiritual health. Also, to evaluate your use of spiritual practice, if at all, in relation to your chronic disease; and finally to explore and clarify your basic beliefs and values with regard to SCD.
Specifically, to examine spirituality and religiosity in adults living with sickle cell disease, the way(s) you use them to cope and why you use them.

3. Introduction of recorder
4. Participant signs informed consent form
5. Switch recorder on

Background Information

Socio-demographic questions and medical characteristics of sickle cell disease patients

1. Sex: Female_____Male_____ Age____

2. Religion_____Denomination_____

3. What is your marital status?

4. Family situation: With whom do you live now?

5. Do you have children? How many (have SCD)? What type?

6. Sickle cell type: What is your type of SCD?

7. Number of siblings.....who have sickle cell disease.....type.....

8. At what age did you become aware that you have sickle cell disease?

9. How often do you visit the sickle cell clinic?

10. Three (3) or more medical visits for pain last year (12 months)?

11. 3 or more hospitalisations for sickle cell disease last year (12 months)?

.

12. In all previous hospital admissions, what was the important complaint and cause of admission?

13. Occupation: What work do you do?

14. Schooling: What's your highest level of schooling?

15. Socio-Economic Status: Are you rich or poor or in the middle?

Main Questions and follow ups

1. Tell me about SCD
    a. What does SCD mean to you?
2. Tell me about African cultural values.
    a. What do African cultural values mean to you?
3. Let's talk about religion and spirituality. Tell me about them.
    a. What does spirituality mean to you? What about religiosity?
4. Let's talk about psychological health and especially yours.
    a. What does psychological health mean to you?
5. Let's talk about coping with SCD.
    a. How do you cope with SCD?

Closure and debriefing

1. Do you have anything else to tell me about this topic?
2. Do you have any questions for me?
3. How have you felt about participating in this interview that explored your life with SCD?
4. Is there anything you wish had been done differently in this interview?

APPENDIX C: Consent Form for SCD Persons

Title: **African Cultural Values and Psychological Health in Adult Sickle Cell Disease Patients in Ghana**

Principal Investigator: Michael T. Anim
Address: Department of Psychology, University of Ghana, Legon. P. O. Box LG 84, Legon.

General Information about Research: Spirituality as a core African cultural value is known to influence both mental and physical health positively. It is judged to be one of the coping strategies mostly used by African Americans, Blacks and Whites who are sick of incurable diseases. How spirituality is used among Sickle Cell Disease patients in Ghana to promote psychological health and coping with pain crisis is not known.

This study involves research with sickle cell disease patients. Its aim is to study you as a person who has a disease that presently has no cure by studying all the areas of your being. This will be done by learning of your spirituality and other Ghanaian cultural values and determining their relationship with the medical and psychological issues you might have. It takes roughly an hour for you to tick answers to some questions on paper and approximately an hour and half to engage you in an interview or focus group discussion if you are selected to take part in that.

Procedure: The questionnaire will be given out in the sickle cell clinic during a period of one month and you will be expected to come to the clinic any day during this period that is convenient to you. When you arrive, two trained research assistants are available to give you the questionnaire and to help you to complete them.

As you complete the questionnaire, you may be identified and asked to participate in an interview or focus group discussion where certain details of your life and the disease will be asked. The interview will take place either in the clinic or in a convenient place you choose. You must, however, come to the clinic on a designated date if selected for the focus group discussion.

Interview sessions and focus group discussions will all be audio. The reason is that what is said in the interviews and focus group discussions will be written again verbatim to make analyses easy.

You need not come with anything. Pens, pencils and erasers will be provided. It takes 45 minutes to an hour to complete the questionnaire and a little over an hour to complete the interview or focus group discussions.

Possible risks and discomforts: It is possible you could be tired physically and mentally. This could trigger crisis. You will, therefore, be assessed in the clinic and standby medical personnel will assist in any eventuality. If you cannot come to the clinic, you will be assessed in the comfort of your home or places designated by you.

Possible Benefits: One possible benefit that you may get is that by talking about your health conditions, you may receive mental and emotional relief. The caution is to not allow the relationship to lead to a patient-healer one.

Privacy: Interviews will be done in confidential rooms in the clinic or in your private home if you choose to be assessed at home. Information you give will be used only for purposes of research and will not be disclosed to persons who are not connected to this research. Code numbers will be used in place of your real name in order to hide your identity. The questionnaire does not require your name on it.

Confidentiality: Information about you will be protected to the best of our ability. You will not be named in any reports. The research assistants and principal supervisor of the research, may sometimes look at your research results. But your identity is still protected since you will not provide your name. Be aware, however, that if you decide to participate in a focus group discussion, other group members will know what you discuss. But group members will be encouraged/told to keep what they hear confidential.

Compensation: You will be compensated for travel and transport from your home to the clinic at the current transport rate fares. If you come from Korle-Bu and its vicinity, you will be reimbursed **up to** five Ghana cedis **depending on** how much fare you spend on transportation. These monies will be given you as soon as the questionnaire and interviews are completed and you are ready to go home. In addition, 30 minutes into the exercise, you will be given snack break and refreshment. Finally, routine drugs like folic acid, will be provided to willing participants by the medical personnel. You can take some if you want.

Voluntary Participation and Right to Leave the Research: Participation in this research is voluntary and you can withdraw from the study at any time without penalty and still access the usual quality healthcare from the clinic. In focus group discussions, you are free to be quiet over a question/issue you are not comfortable sharing your views on. Be aware again that other members will know what you discuss in the focus group discussions.

Termination of Participation by the Researcher: The researcher can ask you to stop participation in this research if it is obvious that the research contributes to your having severe pain crisis.

Notification of Significant New Findings: When information you give on the questionnaire lead to some new findings about you that will suggest that you should take part in the interview or focus group discussions, we will tell you what we have found and request your continued participation in the interview or focus group discussion.

Contacts for Additional Information: In case you have pertinent questions about the research, please, send your inquiries to the principal researcher, Michael T. Anim at m.t.anim@uccsms.edu.gh or call 0277705172.

Your rights as a Participant This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research

(NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.mimcom.org or HBaidoo@noguchi.mimcom.org.

NOGUCHI MEMORIAL INSTITUTE FOR MEDICAL RESEARCH (NMIMR) COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF GHANA, LEGON INSTITUTIONAL REVIEW BOARD NMIMR-IRB

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title **African Cultural Values and Psychological Health in Adult Sickle Cell Disease Patients in Ghana** 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 & Signature of Person Who Obtained Consent

Consent Form for Diabetics

Title: African Cultural Values and Psychological Health in Adult Persons with Sickle Cell Disease in Ghana.

Principal Investigator: Michael Tetteh Anim
Address: University of Ghana, Legon
Department of Psychology
P. O. Box LG 84
Legon- Accra
Ghana

General Information about Research

You are being kindly asked to take part in this research because you live with diabetes. The purpose of the study is to find out whether people with diabetes experience psychological distress and African cultural values differently from people living with sickle cell disorder.

If you accept to participate in this study the researcher will ask you to complete a questionnaire that has six sections including socio-demographic data. Your identity is not needed. Therefore, do not write your name on any of the questionnaire. These questionnaires will take approximately 1hour to complete on your own. The principal supervisor or his research assistant will assist you to complete the questionnaire if you desire. Your medical records will also be examined to gather information on your demographics such as age, duration of diabetes, marital status, among others. The data is expected to be collected within three months but you will have to fill out the questionnaire once. The principal investigator will code all your information with confidential numbers and all information gathered on you will be kept under lock and key. There will be no difference in treatment between you and those not taking part in the research. Please read everything on this form and ask any questions you feel like before you decide to participate in this study.

Possible Risks and Discomforts

It is not expected that you will have physical, social or psychological risks as a participant in this study. You may however find some of the questions asking you to think back on your life. This may be a bit mentally demanding. You are not under any obligation to answer questions you are not comfortable with.

Possible Benefits

If you agree to participate in this study, you may have no direct or immediate benefits. However, the results of the study may benefit you and others who may need psychological treatments as a result of having diabetes. The result from this study may also provide information on which Ghanaian health policy makers could rely to formulate guidelines about psychological treatments for patients.

Confidentiality

Any information collected from you will be protected to the best of the researcher's ability. The data will be collected and maintained using confidential codes to protect your identity. The principal investigator Mr. Michael T. Anim, will obtain medical information from your medical records. Information that you give in connection with this study will not be identified with you. It will be analyzed and reported alongside information provided by other participants in the study. Your responses will not be linked to your name in any verbal or written reports of this study. Other persons that may see your information are the supervisors and research assistant of this research.

Compensation

You will not receive any financial or material rewards for participating. You will however be thanked and appreciated for your time and valuable information.

Additional Cost

Except your time and experiences shared on paper, you will not give anything for participating in this study.

Voluntary Participation and Right to Leave the Research

Your participation in this study is voluntary. You are free to withdraw from participating in the study without any penalty. If you however, decide to withdraw for some reasons, please notify the principal investigator, Mr. Michael T. Anim on Mobile number 027-7705172. Your withdrawal will not affect your treatment or any other services you will need in any way.

Notification of Significant New Findings

Throughout the study the researcher will notify participants of new information relating to the study that may become available.

Contacts for Additional Information

If you have any questions about this study you can contact the principal investigator Michael T. Anim on mobile number 0277705172. Please contact the same principal investigator in case you experience any harm that is directly caused by this study. You may also contact Prof. C. Charles Mate- Kole the Principal supervisor of the investigator through mobile number 0274323154 when necessary.

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.mimcom.org or HBaidoo@noguchi.mimcom.org

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title "African Cultural Values and Psychological Health" 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 Signature of Person Who Obtained Consent

Consent Form for Healthy Persons

Title: African Cultural Values and Psychological Health in Adult Persons with Sickle Cell Disease in Ghana.

Principal Investigator: Michael Tetteh Anim
Address: University of Ghana, Legon
Department of Psychology
P. O. Box LG 84
Legon- Accra
Ghana

General Information about Research

You are being kindly asked to take part in this research because you presently are not living with any known chronic disease. The purpose of the study is to find out whether people without chronic disease experience psychological distress and African cultural values differently from people living with chronic disease.

If you accept to participate in this study the researcher will ask you to complete a questionnaire that has six sections including socio-demographic data. Your identity is not needed. Therefore, do not write your name on any of the questionnaire. These questionnaires will take approximately 1hour to complete on your own. The principal supervisor or his research assistant will assist you to complete the questionnaire if you desire. The principal investigator will code all your information with confidential numbers and all information gathered on you will be kept under lock and key. There will be no difference in treatment between you and those not taking part in the research. Please read everything on this form and ask any questions you feel like before you decide to participate in this study.

Possible Risks and Discomforts

It is not expected that you will have physical, social or psychological risks as a participant in this study. You may however find some of the questions asking you to think back on your life. This may be a bit mentally demanding. You are not under any obligation to answer questions you are not comfortable with.

Possible Benefits

If you agree to participate in this study, you may have no direct or immediate benefits. However, the results of the study may benefit you and others who may need psychological treatments as a result of having a chronic disease. The result from this study may also provide information on which Ghanaian health policy makers could rely to formulate guidelines about psychological treatments for patients.

Confidentiality

Any information collected from you will be protected to the best of the researcher's ability. The data will be collected and maintained using confidential codes to protect your identity. Information that you give in connection with this study will not be identified with you. It will be analyzed and reported alongside information provided by other participants in the study. Your responses will not be linked to your name in any verbal or written reports of this study. Other persons that may see your information are the supervisors and research assistant of this research.

Compensation

You will not receive any financial or material rewards for participating. You will however be thanked and appreciated for your time and valuable information.

Additional Cost

Except your time and experiences shared on paper, you will not give anything for participating in this study.

Voluntary Participation and Right to Leave the Research

Your participation in this study is voluntary. You are free to withdraw from participating in the study without any penalty. If you however, decide to withdraw for some reasons, please notify the principal investigator, Mr. Michael T. Anim on Mobile number 027-7705172. Your withdrawal will not affect your relationship with the researcher or any other services you will need from him.

Contacts for Additional Information

If you have any questions about this study you can contact the principal investigator Michael T. Anim on mobile number 0277705172. Please contact the same principal investigator in case you experience any harm that is directly caused by this study. You may also contact Prof. C. Charles Mate- Kole the Principal supervisor of the investigator through mobile number 0274323154 when necessary.

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.mimcom.org or HBaidoo@noguchi.mimcom.org

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title "African Cultural Values and Psychological Health" 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 Signature of Person Who Obtained Consent

APPENDIX D: *Details of Disease Characteristics of Sample*

Demographic variables (n = 201)	F	%
Sickle cell type		
SS	131	65.2
SC	70	34.8
Total	**201**	**100**
12 or more hospital visits last 12 months due to SCD		
Yes	29	14.12
No	172	85.6
Total	**201**	**100**
3 or more hospital admissions in last 12 months due to SCD		
Yes	61	30.3
No	138	68.7
Missing	2	1.0
Total	**201**	**100**
Blood transfusion due to SCD		
Yes	83	41.3
No	116	57.7
Missing	2	1.0
Total	**201**	**100**
Priority of coping method used first during a crisis		
Medication and hospital resources	127	62.2
Psychological methods	17	8.5
Social methods	11	5.5
Spiritual methods	47	23.4
Missing	1	0.5
Total	**201**	**100**
Membership in a support group		
Yes	22	10.9
No	179	89.1
Total	**201**	**100**
Does spirituality help to cope better with the disease?		
Yes	155	77.1
No	46	22.9
Total	**201**	**100**
Will Ghanaian cultural values help to cope better with the disease?		
Yes	49	24.4
No	150	74.6
Missing	2	1.0
Total	**201**	**100**

APPENDIX E: *Themes and Subthemes in Qualitative Data Analysis*

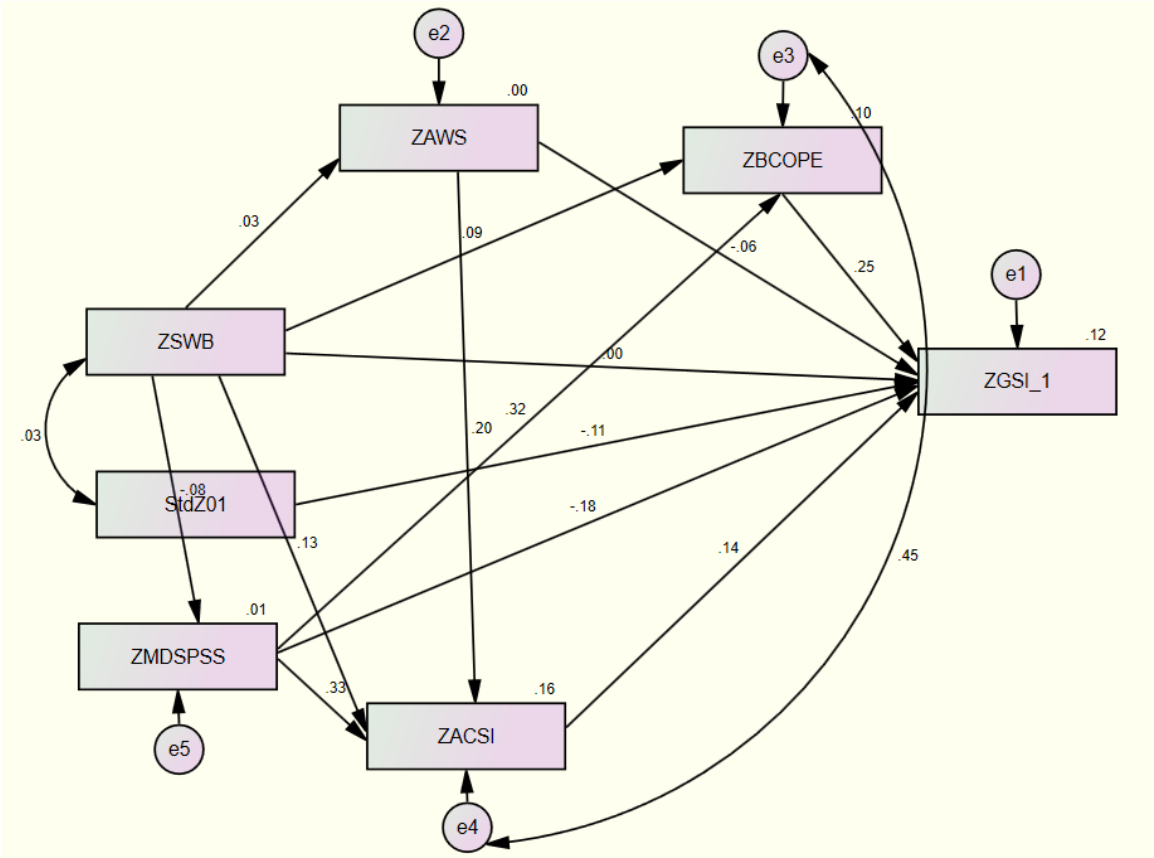
Themes	Subthemes
Conceptualizing SCD	• "Scientific versus superstition" • "Medical versus supernatural etiology" • "Sickler or not a sickler"
Paradox of living with SCD	• "SCD: physically constraining but intellectually advantageous" • "SCD: socially crippling and socially empowering" • "Helplessness versus self-responsibilities" • "Surviving/enduring the SCD"
Africentric coping with SCD	• "Coping tool: interdependence" • "Spirituality and religiosity: opposite sides of the same phenomenon" • "Coping with African cultural values" • "People power versus drug power" • "Ambivalence in choice of coping" • "Specific spiritual/religious coping,"
Psychological health	• "Conceptualizing psychological health" • "Sickle cell impacting psychological health" • "Psychological health impacting SCD" • "Africultural coping impacting psychological health"

APPENDIX F: *Previous and Current Reliability Cronbach's Alphas for All Scales*

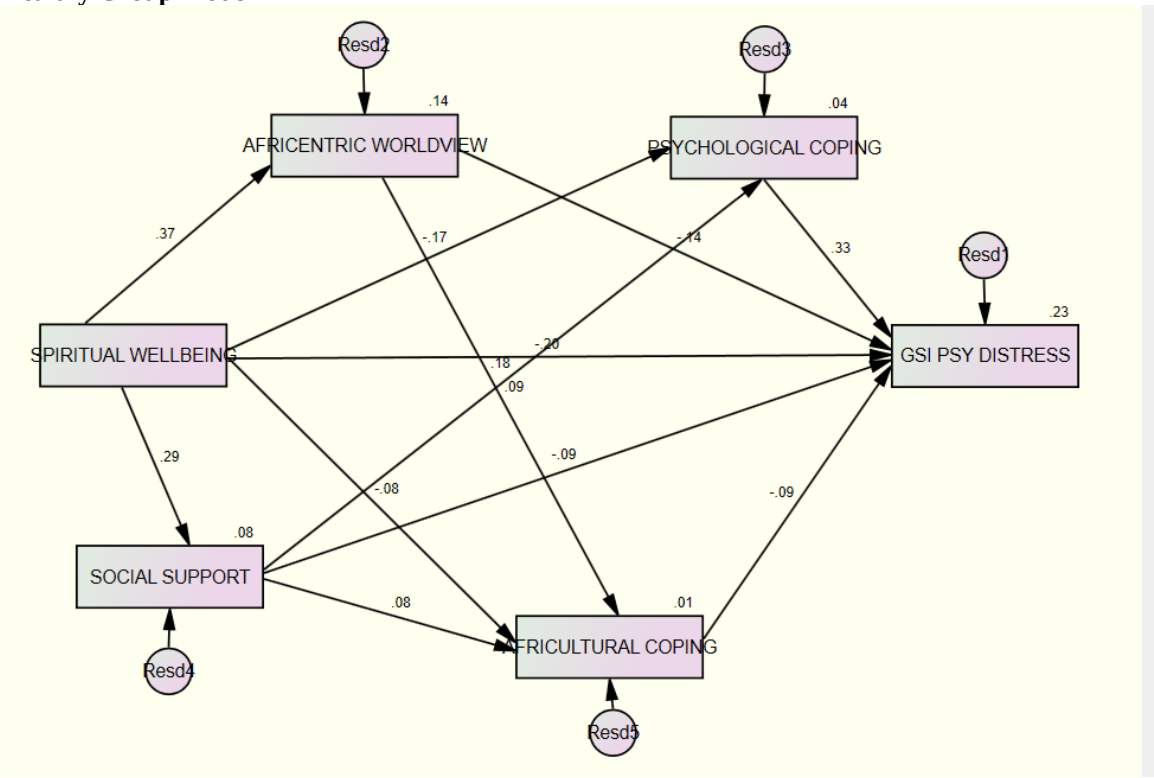
Instruments	**Instrument subscales**	**Previous Cronbach's Alpha**	**Current Cronbach's Alpha**
23-Item Africentric Worldview Scale		.63	.65
30-Item Africultural Coping Systems Inventory		.71	.88
	Cognitive-emotional	.60	.78
	Spiritual-centered	.81	.77
	Collective-centered	.66	.69
	Ritual-centered	.66	.70
20-Item Spiritual Wellbeing Scale		.93	.77
	Spiritual wellbeing	.89	.77
	Religious wellbeing	.87	.75
	Existential wellbeing	.78	.72
53-Item Brief Symptoms Inventory			.94
	Somatization	.68	.70
	Obsessive-compulsive		.70
	Interpersonal sensitivity		.68
	Depression	.85	.74
	Anxiety		.69
	Hostility		.69
	Phobic anxiety	.91	.63
	Paranoid ideation		.73
	Psychoticism	.71	.69
28-Item Brief Cope		.54 and .90 range for all subscales	.86
12-Item Multidimensional Scale of Perceived Social Support		.81 and .91 range for all subscales and total scale	.87
11 Item Medical Coping Questionnaire			.88
8 item MCQ			.85
Positive Med Coping			.93
Negative Med Coping			.63

APPENDIX G: Models and Model Fit Indices for all Groups

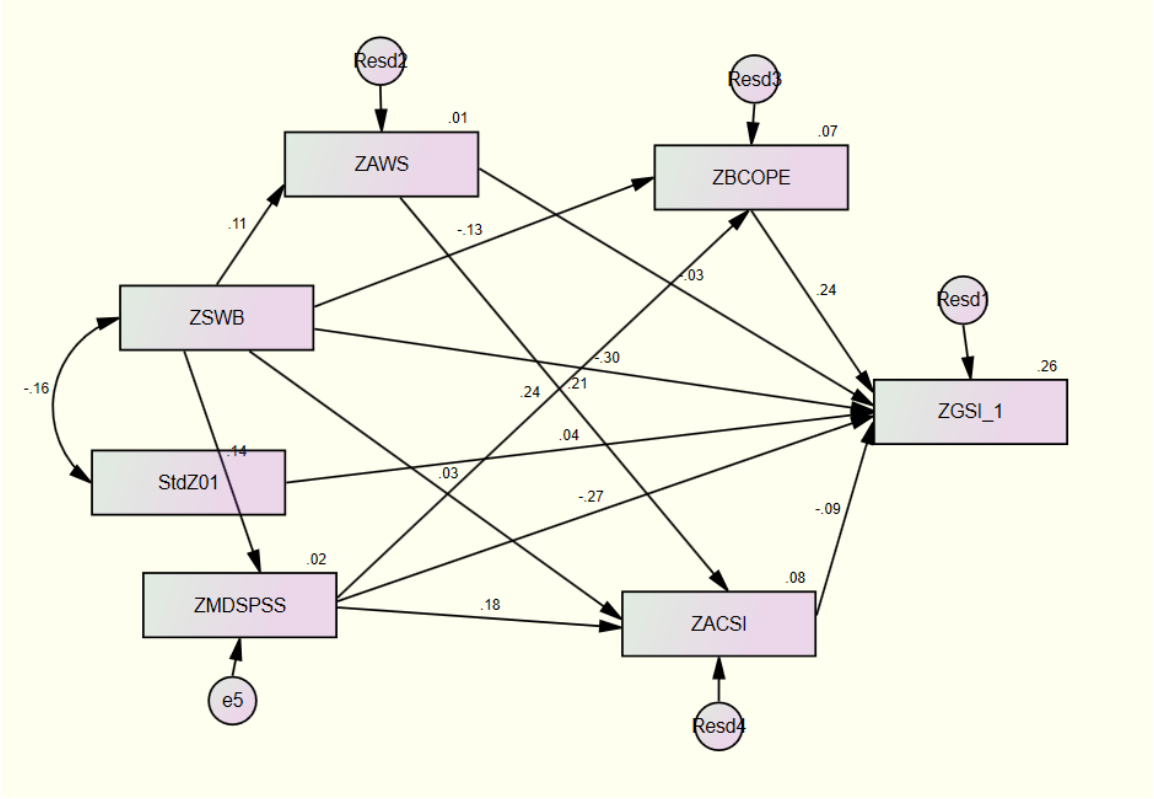
Sickle Cell Group Model



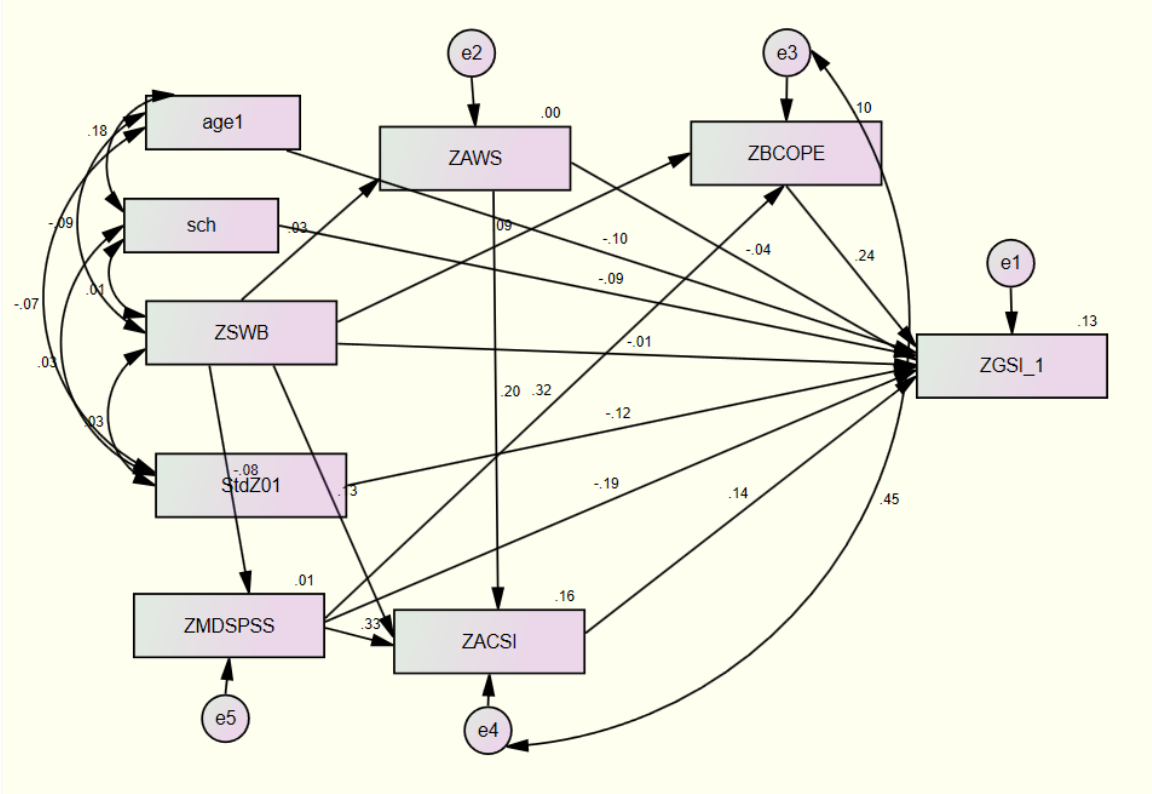
Healthy Group Model



Diabetes Group Model



An Alternative Model for SCD Persons



SICKLE CELL MODEL FIT INDICES

Result (Default model)

Minimum was achieved
Chi-square = 48.867
Degrees of freedom = 3
Probability level = .000

CMIN

Model	NPAR	CMIN	DF	P	CMIN/ DF
Default model	18	48.867	3	.000	16.289
Saturated model	21	.000	0		
Independence model	6	133.173	15	.000	8.878

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.098	.932	.524	.133
Saturated model	.000	1.000		
Independence model	.182	.811	.735	.579

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.633	-.835	.648	-.941	.612
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.200	.127	.122
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.276	.211	.347	.000
Independence model	.198	.168	.230	.000

HEALTHY GROUP MODEL FIT INDICES

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	18	53.905	3	.000	17.968
Saturated model	21	.000	0		
Independence model	6	162.146	15	.000	10.810

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.110	.923	.464	.132
Saturated model	.000	1.000		
Independence model	.201	.777	.688	.555

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.668	-.662	.930	-.730	.934
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI

Model	PRATIO	PNFI	PCFI
Default model	.200	.134	.131
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.225	.360	.000
Independence model	.220	.190	.252	.000

DIABETES GROUP MODEL FIT INDICES

Result (Default model)

Minimum was achieved
Chi-square = 41.014
Degrees of freedom = 3
Probability level = .000

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	18	41.014	3	.000	13.671
Saturated model	21	.000	0		
Independence model	6	137.011	15	.000	9.134

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.087	.941	.586	.134
Saturated model	.000	1.000		
Independence model	.177	.819	.746	.585

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.931	-.497	.946	-.558	.978
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.072	.187	.323	.000
Independence model	.202	.172	.233	.000

APPENDIX H: Further Exploratory Analyses Summary Tables

Table 3.18
Standard Multiple Regression Comparing the Predictive Power of Specific Factors in the BioPsychoSocial-Spiritual Model on Psychological Health

Predictor	B	Std Error	β	t	*p*
Africultural Coping	.12	.08	.12	1.50	.14
Social support	-.18	.07	-.18	-2.47	.01
Psychological Coping	.26	.08	.26	3.18	.00
Medical coping	-.11	.07	-.11	-1.55	.12

R^2= .11; Adjusted R^2 = .09; Overall p-value = .00
Dependent Variable: Psychological Distress

Table 3.19
Standard Multiple Regression Comparing the Predictive Power of Religion with Other Subscales on Psychological Health Among SCD Participants.

Predictor	B	Std Error	β	t	*p*
Self-distraction	.22	.08	.22	2.89	.00
Denial	.03	.07	.03	.44	.66
Substance use	.03	.07	.03	.41	.68
Emotional support	.07	.09	.07	.74	.46
Instrumental support	-.08	.10	-.08	-.74	.46
Humor	-.12	.07	-.12	-1.68	.09
Acceptance	.11	.10	.11	1.06	.29
Religion	-.04	.08	-.04	-.54	.59
Self-blame	.25	.07	.25	3.45	.00

R^2= .15; Adjusted R^2 = .11; Overall p-value = .00
Dependent Variable: Psychological Distress

Table 3.20
Standard Multiple Regression Comparing the Predictive Power of Three Spirituality Measures on Psychological Health among SCD Participants

Predictor	B	Std Error	β	t	*p*

Spiritual-centered Coping	.16	.07	.16	2.16	.03
Spirituality	-.05	.07	-.05	-.63	.53
Spiritual wellbeing	.03	.07	.03	.47	.64

R^2= .03; Adjusted R^2 = .01; Overall p-value = .18

Table 3.21
Multiple Regression Analysis of the Influence of Africultural, Socio-Demographic, and Disease-Related Variables on Psychological Health

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Spirituality	.01	.07	.01	.21	*.84*
African cultural values	.00	.07	.00	.06	.95
Africultural coping	.07	.08	.07	.89	.41
Social support	-.17	.07	-.17	-2.26	.03
Psychological coping	.10	.08	.10	2.42	.02
Age	.00	.01	.00	.04	.91
Schooling	-.07	.04	-.13	-1.74	.08
Gender	.12	.13	.06	.88	.38
Marital status	-.02	.13	-.01	-.18	.86
Religious group	-.03	.04	-.06	-.83	.41
Occupation	-.10	.06	-.14	-1.75	.08
Family type	-.05	.08	-.04	-.63	.53
Sickle cell type	-.26	.14	-.12	-1.81	.07
≥ 12 hosp. visits	-.68	.20	-.23	-3.56	.00
Spirituality helps	-.12	.16	-.05	-.75	.45
Africultural values help	.08	.15	.04	.55	.58

R^2 = .27; adjusted R^2 = .19; Overall p = .000

Source: Field data, 2014.

Tables 3.21a

Summary of Multiple Regression Analysis of the Influence of Socio-Demographic and Disease-Related Variables on Psychological Health

Predictor	**B**	**Std Error**	**β**	**t**	***P***
Age	.00	.01	.00	.04	.91
Schooling	-.07	.04	-.13	-1.74	.08
Gender	.14	.14	.07	1.02	.31
Marital status	-.04	.13	-.02	-.33	.74
Religious group	-.03	.04	-.06	-.85	.40
Occupation	-.09	.06	-.13	-1.66	.09
Family type	-.04	.09	-.04	-.52	.61
Sickle cell type	-.25	.14	-.12	-1.75	.08
≥ 12 hosp. visits	-.75	.20	-.25	-3.69	.00
Spirituality helps	-.24	.16	-.10	-1.46	.15
Africultural values help	.08	.15	.04	.50	.62

R^2 = .21; adjusted R^2 = .16; Overall p = .000

Table 3.22
Invariance Test for Group Comparisons of the Relationship between Spirituality and Psychological Health across Demographic Factors

Variable	Path	Estimate	S.E	CR	p	X^2(p-value)
Male	SWB → GSI	-.305	.094	-3.24	.001	.015(.902)
Female	SWB → GSI	-.284	.097	-2.93	.003	
Age						
<20	SWB → GSI	.013	.163	.079	.947	
20-29	SWB → GSI	-.370	.098	-3.78	.000	8.368 (.039*)
30-39	SWB → GSI	-.288	.068	-4.23	.000	
>40	SWB → GSI	.027	.156	.173	.909	
Education						
SHS	SWB → GSI	-.115	.123	-.934	.293	2.908 (.234)
Polytechnic	SWB → GSI	-.397	.114	-3.48	.000	
Degree	SWB → GSI	-.151	.151	-1.00	.275	
Disease type						
SS	SWB → GSI	-.316	.090	-3.51	.000	1.341 (.247)
SC	SWB → GSI	-.215	.101	-2.12	.067	

*p≤.05

Table 3.25
Summary Results of Pearson Correlation of Age and Education with Africultural variables and Psychological Health among SCD, Healthy and Diabetic groups

Variables	GSI	AWS	ACSI	SOC SUPP	SWBS
All 3 groups					
Educ	-.13*	.03	-.01	-.02	.24*
Age	-.10	.20**	.03	-.06	.01
SCD alone					
Educ	-.16*	.13	-.02	.06	.01
Age	-.06	.11	.00	-.14	-.09
Healthy alone					
Educ	-.19**	.07	-.07	-.07	.11
Age	-.15*	-.00	-.07	-.19**	-.05
Diabetics alone					
Educ	-.06	.01	-.01	.02	.17*
Age	.06	.16*	.06	-.05	-.14

**Correlation is significant at the 0.05 level (2- tailed); *Correlation is significant at the 0.01 level (2-tailed

APPENDIX I: *Sample Characteristics of SCD, Healthy and Diabetic Study Participants*

Characteristics	SCD (n = 201)	Healthy (n = 203)	Diabetic (n = 201)
	Frequency (Percentage)		
Sex			
Male	102 (50.7)	116 (57.1)	78 (38.8)
Female	99 (49.3)	87 (42.9)	123 (61.2)
Age			
<20	25 (12.4)	12 (5.9)	1 (.5)
20-29	118 (58.7)	143 (70.4)	24 (12.0)
30-39	40 (19.9)	33 (16.3)	25 (12.5)
>40	18 (9.0)	15 (7.5)	151 (75)
Marital status			
Married	27 (13.4)	31 (15.3)	119 (59.2)
Unmarried	169 (84.1)	166 (81.8)	78 (30.8)
Co-habitation	5 (2.5)	6 (3.0)	4 (2.0)
Occupation			
Student	97 (48.3)	89 (43.8)	14 (7.0)
Public sector workers	32 (15.9)	79 (38.9)	60 (29.9)
Private sector workers	23 (11.4)	10 (4.9)	20 (10.0)
Self employed	32 (15.9)	7 (3.4)	62 (30.8)
Unemployed	17 (8.5)	9 (4.4)	23 (11.4)
Religion			
Christian	188 (93.5)	191 (94)	181 (90)
Moslems	13 (6.5)	12 (6)	20 (10)
Highest education level			
Senior High School	83 (41.3)	19 (9.4)	69 (34.3)
Poly/training college	66 (32.8)	36 (17.7)	93 (46.3)
University degree	52 (25.9)	148 (73)	39 (19.4)
Family type			
Extended family	46 (22.9)	38 (18.7)	54 (26.9)
Nuclear family	136 (67.7)	108 (53.2)	85 (42.3)
Live on own	19 (9.5)	57 (27.6)	55 (27.4)
SC type			
SS	131 (65.2)	-	-
SC	70 (34.8)	-	-
Ethnicity			
Akan	56 (46.7)	128 (63.1)	124 (61.7)
Mole-Dagbani	10 (8.3)	26 (12.9)	18 (9.0)
Ewe	23 (19.2)	26 (12.8)	33 (16.4)
Ga	31 (25.8)	18 (8.9)	18 (9.0)
Mean Age (SD); min- max	***26.96*** *(7.68); 19-58*	***27.18*** *(6.89); 18-54*	***45.98*** *(10.92); 19-60.*
Mean Sch (SD); min- max	***14.07*** *(1.86); 19-19*	***15.53*** *(2.13); 11-20*	***14.38*** *(2.30); 10-20.*

Source: Field data, 2014.

APPENDIX J: ***Description of Disease Characteristics and Coping Methods of SCD, Healthy and Diabetic Groups***

	Frequency (Percent)		
	SCD (n=201)	**Healthy (n=203)**	**Diabetes (n=201)**
12 or more hospital visits			
Yes	29 (14.12)	8 (3.9)	17 (8.5)
No	172 (85.6)	195 (96.1)	184 (91.5)
3 or more hospital admissions			
Yes	61 (30.3)	n/a	n/a
No	138 (68.7)	n/a	n/a
No response	2 (1.0)	n/a	n/a
Blood transfusion due to SCD			
Yes	83 (41.3)	n/a	n/a
No	116 (57.7)	n/a	n/a
No response	2 (1.0)		
Ranking of coping method			
Medication and hospital res.	127 (62.2)	58 (28.6)	85 (42.3)
Psychological methods	17 (8.5)	58 (28.6)	30 (14.9)
Social methods	11 (5.5)	15 (7.4)	40 (19.9)
Spiritual methods	47 (23.4)	72 (35.5)	43 (21.4)
No response	1 (0.5)		3 (1.5)
Membership in a support group			
Yes	22 (10.9)	n/a	n/a
No	179 (89.1)	n/a	n/a
Spirituality helps			
Yes	155 (77.1)	143 (70.4)	154 (76.6)
No	46 (22.9)	60 (29.6)	47 (23.4)
Ghanaian cultural values help			
Yes	49 (24.4)	64 (31.5)	101 (50.2)
No	150 (74.6)	139 (68.5)	100 (49.8)
No response	2 (1.0)		
Psychological problems			
Yes	6 (3.0)	5 (2.5)	4 (2.0)
No	195 (97.0)	198 (97.5)	197 (98.0)

APPENDIX K: Principal Component Analyses Tables and Figures

Table 1a

Rotated Component Matrix for SWBS for SCD

	Component	
	1	2
There is purpose for my life	.708	
God concerned about my problems	.676	
My relationship with God makes me not lonely	.667	
Relationship with God brings well-being	.653	
Feel good about my future	.627	
Life is positive experience	.620	
I feel a sense of well-being	.614	
I believe God loves me	.549	
feel good and satisfied with life	.529	
Most fulfilled in close communication with God	.381	
A meaningful relationship with God	.379	
No personal strength from God		.674
Don't know who I am		.625
No satisfying relationship with God		.584
God is impersonal		.560
I feel unsettled		.553
Life not much meaning		.547
No satisfaction in private prayer		.540
I don't enjoy about life		.503
Life is full of conflict		.457

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 1b
Component 1: Positive Items: SWBS

Item number	Item content	Item loading	Comm-unalities
20	I believe there is some real purpose for my life	.734	.529
11	I believe that God is concerned about my problems.	.702	.479
15	My relationship with God helps me not to be lonely.	.690	.467
19	My relationship with God contributes to my sense of wellbeing.	.673	.439
4	I feel that life is a positive experience	.646	.396
10	I feel a sense of wellbeing about the direction of my life.	.584	.361
3	I believe God loves me and cares about me.	.595	.360
8	I feel very fulfilled and satisfied with life.	.490	.391
17	I feel most fulfilled when I am in close communication with God.	.705	.512
7	I have a personally meaningful relationship with God.	.727	.507
14	I feel good about my future	.558	.444

Table 1c
Component 2: Negative Items:SWBS

Item number	Item content	Item loading	Comm-unalities
9	I don't get much personal strength from God.	.674	.440
2	I don't know who I am, where I came from or where I am going.	.632	.410
13	I don't have a personally satisfying relationship with God.	.567	.372
5	I believe that God is impersonal and not interested in my daily situations.	.548	.295
6	I feel unsettled about my future.	.561	.340
18	Life does not have much meaning.	.556	.381
1	I don't find much satisfaction in private prayer with God.	.522	.261
12	I don't enjoy much about my life.	.534	.281
16	I feel that life is full of conflict.	.492	.228

Notes: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 1d

Factor Analysis of SWBS

Scale items	Component/Factor Loadings	
	1	2
swb 20	.734	
swb 7	.727	
swb 17	.705	
swb 11	.702	
swb 15	.690	
swb 19	.673	
swb 4	.646	
swb 3	.595	
swb 10	.584	
swb 14	.558	
swb 8	.490	
swb 9		.674
swb 2		.632
swb 13		.567
swb 6		.561
swb 18		.556
swb 5		.548
swb 12		.534
swb 1		.522
swb 16		.492

Extraction Method: Principal Component Analysis.

Table 1e

SWBS: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.360	26.799	26.799	5.360	26.799	26.799	5.005
2	2.536	12.680	39.479	2.536	12.680	39.479	3.458
3	1.549	7.746	47.225				

4	1.087	5.433	52.658
5	.991	4.957	57.614
6	.887	4.437	62.051
7	.853	4.265	66.315
8	.767	3.836	70.151
9	.695	3.476	73.627
10	.650	3.248	76.875
11	.613	3.066	79.941
12	.589	2.944	82.885
13	.560	2.802	85.687
14	.541	2.706	88.393
15	.478	2.388	90.781
16	.470	2.350	93.131
17	.400	2.001	95.132
18	.387	1.935	97.067
19	.330	1.648	98.715
20	.257	1.285	100.000

Extraction Method: Principal Component Analysis.

a. groups = sickle cell

b. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

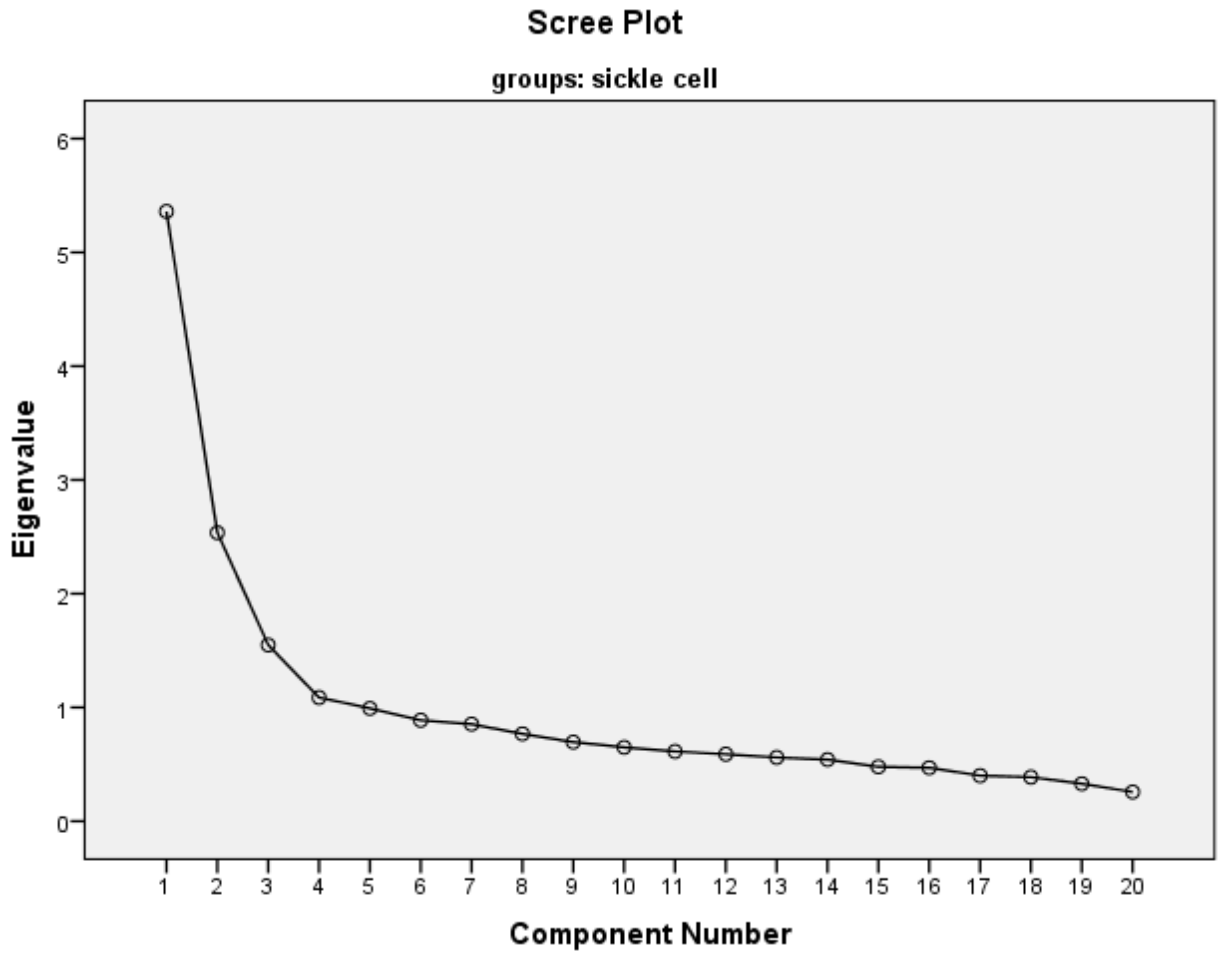


Table 2a: *Communalities for AWS Items*

Item no.	Extraction	Item no	Extraction
aws 1	.471	aws 13	.618
aws 2	.454	aws 14	.585
aws 3	.559	aws 15	.483
aws 4	.760	aws 16	.520
aws 5	.754	aws 17	.562
aws 6	.552	aws 18	.573
aws 7	.433	aws 19	.543
aws 8	.423	aws 20	.540
aws 9	.602	aws 21	.632
aws 10	.599	aws 22	.506
aws 11	.566	aws 23	.409
aws 12	.348		

Table 2b

Factor Analysis of AWS

	Components/factor loadings				
	1	2	3	4	5
22	.702				
15	.658				
18	.640				
8	.573				
16	.444				
4		-.890			
5		-.858			
3		-.651			
10			.785		
11			.682		
14			.598		
1				.666	
2				.642	
7					.662
12					.576

Notes: AWS – Africentric Worldview Scale

Extraction Method: Principal Component Analysis.

Table 2c

Unrotated Loadings and Component Matrix for AWS

	Component					
AWS item no.	1	2	3	4	5	6
aws 17	.669					
aws 5	.607	-.415		.410		
aws 4	.603	-.499		.354		
aws 18	.598		-.335			
aws 16	.552				-.383	
aws 15	.521			-.304		
aws 8	.488					
aws 23	.463					
aws 12	.448					
aws 3	.430	-.305				
aws 9		.461		.340		
aws 11	.387	.429			-.355	
aws 20	.377	.418	-.357			
aws 10		.447	.525			
aws 13	.306		.518			.309
aws 14			.465			
aws 2			-.410			.365
aws 22	.431			-.559		
aws 1			-.396	.399	.337	
aws 19					.537	.413
aws 7	.336				.390	
aws 6		-.437				-.504
aws 21	.356				.302	-.445

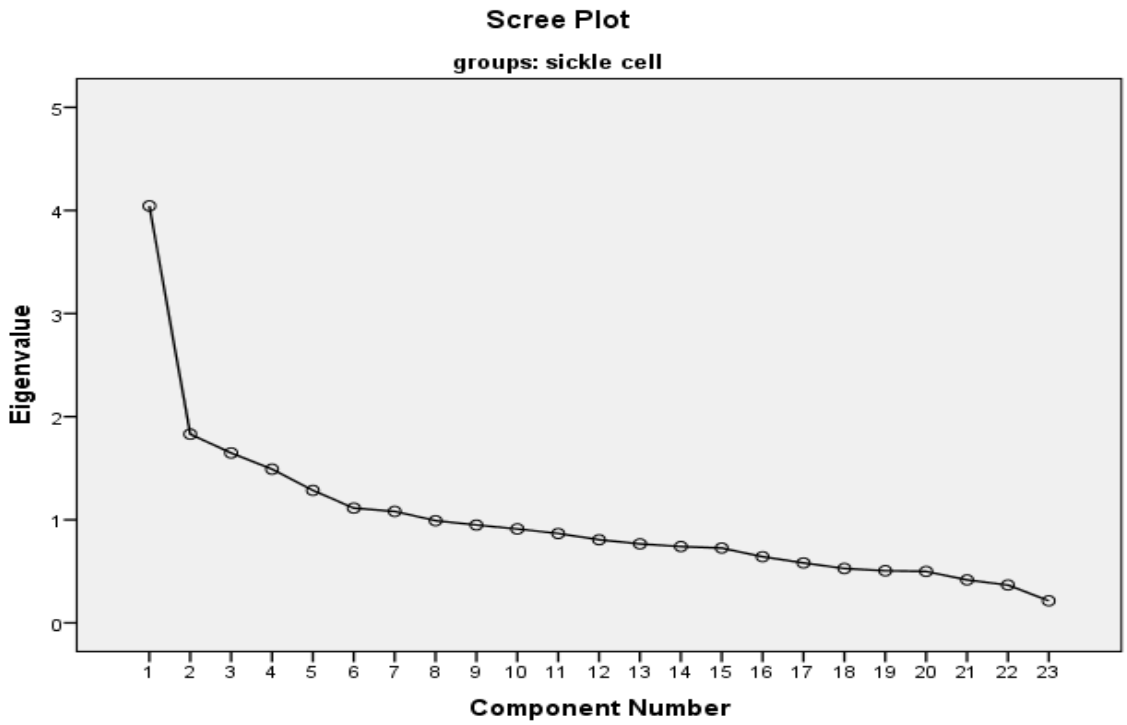


Figure Showing Scree Plot for AWS for SCD

Table 3a
Item loadings for BSI: Communalities

BSI item number	Comm unalities	BSI item number	Comm unalities	BSI item number	Comm unalities	BSI item number	Comm unalities
bsi 1	.452	bsi 14	.707	bsi 27	.560	bsi 41	.662
bsi 2	.400	bsi 15	.549	bsi 28	.501	bsi 42	.502
bsi 3	.575	bsi 16	.631	bsi 29	.672	bsi 43	.576
bsi 4	.459	bsi 17	.493	bsi 30	.516	bsi 44	.582
bsi 5	.383	bsi 18	.546	bsi 31	.419	bsi 45	.590
bsi 6	.475	bsi 19	.675	bsi 32	.462	bsi 46	.455
bsi 7	.553	bsi 20	.477	bsi 33	.567	bsi 47	.472
bsi 8	.548	bsi 21	.657	bsi 34	.429	bsi 48	.526
bsi 9	.330	bsi 22	.449	bsi 35	.395	bsi 49	.581
bsi 10	.453	bsi 23	.378	bsi 36	.538	bsi 50	.546
bsi 11	.554	bsi 24	.577	bsi 37	.576	bsi 51	.424
bsi 12	.500	bsi 25	.518	bsi 38	.537	bsi 52	.659
bsi 13	.573	bsi 26	.381	bsi 39	.500	bsi 53	.503
				bsi 40	.635		

Table 3b: *Component Matrix of BSI*

	Component						
	1	2	3	4	5	6	7
bsi 16	.738						
bsi 17	.711						
bsi 18	.702						
bsi 38	.699						
bsi 22	.694			-.375			
bsi 14	.682				-.322		
bsi 19	.672						
bsi 21	.643						
bsi 43	.638						
bsi 53	.633						
bsi 50	.625	-.300	.359				
bsi 52	.619				.336	-.401	
bsi 20	.610	.312	-.503				
bsi 24	.609		-.310				
bsi 44	.595			-.353			-.335
bsi 15	.592	.366					
bsi 45	.588						
bsi 13	.559					-.388	
bsi 12	.559						
bsi 30	.541			.436	-.333		
bsi 35	.540	-.395					
bsi 48	.534			-.409			
bsi 5	.461		.334				
bsi 27	.457						.396
bsi 51	.453			-.319			.333
bsi 7		.588			.301		
bsi 10	.426	.566				.316	
bsi 36	.503		.538				
bsi 37	.401			.301	.609		

Extraction Method: Principal Component Analysis.

Table 3c: *BSI: Total Variance Explained*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.021	34.557	34.557	10.021	34.557	34.557
2	1.753	6.046	40.603	1.753	6.046	40.603
3	1.502	5.180	45.782	1.502	5.180	45.782
4	1.397	4.816	50.598	1.397	4.816	50.598
5	1.267	4.370	54.969	1.267	4.370	54.969
6	1.123	3.873	58.841	1.123	3.873	58.841
7	1.023	3.528	62.369	1.023	3.528	62.369
8	.950	3.275	65.644			
9	.928	3.201	68.845			
10	.809	2.790	71.635			
11	.793	2.735	74.369			
12	.726	2.504	76.873			
13	.678	2.338	79.211			
14	.655	2.257	81.468			
15	.590	2.035	83.503			
16	.534	1.840	85.343			
17	.504	1.739	87.082			
18	.480	1.656	88.739			
19	.465	1.604	90.343			
20	.420	1.448	91.790			
21	.388	1.339	93.129			
22	.329	1.136	94.265			
23	.319	1.101	95.366			
24	.280	.967	96.333			
25	.247	.851	97.184			
26	.240	.829	98.013			
27	.225	.775	98.788			
28	.196	.674	99.462			
29	.156	.538	100.000			

Extraction Method: Principal Component Analysis.

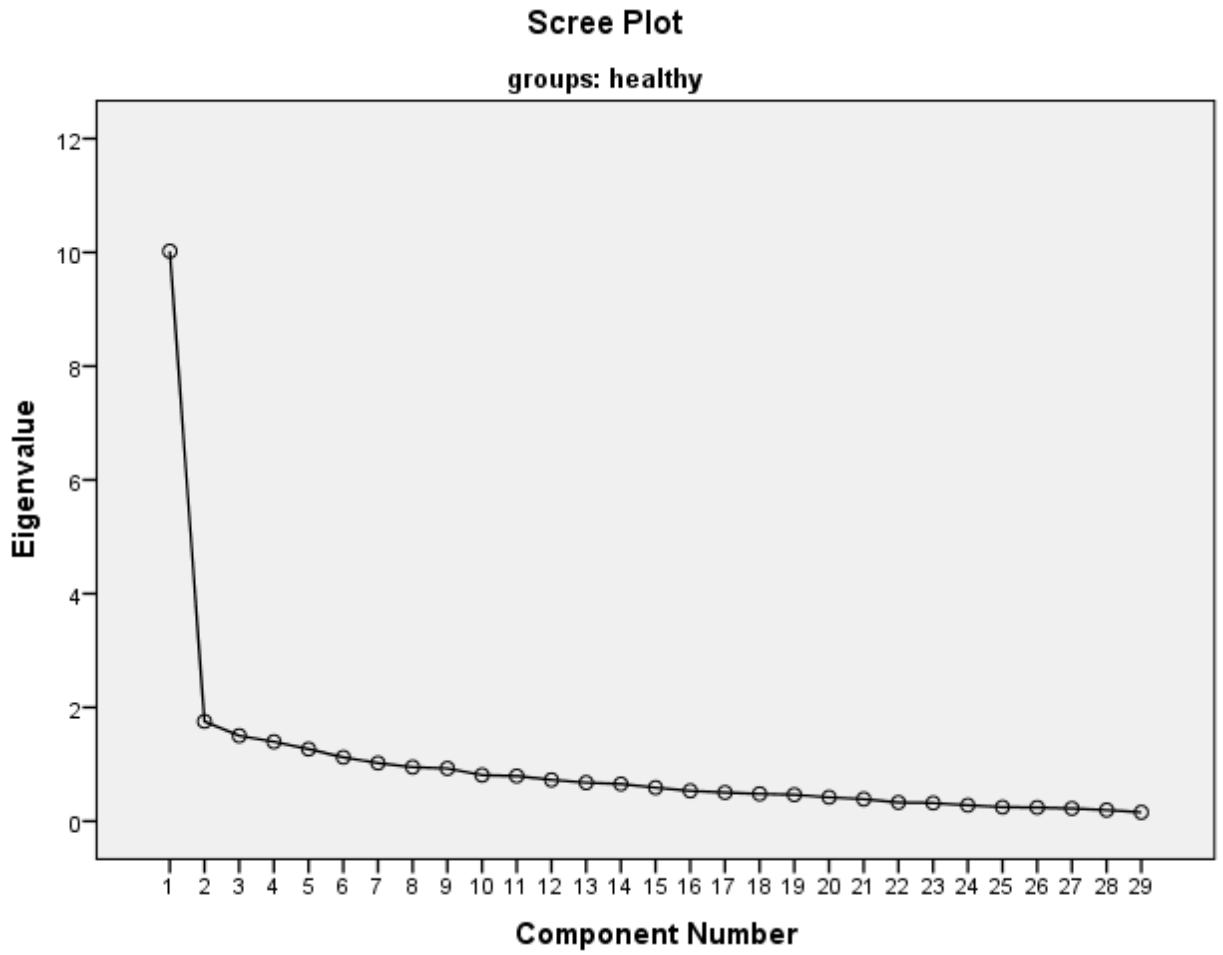


Figure showing Scree Plot for BSI

Table 4a
Item Loadings for ACSI

ACSI item number	Communalities	ACSI item number	Communalities
acsi 1	**.463**	acsi 16	**.333**
acsi 2	**.331**	acsi 17	.274
acsi 3	**.393**	acsi 18	**.340**
acsi 4	.241	acsi 19	**.441**
acsi 5	.244	acsi 20	**.477**
acsi 6	**.416**	acsi 21	**.447**
acsi 7	**.400**	acsi 22	**.413**
acsi 8	**.327**	acsi 23	**.615**
acsi 9	**.492**	acsi 24	**.418**
acsi 10	**.462**	acsi 25	**.605**
acsi 11	**.480**	acsi 26	**.430**
acsi 12	**.408**	acsi 27	**.365**
acsi 13	**.322**	acsi 28	**.568**
acsi 14	.297	acsi 29	**.336**
acsi 15	**.373**	acsi 30	**.558**

Notes: Major loadings for each item are bolded

Table 4b : *Factor Analysis of ACSI*

	Component			
	1	2	3	4
acsi 20	.650			
acsi 7	.605			
acsi 22	.585			
acsi 8	.563			
acsi 12	.562			
acsi 26	.512			
acsi 5	.456			
acsi 19	.453			.341
acsi 14	.431			
acsi 27	.423			
acsi 15	.407			.302
acsi 17	.312		.306	
acsi 6		-.611		
acsi 3		-.607		
acsi 9		-.604		
acsi 2		-.596		
acsi 24		-.587		
acsi 11		-.543		-.399
acsi 21		-.499		
acsi 1		-.499		.423
acsi 13		-.482		
acsi 4		-.414		
acsi 23			.780	
acsi 25			.760	
acsi 28			.659	
acsi 30				.608
acsi 10		-.322		.421
acsi 16		-.321		.410
acsi 18	.341			.376
acsi 29				.370

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Table 4c
Unrotated Loadings and Component Matrix for ACSI

Item No.	Component							
	1	2	3	4	5	6	7	8
acsi 21	.624				-.459			
acsi 10	.599					.383		
acsi 27	.595						-.446	
acsi 20	.558						-.356	
acsi 30	.556			.429				
acsi 22	.555						-.311	
acsi 12	.522		-.358					-.409
acsi 9	.512	-.365						
acsi 26	.509			-.305				
acsi 15	.498		-.339					
acsi 24	.497		.316			-.308		
acsi 6	.488							
acsi 19	.482	.380						
acsi 8	.473						.373	
acsi 17	.459				.312			
acsi 18	.451							
acsi 14	.441				.352			
acsi 16	.425					.405		-.377
acsi 11	.419			-.407				
acsi 5	.409							
acsi 29	.398	.319						
acsi 25	.308	.524	.417					
acsi 2	.314	-.449						
acsi 3	.439	-.444			.313			
acsi 23	.350	.354	.574					
acsi 28	.445		.536					
acsi 1	.367	-.310		.456				
acsi 13	.502				-.527			
acsi 7	.396		-.364	-.327		.452		
acsi 4	.396							.537

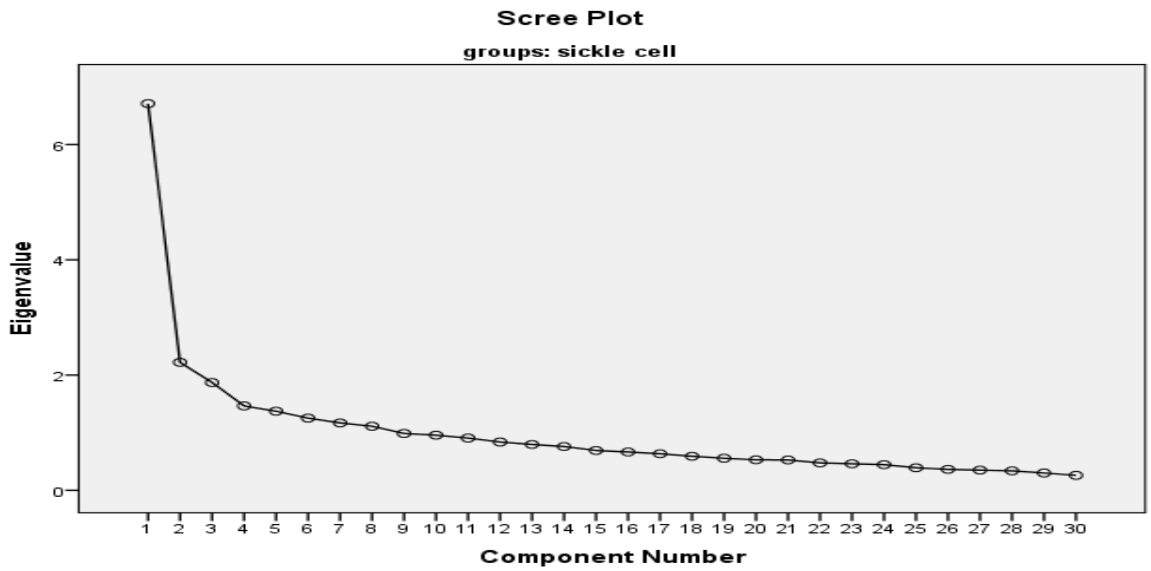


Figure Showing the scree plot for ACSI

Table 5a: *Pattern Matrix for MDSPSS*

	Component		
	1	2	3
mdspss 4	.859		
mdspss 3	.824		
mdspss 8	.764		
mdspss 11	.670		
mdspss 7		.809	
mdspss 12		.783	
mdspss 6		.771	
mdspss 9	.366	.684	
mdspss 5			.826
mdspss 1			.786
mdspss 2			.760
mdspss 10	.350		.650

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. groups = sickle cell

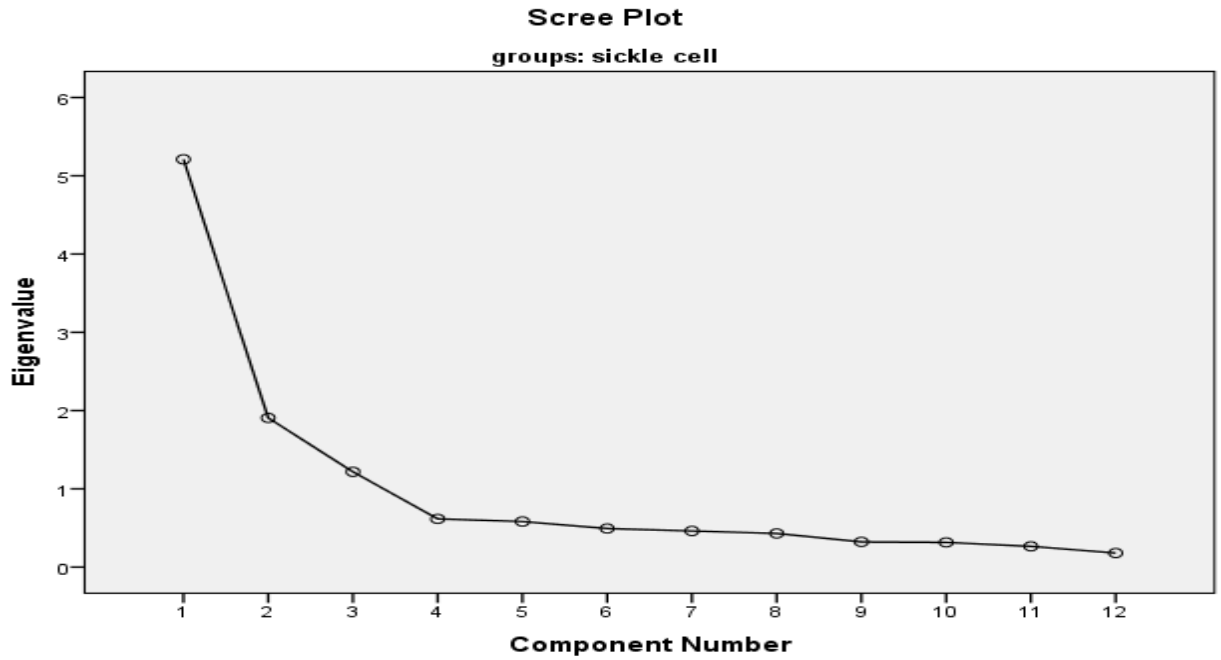


Table 5b: *Total Variance Explained in MDSPSS*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.210	43.414	43.414	5.210	43.414	43.414	3.996
2	1.907	15.889	59.302	1.907	15.889	59.302	2.939
3	1.218	10.146	69.448	1.218	10.146	69.448	3.691
4	.616	5.136	74.584				
5	.583	4.855	79.439				
6	.493	4.109	83.548				
7	.462	3.849	87.397				
8	.430	3.583	90.980				
9	.322	2.684	93.664				
10	.316	2.631	96.295				
11	.265	2.210	98.505				
12	.179	1.495	100.000				

Extraction Method: Principal Component Analysis.

a. groups = sickle cell

b. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 5c: *Communalities for MDSPSS items*

Item number	Initial	Extraction
1	1.000	.645
2	1.000	.702
3	1.000	.787
4	1.000	.767
5	1.000	.697
6	1.000	.665
7	1.000	.712
8	1.000	.703
9	1.000	.679
10	1.000	.722
11	1.000	.617
12	1.000	.639

Extraction Method: Principal Component Analysis.

a. groups = sickle cell

Table 6a
Pattern and Structure Matrix for PCA with Oblimin Rotation of Two Factor Solution of Medical Coping Items

Item	Pattern coefficients		Structure coefficients		Commu-nalities	Commu-nalities after Items dropped	Pattern matrix After items dropped
	Component		Component				
	1	2	1	2			
MCQ6	.908		.899		.826	.838	.909
MCQ5	.880		.867		.786	.801	.875
MCQ7	.861		.860		.740	.721	.849
MCQ4	.850		.845		.723	.751	.863
MCQ8	.841		.842		.716	.765	.863
MCQ9	.815		.816		.666	.710	.837
MCQ2	-.519		-.533		.325	Dropped	Dropped
MCQ1	.433		.454		.289	Dropped	Dropped
MCQ3	.416		.413		.172	Dropped	Dropped
MCQ11		.778		.766	.616	.602	.789
MCQ10		.720		.724	.529	.637	.758

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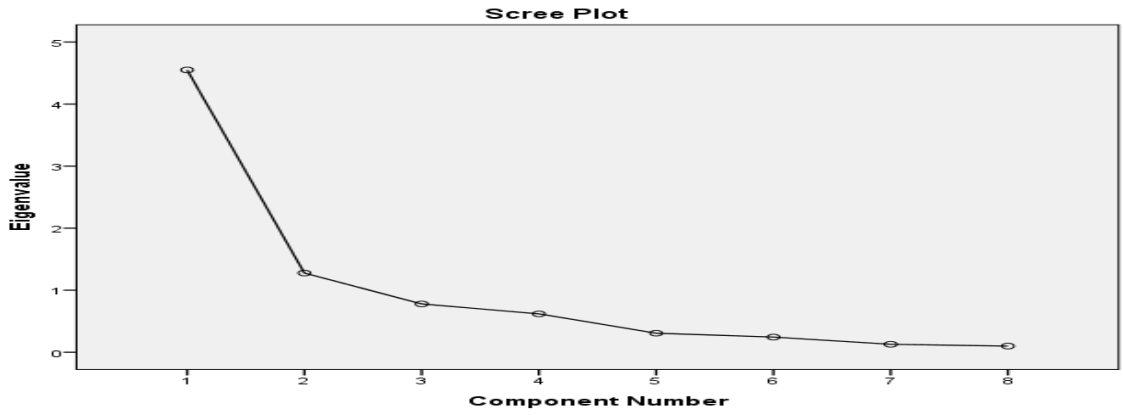

Table 6b: *Component Matrix for Medical “Coping” Questionnaire*

	Component	
	1	2
MCQ6	.913	
MCQ5	.882	
MCQ4	.865	
MCQ8	.856	
MCQ7	.849	
MCQ9	.832	
MCQ10		.791
MCQ11		.755

Extraction Method: Principal Component Analysis. a. 2 components extracted.

APPENDIX L: NVIVO Qualitative Analysis: Nodes and Models of SCD

APPENDIX M: Institutional Review Board Approval Letter