EFFECTS OF A BRIEF PSYCHOEDUCATION INTERVENTION ON DEPRESSIVE SYMPTOMS IN ADOLESCENTS WITH SICKLE CELL DISEASE IN IBADAN, NIGERIA

BY

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DECLARATION

I hereby declare that this thesis is my original work and that it has not been submitted anywhere else for a diploma, fellowship or degree.

Where other sources of information have been used, they have been duly acknowledged.

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CERTIFICATION

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DEDICATION

I dedicate this project work to all the adolescents with sickle cell disease and depressive symptoms in Nigeria

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KEY TO ABBREVIATIONS

BDI:	Beck Depression Inventory
CBT:	Cognitive Behavioural Therapy
CSQ:	Client Satisfaction Questionnaire
HbAA:	Normal haemoglobin
HbS:	Sickle haemoglobin
HbSS:	Sickle cell anaemia
IPT:	Interpersonal Psychotherapy
Sb-thal:	Sickle beta thalassaemia
SCD:	Sickle cell disease
WHO:	World Health Organisation

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ABSTRACT

Background: Globally, Nigeria has the highest prevalence of sickle cell disease (SCD), a haematological disorder associated with a heavy burden on the sufferers and their families. Symptoms of SCD include a wide range of physiological, neuro-cognitive, and psychological co-morbidities, and a higher risk for maladjustment in almost every area of daily functioning. Little is known about the burden of depression and treatment options for the condition among adolescents with SCD. This intervention study was carried out among adolescents with sickle cell disease in two hospitals in Ibadan. It aimed at determining the prevalence of depressive disorders in adolescents diagnosed with sickle cell disease and at evaluating the effects of a brief psycho education intervention on their depressive symptoms.

Methodology: A two-stage design was used to select participants for the study. The first stage included eighty-six adolescents with sickle cell disease attending the two hospitals while the second stage consisted of 21 adolescents with Beck's Depression Inventory (BDI) scores of 13 or greater. Semi-structured self-administered questionnaires were used to elicit information on socio-demographics and family variables while BDI and Client Satisfaction Questionnaire were used for depression and satisfaction respectively. Eleven adolescents out of this group were exposed to a brief psychoeducation intervention while others had no intervention. Evaluation to determine the effectiveness of the intervention was done six weeks after intervention. The association between depression and socio-demographic and family variables was tested using the Chi-square test. The difference in BDI scores between the intervention and control groups pre- and post-intervention was tested using the independent samples t test.

Results: The prevalence of depression was 25.6% and the mean BDI score was 7.31(SD =7.6). There was no significant association between depression and socio-demographic variables. At

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baseline, the mean BDI score was significantly higher among the intervention group (21.2, SD = 6.7) than for controls (14.6, SD = 3.7) (P = 0.013). However post-intervention, the intervention group had a lower mean score (5.3, SD = 3.6) compared to controls (14.3 (3.7) (p <0.001). The mean BDI scores for participants in the intervention group reduced by 15.9 compared to 1.1 in the control group (p<0.001).

Conclusion: A brief psychoeducation is effective in the treatment of depression among adolescents with SCD. Psychoeducation therapy is recommended to reduce suffering and disability among adolescents with SCD.

Key words: Adolescents, sickle cell disease, depression, psychoeducation

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CHAPTER ONE

INTRODUCTION

1.1 Background

Sickle cell disease (SCD) is a genetic disorder of the red blood cell resulting from the combination of mutant haemoglobins (Weatherall & Clegg, 2001). The abnormal haemoglobin causes the red blood cells to become "sickle shaped" resulting in irregular blood flow (NHLBI, 2010). SCD is one of the most common childhood-onset disorders affecting primarily people of African descent (Yanni et al., 2009). It is characterized by chronic haemolytic anaemia, increased susceptibility to infections, end organ damage, and intermittent episodes of vascular occlusion that result in acute and chronic pain. The hallmark feature of SCD is the frequent and unpredictable pain (Shapiro & Ballas, 1994; Benjamin, 2001).

In recent years, SCD has been acknowledged to have a global impact by the World Health Organisation (WHO). Over 300,000 babies are born worldwide every year with SCD mostly in low and middle income countries, with the majority of these births in Africa. Sickle cell disease results in early childhood death if left untreated, and its effect on the burden of health care is being recognised as a global issue in terms of the chronic nature of the disease. (Benton, Ifeagwu & Smith-Whitley 2007).

Symptoms of SCD include a wide range of physiological, neurocognitive, and psychological comorbidities (McClellan et al., 2008). Individuals with SCD are at risk for maladjustment in almost every area of daily functioning (Barrett et al., 1988; Palermo et al., 2008). Specifically, SCD has been associated with several indicators of psychological maladjustment including emotional and behavioural problems, poor self concept and poor interpersonal functioning. These problems are largely due to illness-imposed restrictions. (Schaeffer et al., 1999).

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Due to advances in clinical recognition, newborn screening, and therapeutic and preventative interventions, the mortality rates of children with SCD have decreased appreciably. (Davis et al., 1997; Yanni et al., 2009). Psychological complications in patients with SCD mainly result from the impact of pain and other symptoms on their daily lives and the discriminatory attitude of the society towards them. These issues and the associated feelings of inadequacy in dealing with daily activities and frequent acute pain episodes are associated with lower self-esteem, social isolation, poor school performance, and hopelessness. (Edwards et al., 2009). Studies have shown that the most frequently encountered psychological problems in sickle cell patients include anxiety, depression, social withdrawal, aggression, poor relationships and poor school performance (Treiber et al., 1987; Evans et al., 1988; Armstrong et al., 1993; Brown et al., 1993).

As more patients are living into adolescence and adulthood, the psychosocial impact of the disease on the patient has become a more significant issue (Edwards et al., 2005). Hence, management of SCD has to shift from the paradigm of acute management of psychosocial complications to a chronic care model that focuses on prevention, early identification of and intervention for these complications (Wagner et al., 2001).

The period of adolescence in patients with SCD is associated with increased rate of complications from the disease (Baum et al., 1987); and greater risks for depressive symptoms (Edwards et al., 2009). As children grow to become adolescents, the challenges of living with the disease become more obvious. This is often due to hindrance of the development of identity formation which is a crucial achievement of this stage. Some of them tend to become more self-conscious and dissatisfied with their appearance, they fatigue more readily during sporting

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activities and may react with pessimistic attitude or become socially withdrawn (Baum et al., 1987).

Depression in adolescents with SCD is frequently undiagnosed by health professionals (Chambliss et al., 2002). Adolescents rarely initiate mental health assessment and treatment and are not likely to be referred, unless it affects their behaviour in some obvious way (such as in deliberate self-harm, withdrawn or aggressive behaviour at school, or poor academic performance).

This study therefore assessed the prevalence of depressive disorders in adolescents with sickle cell disease in a hospital setting in Ibadan, and applied psychoeducation intervention in the management of the depressive symptoms presented by this group of people.

1.2 Statement of the Problem

Adolescents with SCD are at risk of depression. In some prevalence studies of depression among adolescents in South west Nigeria, results showed prevalence rates of 6.9% among adolescents (Adewuya et al., 2007), and 5.7% among school-going adolescents. However, in a study among adolescents with SCD in south-west Nigeria, John-Olabode and others in 2015 reported in a 22% prevalence rate for depression. This is a growing public health concern because it carries the risk for significant impairment, morbidity, and mortality.

The World Health Organization (2010), in its guidelines, has established the role of psychological interventions in the management of mental disorders (Patel et al., 2011). Psychosocial treatments are increasingly considered as part of the standard of care for patients with SCD but are often neglected in formal literature reviews and meta-analytic pursuits (Haywood et al., 2009).

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Adolescents with SCD in this environment require a simple and effective psychological intervention such as psychoeducation. Psychoeducation has been found to be effective in reducing depressive symptoms in older adolescents in other parts of the world (Mallory, 2006). There is no routine psychotherapeutic intervention for this population of adolescents in this setting. Also, there is little existing evidence for effectiveness of psychoeducation for adolescents with SCD in Nigeria. Hence, this study was conducted to address this problem.

1.3 Justification

Nigeria has a huge adolescent population. The 2014 adolescent population figure was 60.4 million (NPC, 2014), and this translates to a huge sickle cell disease population. Adolescent depression is a serious threat to the health of the individual and the well-being of society as studies have shown that about 50% of adult mental disorders started during the period of adolescence (Kessler et al., 2007).

In Nigeria, there are few published studies on depression among adolescents with SCD. The only study found assessed depression as a minor objective in a larger study of the profile of SCD patients and did not use standard instruments to assess depression (John-Olabode et al., 2015). Thus the prevalence of depression (22%) reported from this study is difficult to compare with other studies. This present study used standard validated instruments to assess depression among adolescents with SCD and provided results using validated instruments, and that can be compared with other studies. Also**,** depression among adolescents has been linked with a number of maladaptive youth outcomes (Bella-Awusah, 2013). More so, the current position in terms of identification of the clinical implications of psychological complications and management of SCD remains unsatisfactory as depressive symptoms in adolescents with chronic pain conditions are

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frequently undiagnosed or misdiagnosed by health care providers and may go untreated until there is loss of routine ability and function. (Chambliss et al., 2002).

1.4. Relevance of the Study

The findings from this study will assist healthcare providers to identify those SCD patients to pay more attention to, in order to diagnose depression and offer the necessary intervention. The findings from this study will also help in the planning and rolling out of interventions for management of SCD in Nigerian hospitals and will serve as a useful advocacy tool for policy concerning treatment of mental health disorders in SCD patients.

Psychoeducation therapy is a relatively simple therapy, requiring little or no training, which can be delivered by non mental health specialists within the hospital setting to provide evidence-based psychological intervention for adolescents living with SCD, who are experiencing mild to moderate symptoms of depression. There are few studies that have tested interventions to treat depression in SCD patients. This study aims to generate useful information about the effectiveness of psychotherapeutic intervention programs for reducing depressive symptoms in adolescents with sickle cell disease and assess its acceptability among this population. If the intervention is found to be effective, subsequent adoption for routine use of this therapy in haematology clinics could also have long term impact in reducing suffering and disability among adolescents with SCD.

1.5. Aim

To evaluate the effects of a brief psychoeducation intervention in managing depressive symptoms in adolescents with sickle cell disease.

1.6. Specific Objectives

1. To determine the prevalence of depressive disorders among adolescents diagnosed with sickle cell disease in the hospital setting.

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2. To determine the socio-demographic correlates of depressive disorders among adolescents with sickle cell disease.
3. To assess the effects of psychoeducation intervention among adolescents with SCD.
4. To assess patients' satisfaction with the intervention.

1.7. Null Hypotheses

1. Psychoeducation will not significantly reduce symptoms/severity of depression among patients with sickle cell disease compared with those who receive no psychoeducation.
2. There is no significant association between gender of adolescents with sickle cell disease and presentation of depressive symptoms.
3. There is no significant association between age of adolescents with sickle cell disease and presentation of depressive symptoms.
4. There is no significant association between family type of adolescents with sickle cell disease and presentation of depressive symptoms.

1.8 Primary Outcome Measures

Decrease in proportion of depressive symptoms reported by the intervention group 6 weeks post intervention.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Description of Sickle Cell Disease

Sickle haemoglobin (HbS) is a structural variant of normal haemoglobin that is inherited as an autosomal recessive Mendelian trait. While heterozygote individuals are generally asymptomatic, homozygote individuals (i.e., those with SCD) suffer from lifelong acute and chronic complications (Rees et al., 2010). Sickle cell disease (SCD) is the most common genetic disorder of the blood caused by a single point mutation on the β-globin subunit of haemoglobin, resulting in fragile, sickle-shaped red blood cells with a reduced lifespan (Chakravorty & Williams 2015).

The main genotype of SCD includes sickle-cell anaemia (HbSS), sickle-cell disease (HbSC) and sickle-beta thalassaemia (Sb-thal). The structure of sickle haemoglobin differs from that of normal haemoglobin (HbAA). SCD is characterised by anaemia and periodic painful episodes called vaso-occlusive crises (Embury et al., 1994).

Sickle cell diseases are inherited in autosomal recessive pattern. However, an individual requires two copies of the defective gene for the disease to become obvious (Steinberg, 1999). Polymerization causes red blood cells to take on a sickle shape. This causes the cell diameter to increase relative to normal red blood cells. These sickled red blood cells have the tendency to block tiny blood vessels and result in vaso-occlusive crises, thereby causing cellular injury through hypoxia, ischaemia, infarction and necrosis (Steinberg, 1999).

The vaso-occlusive crisis which may occur spontaneously or may be precipitated by cold weather, anxiety, infection or physical activity is the most common manifestation of SCD (Nadel

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& Portadin, 1997; Harris et al., 1998). Various biological variables determine the effects of SCD on individuals and could serve as pointers to the risk for recurrent crises. These include genotype, steady state haemoglobin (the level of haemoglobin when not in crisis) and faetal haemoglobin levels (Embury et al, 1994).

2.1.1 Global Burden of Sickle Cell Disease

Sickle Cell Disease is a global health problem with psychosocial implications. Globally, significant efforts are currently being put into reducing the burden of communicable diseases. However, the burden of birth defects has been largely abandoned (Christianson et al., 2006; Howson et al., 2008; Weatherall, 2011). Lately, the number of children born annually with congenital abnormality or genetic diseases has been estimated to be more than 7 million babies (Christianson et al., 2006). An estimated 25% out of these births are associated with five types of disorders two of which, haemoglobinopathy and glucose-6-phosphate dehydrogenase deficiency, are monogenic diseases (Weatherall, 2010). Amongst the haemoglobinopathies, sickle cell disease is by far the largest public health concern (Rees et al., 2010).

Of the 330,000 babies born with a major haemoglobinopathy worldwide, 275,000 have SCD, making it the major global haemoglobinopathy (Aygun & Odame, 2012; Modell & Darlison, 2008; Weatherall, 2011). However, SCD patients in the developed world account for only 10% of the world's SCD patient population (Aygun & Odame, 2012).

2.1.2 Burden of Sickle Cell Disease in Africa

Sickle cell disease is one of the most common genetic blood disorders in the world and principally affects people of African, Mediterranean and Asian origin (World Health Organization, 1985; Standing Medical Advisory Committee, 1993). It contributes the equivalent of 5% of Under-5 deaths on the African continent, more than 9% of such deaths in West Africa, and up to 16% of under-5 deaths in individual West African countries (WHO, 2006)

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In 2008, Aliyu et al., (2008) reported United Nations estimates that there are between 20 and 25 million people worldwide living with SCD, of which 12–15 million live in Africa. It is estimated that 75–85% of children born with SCD are born in Africa, where mortality rates for those under age 5 range from 50% to 80% (Aygun & Odame, 2012; Makani et al., 2011). The highest prevalence of sickle-cell trait (SCT) in Africa occurs between the latitudes of 15° North and 20° south, where the prevalence ranges between 10% and 40% of the population (Agasa et al., 2010). It has been suggested that one factor associated with the high incidence of SCD in tropical Africa is the protection against Plasmodium malaria associated with having the SCT (Aygun & Odame, 2012). However, that protection seems not to extend to people with SCD (Komba et al., 2009 & Rahimy et al., 2003). The theory that the SCT offers some immunity against the malaria parasite was found to be strong in tropical Africa through a geostatistical mapping study, but could not be explained in other parts of the world (Aidoo et al., 2002; & Piel et al., 2010). Migration from Africa and other regions with high rates of SCT and SCD has contributed to the global spread of SCD to areas such as North America and the Caribbean (Weatherall, 2011; Wonkam et al., 2011).

2.1.3. Burden of Sickle Cell Disease in Nigeria

Nigeria has the largest population of people with sickle cell disorder, with about 150,000 births annually (Anie et al., 2010). In Nigeria, sickle cell anaemia occurs at a prevalence of 2% and sickle cell haemoglobin disease occurs in 0.7% of the population (Alao & Dewan 1999). Sickle cell disease is the most prevalent genetic disease in the World Health Organization’s (WHO) African Region.

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It is estimated more than 300,000 babies are born with severe forms of hemoglobinopathies worldwide each year. While 75 percent of all patients with SCD live in Sub-Saharan Africa, Nigeria alone accounts for more than 100,000 new births every year (WHO).

Nigeria is known to have the greatest number of sickle cell disease (SCD) patients per country in the world (Abubakar et al., 2010).

2.1.4. Sickle Cell Disease in Adolescence

Adolescents with SCD experience a rise in haemoglobin level that is thought to increase the episodes of vaso-occlusive crises (Elander et al., 2003). Some adolescent boys also experience a prolonged penile erection known as acute SCD priapism which is defined as a non-sexual erection lasting more than 30 minutes. (Fowler et al., 1991). These events are unwanted, painful, and in most cases occur in the early hours during sleep (Mantadakis et al, 1999). Most teenage boys with the disease fail to realise that priapism is a complication of having SCD. If left unrecognised and untreated, priapism can result in impotency (Okpala et al, 2002). Studies have shown increased anxiety, depression, social withdrawal, aggression, poor relationships and poor school performance among patients with SCD (Brown et al., 1993).

The period of adolescence is a difficult time for anyone with a chronic disease; it is even more daunting for someone with SCD. As a result of repeated episodes of painful crises, and subsequent school absenteeism, it may take a longer period to complete their education. This may lead to poor self-esteem and difficulty in forming a satisfying interpersonal relationship (Harris et al., 1998). While their peers become more independent, teenagers with SCD often requires help in physiological and psychosocial functioning because of the illness. Some adolescents with SCD experience a delay in puberty of around two-and-half years. This also creates significant psychological issues in affected adolescents. (Thomas and Westerdale, 1998). In addition,

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yellowing of the whites of the eyes as a result of haemolysis, problems with enuresis and having a blood disorder contribute to feelings of stigmatisation (Smith and Wethers, 1994).

Disruption to education owing to recurrent hospitalisation and cognitive problems from cerebral infarcts can result in poor academic performance (Wang et al, 2001; Helps et al, 2003). Restrictions in sports and recreational activities will naturally interfere with normal adolescent development and increase feelings of isolation, making normal peer relationships difficult. Furthermore, worries about crises, pain management and dying are a constant concern for many adolescents with the condition. Anxieties about these issues are frequently expressed as depression, rebellion or refusal to comply with treatment plans. This may manifest itself as disruptive behaviour during hospital stays. In particular, conflicts are more likely to occur in adolescents who do not receive adequate pain relief and those whose rights are ignored or violated (Thomas and Westerdale, 1997). Also, worries about crises and dying interfere with normal adolescent development and increase feelings of isolation and depression (Thomas & Westerdale, 1997).

2.1.5. Vaso-Occlusive Crises in SCD

Normal red cells (HbAA) are water-soluble, biconcave, flexible and pliable discs that can easily travel through the circulatory system carrying oxygen. The sickle haemoglobin has a different structure from normal haemoglobin and is insoluble - when deoxygenation occurs, the sickling process begins. The haemoglobin alters its shape and becomes sticky and the red blood cells aggregate to form long liquid crystals. These deformed cells then create vaso-occlusions, cutting the supply of oxygen to surrounding tissue, giving rise to ischaemia, pain and tissue damage. The vaso-occlusive crisis is precipitated by factors that include dehydration, infection,

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extreme changes in temperature, , and physical and emotional stress (Embury et al., 1994; Okpala et al., 2002).

Typically, SCD crises will occur in areas of the body with small blood vessels: common sites of deoxygenation include the muscles, penis and abdomen (Embury et al., 1994). Vaso-occlusive crises affecting bones and joints cause avascular necrosis which is a form of damage to bone tissue. This complication is characteristically associated with the development of chronic pain in SCD (Serjeant and Serjeant, 2001). Vital organs such as the kidney, liver, spleen and brain can also become affected. This gives rise to life-threatening complications such as failure of the liver, kidney and the spleen (Okpala et al., 2002; Helps et al., 2003).

2.1.6. Management of Pain in SCD

Relief of pain is the primary objective in SCD and not the complete absence of it. However, titration of analgesia should continue until a clinically significant decrease in pain intensity for the individual is achieved, or until side-effects become problematic (Jacob et al., 2003). Some adolescents with SCD often become reluctant to use any form of strong analgesia (Dampier et al., 2002). Therefore it is strongly recommended that analgesic plans should be individualised as much as possible to meet a patient's needs and to maintain safe and realistic goals (Dampier et al., 1994; Beyer, 2000).

2.2 Psychiatric Morbidity in Adolescent with Physical Illness

A growing body of evidence suggests that depressive disorders are much more prevalent among medically ill adolescents when compared with the general population, and that the presence of co-morbidity may adversely affect medical outcomes and quality of life (Benton et al., 2007). Early research in psychological aspects of SCD examined the extent of its impact on both children and adults, and the functioning of affected families. These studies showed that the most frequent

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psychological problems encountered include increased anxiety, depression, social withdrawal, aggression, poor relationships and poor school performance (Treiber et al., 1987).

Impaired psychological well-being, limitations in social activity, work and domestic roles have been identified in research using measures specially developed for problems in SCD (Gil et al., 1992; Ohaeri et al., 1995; Reese & Smith, 1997).

2.3. Depression in Adolescents

Depression can be defined as a state of low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and wellbeing. (Salmans, 1997; Diagnostic and Statistical Manual of Mental Disorders, American Psychiatric Association, 2013). Depression is a common mental health problem among adolescents worldwide with an estimated one year prevalence of 4%-55% in mid to late adolescence (Lopez et al., 2006; Costello, Egger & Angold 2005; Costello, Erkanli & Angold 2006).

Thaper et al., (2012) reported a male to female ratio of post pubescent adolescent depression as 1:2. This is probably due to the sensitizing effect of oestrogen on the female brain to the harmful effects of stress (Shansky et al., 2004). In a similar study, Adewuya et al., (2007) reported prevalence rates of 6.3% and 8.7% among adolescents females aged 13-14 years and 15-16 years respectively, compared with the prevalence rates of 3.6% and 4.9% in their male counterparts.

Adolescent depression is assumed to be caused by a complex interaction of many factors (Thaper et al., 2012). These include genetic factors, early traumatic life events, and interactions of these factors with hormonal and maturational changes to produce depression in the adolescents (Hariri et al., 2005); Thaper et al., 2012). Studies have shown that children of depressed parents have a three to fourfold increase in risk of depression when compared to children of healthy parents (Rice et al., 2002). Acute stressors such as personal injury and bereavement have been linked with

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depression (Pine et al., 2002). In the Nigerian context, adolescent depression has been linked with parental depressive symptoms, adolescent's perception of family function as poor, peer problems, low self-esteem and substance abuse (Adewuya & Ologun, 2006). Similarly, Omigbodun et al., (2008) also found a strong relationship between traumatic events and onset of depressive symptoms.

The clinical features and patterns of neural activity of adolescents with depression are very similar to those of adults, with a strong association with family history of the disorder (Thaper et al., 2012). Depression generally presents with low mood, lack of interest in previously enjoyed activities, low energy, sadness, emptiness, hopelessness, helplessness, worthlessness, guilt, poor concentration, irritability or restlessness. However, depression in the adolescents often presents with irritable mood rather than depressed mood. There can also be mood reactivity, excessive sleeping, weight gain or fluctuating symptoms (Rey et al., 2011; Thaper et al., 2012). However, the treatment responses in the adolescents and adults are quite different (Lewinsohn et al., 2003).

It is estimated that by the year 2020, depression will be the leading cause of disability worldwide (Murray and Lopez, 2006).

2.3.1 Depression in Adolescents with Sickle Cell Disease

Some studies have shown high rates of depression in adolescents with SCD (Yang et al, 1994), while others have failed to show significant levels of depression in adolescents with SCD as compared with non-affected peers or those with other chronic illnesses (Kumar et al., 1976; Alao & Dewan 1999).

Adolescents with SCD commonly report low self-esteem and feelings of hopelessness as a result of frequent pain, hospitalizations and loss of schooling in children. These conditions could indicate depressive symptoms and should not be ignored by caregivers.

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2.3.2. Risk Factors for Depression

- Life events

Childhood adversity, such as bereavement, neglect, unequal parental treatment of siblings, physical or sexual abuse significantly increases the likelihood of experiencing depression over the course of life (Lindert et al. 2014; Christine et al. 2014; Pillemer et al., 2010).

Life events and changes that may precipitate depressed mood include childbirth, menopause, financial difficulties, job problems, a chronic medical diagnosis, bullying, loss of a loved one, natural disasters, social isolation, relationship troubles, jealousy, separation, and catastrophic injury (Schmidt 2005; Rashid & Heider 2008). Adolescents may be especially prone to experiencing depressed mood following social rejection (Davey et al., 2008).

- **Biological factors**

Depressive illnesses are disorders of the brain. Brain-imaging technologies, such as magnetic resonance imaging (MRI), have shown that the brains of people who have depression look different than those of people without depression. The parts of the brain involved in mood, thinking, sleep, appetite, and behavior appear different.

- **Genetic factors**

Depression tends to run in families. However, depression can occur in people without family histories of depression too. Scientists are studying certain genes that may make some people more prone to depression. Some genetics research indicates that risk for depression results from the influence of several genes acting together with environmental or other factors.

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2.3.3. Signs And Symptoms of Depression in Adolescents

These include persistent sad, anxious, or "empty" feelings, feelings of hopelessness or pessimism, feeling of guilt, worthlessness, or helplessness, irritability, restlessness, loss of interest in activities or hobbies once pleasurable, fatigue and decreased energy. Others include difficulty concentrating, remembering details, and making decisions, insomnia, early-morning wakefulness, or excessive sleeping, overeating, or appetite loss, thoughts of suicide, suicide attempts, aches or pains, headaches, cramps, or digestive problems that do not ease even with treatment, frequent sadness or crying and withdrawing from friends and activities.

2.4 Evidence-Based Psychotherapeutic Interventions for Prevention and Amelioration of Depression in Adolescents with Sickle Cell Disease

Adolescents with depression are often not thought of as 'having' depression but as affected by a set of emotional, behavioural, learning, relationship and family problems which need to be considered together. Depression in adolescents commonly presents as recurrent and unexplained physical symptoms, which may be difficult to recognise as depression, even for the healthcare professionals consulted. More so, adolescents rarely initiate mental health assessment and treatment although they may seek help for emotional difficulties in a wide variety of ways.

Psychological interventions have been recommended as the first line treatment for mild to moderate depression in adolescents partially due to the growing concerns about medication safety among this group of people (Weisz, McCarty & Valeri 2006). For example, selective serotonin reuptake inhibitors have been found to be associated with increased suicidal ideation (Weisz, et al.,2006). This has led to considerable research on psychotherapeutic techniques intended to serve as medication alternatives and to teach client coping skills that can be used to sustain the effect of treatment even after therapy has been terminated (Ritschel, Ramirez, Jones et al., 2011). However,

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the exact mechanism of action of psychotherapeutic interventions remains unclear, as well as the aspects of the intervention that brings about the therapeutic effect (Weersing & Dirks, 2007). Examples of psychotherapeutic interventions include cognitive behavioural therapy (CBT), interpersonal psychotherapy (IPT), family therapy, psychodynamic psychotherapy and psychoeducation.

2.4.1 Cognitive Behavioural Therapy (CBT)

Cognitive behavioural therapy is a focused approach based on the premise that cognitions influence feelings and behaviours, and that subsequent behaviours and emotions can influence cognitions (Melbourne, 2007). It is based on the premise that psychological disturbances is caused by an individual's interpretation of events and not the event itself (Boettcher & Piacentini, 2007). During the process, the therapist helps individuals identify unhelpful thoughts, emotions and behaviours.

CBT has two aspects: behavioural therapy and cognitive therapy. Behavioural therapy is based on the theory that behaviour is learned and therefore can be changed while cognitive therapy is based on the theory that distressing emotions and maladaptive behaviours are the results of faulty patterns of thinking. Therefore, cognitive behavioural therapy is aimed at replacing such dysfunctional thoughts with more helpful cognitions, which leads to an alleviation of problem thoughts, emotions and behaviour. (Melbourne, 2007). Improvement in mood results when the individual engages in more enjoyable pursuit (Boettcher & Piacentini, 2007).

2.4.2 Interpersonal Psychotherapy (Ipt)

Interpersonal psychotherapy is a brief, structured approach that addresses interpersonal issue and is based on the assumption that depression, like other mental health problems, and interpersonal problems are interrelated (Melbourne, 2007). When an individual is depressed, personal relationships become affected and the worth and constancy of these relationships affect

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the individual's mood in return. This means that improvement in the person's relationship can bring about alteration in the course of the depressive episodes (Mulson & Young, 2007). The goal of IPT is to help depressed individuals understand how these problems, operating in their current life situation, lead them to become distressed, and put them at risk of mental health problems (Melbourne, 2007).

2.4.3 Family Therapy

Henken et al., (2009) defined family therapy as any psychotherapeutic endeavour that explicitly focuses on altering interactions among family members and seeks to improve the functioning of the family as a unit, or its subsystems, and/or the functioning of the individual members of the family. It consists of a number of clinical practices which treat psychopathology within the context of family systems rather than on an individual basis (Sholever, 2007).

2.4.4 Psychodynamic Psychotherapy

Psychodynamic psychotherapy is based on the assumption that all individuals' behaviour is influenced by unconscious processes, and that individuals experience struggles while trying to satisfy their natural impulses and their societal standards (Stone, 2002). Psychodynamic psychotherapy is of two types, short-term and long-term psychotherapy.

Short-term psychodynamic psychotherapy is a brief, focal, transference-based therapeutic approach that helps individuals by exploring and working through specific intra-psychic and interpersonal conflicts. It is characterised by the exploration of a focus that can be identified by both the therapist and the individual. This consists of material from current and past interpersonal and intra-psychic conflicts and interpretation in a process in which the therapist is active in creating the alliance and ensuring the time-limited focus (Knekt et al. 2007).

In contrast, long-term psychodynamic psychotherapy is open-ended and intensive and is characterised by a framework in which the central elements are exploration of unconscious

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conflicts, developmental deficits, and distortion of intra-psychic structures. Confrontation, clarification and interpretation are major elements, as well as the therapist's actions in ensuring the alliance and working through in the therapeutic relationship to attain conflict resolution and greater self-awareness (Knekt et al. 2007).

2.4.5 Psychoeducation

Psychoeducation is a specific form of education involving the provision and explanation of information to clients about what is widely known about characteristics of their diagnosis. Adolescents often require specific information about their diagnosis, such as the meaning of specific symptoms and what is known about the causes, effects, and implications of the problem, medications, prognosis, and alleviating and aggravating factors. Information is also provided about early signs of relapse and how they can be actively monitored and effectively managed (Melbourne, 2007). During the course of psychotherapy, adolescents are helped to understand their disorders with the aim of enhancing their therapy and assisting them to live more productive and fulfilled lives. Psychoeducation can be provided in an individual or group format (Melbourne, 2007).

Psychoeducation is "a process of psychological assessment and the subsequent design of remedial programs…often tied to the educator's [or researcher's] assumptions or beliefs regarding the nature and etiology of a child's exceptionality" (Encyclopedia of Special Education, 1986, p. 1266). Psychoeducation is used as a treatment for many different emotional, behavioural, and mental health issues, including grief therapy, mentoring, empowerment, peer counseling, sexual aggression, relaxation training, stress reduction, anxiety disorders, attachment issues, and literacy issues (Wood, Brendtro, Fecser, & Nichols, 1999).

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The “psycho” part of the word “psychoeducation” refers to the broad range of psychological ideas and theories upon which the approaches, program missions, and practices of various psychoeducational programs are based. The “education” part of the word “psychoeducation” refers to the teaching and learning paradigms that largely make up the content and practices of psychoeducational programs (Wood, et al., 1999). In general, it is believed that the more knowledge a person has about his/her illness or condition, the better the person can live with his/her illness or condition.

Psychoeducation is a professionally delivered treatment modality that integrates psychotherapeutic and educational interventions into patient’s care, to provide a more holistic and competence-based approach, stressing health, collaboration, coping, and empowerment (Dixon, 1999; Marsh, 1992). The patient/client and/or family are considered partners with the provider in treatment, on the premise that the more knowledgeable the care recipients and informal caregivers are, the more positive health-related outcomes will be for all.

Psychoeducation embraces several complementary theories and models of clinical practice. These include ecological systems theory, cognitive-behavioral theory, learning theory, group practice models, stress and coping models, social support models, and narrative approaches (Anderson et al., 1986; Lukens et al., 1999; McFarlane et al.,, 2003). Under this umbrella, psychoeducation can be adapted for individuals, families, groups, or multiple family groups. Although psychoeducation can be practiced one-on-one, group practice models set the stage for within-group dialogue, social learning, expansion of support and cooperation, the potential for group reinforcement of positive change, and network building (Penninx et al., 1999). They reduce isolation and serve as a forum for both recognizing and normalizing experience and response

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patterns among participants, as well as holding professionals accountable for high standards of service.

Psychoeducation refers to the education offered to individuals with a mental health condition and their families to help empower them and deal with their condition in an optimal way. Frequently psychoeducational training involves individuals with clinical depression, those with other forms of mental health problems as well as patients training courses in the context of the treatment of physical illnesses. Family members are also included.

History of Psychoeducation

The concept of psychoeducation was first noted in the medical literature, in an article by John E. Donley "Psychotherapy and re-education" in *The Journal of Abnormal Psychology*, published in 1911. It wasn't until 30 years later that the first use of the word psychoeducation appeared in the medical literature in title of the book *The psychoeducational clinic* by Brian E. Tomlinson.

The popularization and development of the term psychoeducation into its current form is widely attributed to the American researcher, Anderson in 1980 in the context of the treatment of schizophrenia. Her research concentrated on educating relatives concerning the symptoms and the process of the schizophrenia. Also, her research focused on the stabilization of social authority and on the improvement in handling of the family members among themselves. Finally, Anderson's research included more effective stress management techniques. Psychoeducation in behavioural therapy has its origin in the patient's relearning of emotional and social skills. In the last few years, increasingly systematic group programs have been developed, in order to make the knowledge more understandable to patients and their families. (Hogarty et al., 1991).

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Single and group psychoeducation

Psychoeducation can take place in one-on-one discussion or in groups and by any qualified health educator as well as health professionals such as nurses, social workers, occupational therapists, psychologists and physicians. In the group type, several patients are informed about their illnesses at once. Also, exchanges of experience between the concerned patients and mutual support play a role in the healing process.

Goal of Psychoeducation

Psychoeducation involves numerous therapeutic elements which allow a patient to develop a fundamental understanding of his or her therapy and become convinced to commit to more long-term involvement. Through it patients are empowered to understand and accept the illness and cope with it in a successful manner. One of the goals of therapy is for the consumer to understand and be better able to deal with the presented illness. Also, the patient's own capabilities, resources and coping skills are strengthened and used to contribute to their own health and wellbeing on a long-term basis.

The supreme goal of all therapeutic interventions lies in the boosting of empowerment of the affected individual (Knuf & Seibert, 2001). In order that the adolescents are able to tackle their illness in as optimal a way as possible, they must rapidly develop a basic comprehension of the background of sickle cell disease and the treatment options which are currently available. Without the establishment of a differential understanding of the illness and resulting insight, compliance and improvement in coping, long-term and successful cooperation with medical workers is likely to remain suboptimal. It is only from an informed position that the adolescents will be able, with support from the health professionals, to fully enfold their self-help potential (Kraemer, 2002).

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Advantages of Psychoeducation

Psychoeducation therapies are very instructive. When clients / patients understand how to counsel themselves rationally, they have confidence that they will continue to do well. **Psychoeducation therapies are shorter-term.** The average number of sessions that people spend in the therapy is short.

Psychoeducation therapies emphasize getting better, rather than feeling better. By correcting problematic underlying assumptions, psychoeducation creates long-term results since the cause of the problem is corrected.

Psychoeducation therapies are cross-cultural. They are based on universal laws of human behaviour. They also focus on the client's goals, rather than attempting to impose the therapist's goals on the client.

Psychoeducation therapies are structured. The structured nature of therapy sessions very much reduces the possibility that sessions will become "chat sessions" in which not much is accomplished therapeutically.

Psychoeducation therapies are evidence-based. Because there have clearly defined goals and techniques which can be examined with scientific research.

2.4. Efficacy of psychotherapies for depressed adolescents

The aim of any psychological therapy is a more productive and satisfying life. Psychoeducation interventions primarily focus on improving the knowledge and understanding of patients regarding their illness, while at the same time providing psychological support. The assumptions underlying this approach emphasize that firstly the information can lead to improved knowledge and better coping with the condition. Secondly, patients who feel isolated may benefit from the support and

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motivation of others through shared experience. Psychoeducation seems appropriate for treating patients with SCD, as the illness and pain cause much distress and suffering to them.

Psychoeducation has been found to be effective in the treatment of many adolescent mental health issues. A study conducted in China tested the effects of a 16-week psychoeducation course on the mental health status of middle school students. During the course, the students, who had a mean age of 14, were educated on the psychological and emotional components of sex, personality, coping resources, academic learning, and relationships with peers and romantic partners. Symptoms relevant to personality and psychological difficulties were examined both before and after the students completed the psychoeducation course.The study found that completion of the course led to a decrease in many psychological symptoms, including obsessive-compulsive thoughts and behaviors, interpersonal sensitivity, excessive anxiety and worry, and thoughts and behaviors indicative of general psychosis (Wang, 1997). Additionally, a study conducted by Kellner and Bry (1999) found that an anger management training program that included a psychoeducational component was effective in decreasing symptoms of conduct disorder in adolescents. The program included psychoeducation pertaining to anger discrimination, recognizing signs of increasing anger, and pro-social responses to anger. Upon completion of the program, the adolescents in the study demonstrated improvements in incidents of physical aggression and were reported as having fewer symptoms of conduct disorder by their parents and teachers.

Specifically with regard to adolescent depression, psychoeducation has been found to be effective in reducing depressive cognitions. A study conducted by Gaynor and Lawrence (2002) examined the effects of coupling a psychoeducational cognitive-behavioral treatment with therapy focusing on interpersonal interactions when treating adolescents experiencing depressive

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cognitions. The sample consisted of 13 to 18-year-old community residents who met criteria for a depressive disorder. Baseline data were collected on each participant before the treatment was administered; a post-test was administered following the treatment phase. The combination of psychoeducation and therapy was found to be effective in significantly reducing adolescent depressive symptoms. In addition, these positive results were maintained when the adolescents' depressive cognitions were examined at a three-month follow-up.

Another study conducted by Wells et al., (2002) examined the effectiveness of a psychoeducational program in improving adolescent self-esteem and reducing the risk that adolescents would drop out of high school. The sample consisted of eighty 14 to 16 year old adolescents from a non-clinical community population. The study found that the eight-week psychoeducational program significantly improved adolescent self-esteem and decreased drop-out rates. The study further found that these improvements in self-esteem led to subsequent improvements in other areas of mental health, including a significant improvement in adolescent depressive cognitions.

In a similar study, a psychoeducational programme was found to be effective in reducing adolescent depressive symptomology and ineffective coping strategies, and it was found to improve adolescents' coping strategies and resources. Students in the control groups demonstrated increases in depressive symptoms, whereas adolescents in the treatment group reported an increased ability to cope with their depressive symptoms and difficult situations (Hayes & Morgan, 2005).

Other research suggests that simply increasing adolescents' knowledge about the symptoms and potential outcomes of depression may be partly the reason why psychoeducational techniques are effective. A study conducted by Portzky and van Heeringen (2006) looked at the effect of a

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psychoeducational program on improving adolescents' knowledge, attitudes, coping strategies, and feelings of hopelessness specifically concerning suicidal ideations. The program was found to be effective in improving adolescents' knowledge about suicidal thoughts and gestures. Additionally, adolescent attitudes about suicidal persons also improved; the authors hypothesized that improving the adolescents' knowledge helped to improve their attitudes pertaining to suicidality (Portzky & VanHeeringen, 2006).

Psychoeducational techniques have also been found to be effective in improving perceptions and awareness in interpersonal communication, symptoms of psychopathology, and many other negative circumstances and situations. Brand et al., (1995) examined the effects of psychoeducation on perceived social support in an adult sample of community residents. The 51 participants in this study, ages 19-69, either completed a 13-week psychoeducational intervention that emphasized social skills training and cognitive reframing and restructuring in relation to self and social perceptions, or participated in a wait-list control group. The study found that participants who had completed the psychoeducational course demonstrated significant improvements in their perceptions of themselves and the social support provided to them by their families relative to participants in the control group.

A lack of awareness about mental health symptoms and the effect of these symptoms may be partly to blame for depressive cognitions in adolescents. Adolescents' knowledge of depressive symptom identification and treatment has generally been found to be low. In addition, adolescents with low to cursory knowledge of depressive symptoms are more likely to experience depressive cognitions (Hess et. al., 2004). However, psychoeducation has been found to be effective in increasing awareness of mental health symptoms. A study conducted by Chowdhury, Caulfield, and Heyman (2003) found that children between the ages of 11 and 16 with Obsessive-Compulsive

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Disorder (OCD) who participated in a six-week psychoeducational group focusing on awareness and understanding of symptoms as well as establishing and increasing social support reported significant improvements in identifying and awareness of symptoms. This awareness led to a reported increase in confidence in coping with OCD.

Adolescents experiencing depressive symptoms often have negative perceptions of interpersonal interactions and life circumstances. Psychoeducational techniques have been found to be effective in improving perceptions in adolescents experiencing depressive symptomology. Sanford et al., (2006) examined the effects of a family psychoeducational program with families that included an adolescent with Major Depressive Disorder. The study found that adolescents and their families who received family psychoeducation reported improved perceptions regarding family social support and their ability to function within a social group. In addition, adolescents who received family psychoeducation reported improvements in their perceptions of their relationships with their parents. A three-month follow-up was conducted in which results were reported to have persisted.

In a similar study conducted by Mallory among older adolescents in 2012, he ascertained the potential immediate effects of a brief, cognitively-based psychoeducation, which lasted for few hours, on the depressive symptoms of adolescents and on their perceptions of their parents' parental behaviours and attitudes. The treatment group demonstrated a marginally significant decrease in depressive symptoms relative to the control group as well as a significantly larger increase in empowerment.

The findings of the study indicated that psychoeducational programs that focus on cognitive conceptualizations of depressive symptoms and empowerment may be useful in helping adolescents to understand and conceptualize their depressive symptoms, gain a sense control over

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their symptoms, and empower them to actively engage in treatment. Brief psychoeducational treatments that educate adolescents on their symptoms and perceptions may help adolescents to understand and take control of their depressive symptoms and empower them to actively engage in treatment.

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CHAPTER THREE

METHODOLOGY

3.1 Study location

Ibadan, the site for the study, is the capital city of Oyo State and the third largest metropolitan area in Nigeria with a population of about 2.949 million according to the 2011 Central Intelligence Agency (CIA) World Fact book (CIA, 2011). It is located in the south eastern part of Oyo State which is situated in southwestern Nigeria. It has 11 local government areas namely: Akinyele, Egbeda, Ibadan North, Ibadan North-East, Ibadan North-West, Ibadan South-East, Ibadan South-West, Iddo, Lagelu, Oluyole and Ona-Ara Local Government areas.

Data collection took place in two government-owned hospitals, namely Adeoyo Maternity Teaching Hospital and Ring Road State Hospital. Adeoyo Maternity Hospital which became a Maternity Teaching Hospital in the year 2008 is located in Ibadan north East Local government area. It offers both in-patient and out-patient treatment services including management of adolescents with sickle cell disease at the weekly special clinic services of the Children out patient Department. The hospital is well- staffed with doctors and nurses who are trained in offering skilled services to adolescents with sickle cell disease. The hospital has 250 admission beds and offers both in-patient and out-patient care to adolescents with sickle cell disease.

Ring Road State Hospital is a government owned specialized service hospital in Ibadan south west local Government area of Ibadan. It is a 181-bedded hospital with Medical, Surgical, ENT and Eye, Maternity and Psychiatric wards. It also has a well-equipped laboratory well staffed with laboratory scientist for routine packed cell volume assessment and a functional haematology section which is manned by medical doctors and nurses. It was established for the purpose of

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offering quality health care services to children, adolescents and adults. The hospital runs a monthly haematology clinic for children and adolescents with sickle cell disease.

3.2. Study Design

The study employed an intervention design with an experimental group and a control group to evaluate the effects of a brief psychoeducation therapy in managing depressive symptoms of adolescents with sickle cell disease presenting at Adeoyo Maternity Teaching Hospital and Ring Road State Hospital, Ibadan.

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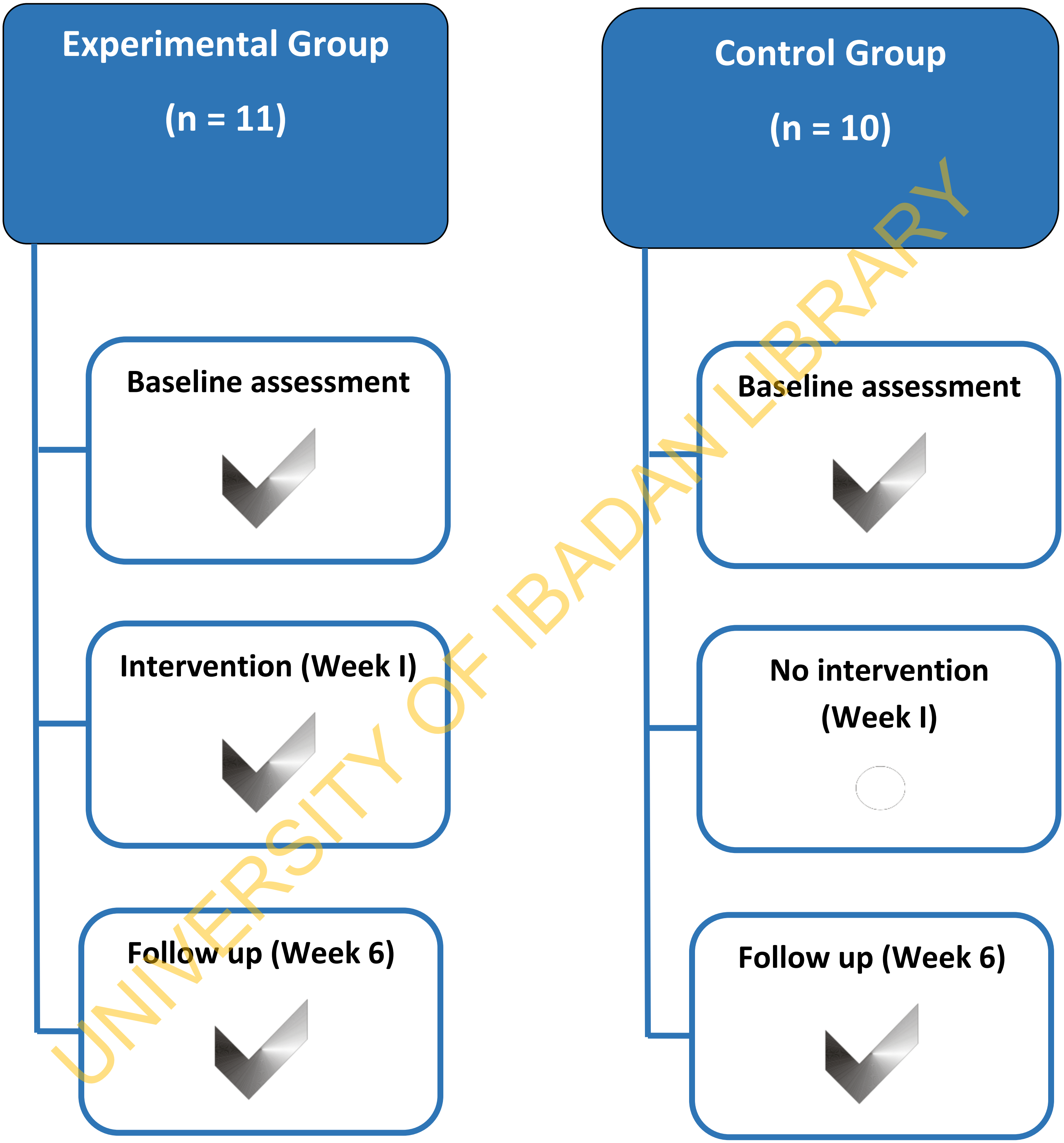

Figure 3.1: Summary of Research Design

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AFRICAN DIGITAL HEALTH REPOSITORY PROJECT

3.3. Study Population

The study population comprised of adolescents aged 13 to 19 years with sickle cell disease attending the Children Out-patient, Adeoyo Maternity Teaching Hospital and Ring road State Hospital, Ibadan.

3.3.1. Inclusion Criteria

- Adolescents with sickle cell disease aged between 13-19 years. This is because the Beck's Depression inventory cannot be be used for adolescents younger than this age group.

3.3.2. Exclusion Criteria

- Adolescents receiving any form of intervention for depression, physical, social or psychological.
- Seriously ill adolescents.
- Adolescents whose parents refuse to give consent.
- Adolescents who are suicidal. This group will be referred to the Child and Adolescent Mental Health Clinic, University College Hospital, Ibadan, for specialist management.

3.4. Sample Size Calculation

Sample size for the baseline assessment for the study was calculated using the formula for estimating single means:

$$n = \frac{Z\alpha^2}{d^2}\sigma^2$$ (Kirkwood & Sterne, 2003)

Where:

n - is the sample size

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$Z\alpha$ - standard normal deviate corresponding to 5% level of significance= 1.96

σ - is the standard deviation of BDI scores among adolescents from previous study = 6.3 (Adewuya et al., 2007)

d - level of precision assumed 25% of the standard deviation = 0.25 x 6.3 = 1.57

$$n = \frac{(1.96)^2 \times 6.3^2}{1.57^2}$$

n = 62.

Assuming a 15% non-response rate, this will be adjusted using the formula below:

$$n = \frac{62}{(100\text{-}10)\%},$$

Therefore, n = 74

Eighty six adolescents with SCD were screened for depression; twenty one adolescents out of this number exhibited mild to moderate depressive symptoms and were thus, involved in the intervention. They were divided into two, eleven adolescents were in the experimental group and ten were in the control group.

3.5. Sampling Technique

One hundred and thirty-eight adolescents with sickle cell disease attending Special Clinic of Adeoyo Maternity Teaching Hospital and Haematology clinic of Ringroad State Hospital were screened. Out of this number, eighty-six were aged 13 to 19 years. All the eighty-six adolescents with sickle cell disease aged 13 to 19 were included in the study while only 21 adolescents who scored more than 13 on the Beck's Depression Inventory scale were selected for the intervention.

3.6. Study Instruments

Data for this study was collected using a structured self-administered questionnaire to elicit information. A covering note of introduction was attached to the questionnaire for identity of the

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researcher, clarification and confidentiality. Brief, but detailed information about the purpose of the research was also stated. Validated instruments: Socio-demographic questionnaire, Beck's Depression Inventory (BDI), and Client Satisfaction Questionnaire were used for the study. The instruments were all translated to Yoruba language for easy understanding by participants.

3.6.1 Socio-Demographic Questionnaire

This consists of questions relating to the socio-demographic characteristics adapted from a questionnaire used in previous study on adolescents in rural and urban Ibadan (Omigbodun et al., 2008). (Appendices VIa and b).

3.6.2 Beck Depression Inventory (BDI)

The Beck Depression Inventory is a 21-item self-rated questionnaire that asks questions relating to depressive symptoms and is designed for use among individuals aged 13years and older. (Beck et al., 1996). It is a validated instrument that has been used previously to determine the prevalence of depression among adolescents in South west Nigeria (Adewuya et al., 2007). Each item is rated 0 – 3 giving a maximum score of 63. Scores of 0 – 13 indicate minimal depression, 14 – 19 mild depression, 20 – 28 moderate depression and 29 – 63 severe depression (Beck et al., 1996). (Appendices VIIa and b).

3.6.3 Client Satisfaction Questionnaire

This was a list of self- reported statements of satisfaction which was administered within 5 minutes to assess participants' satisfaction with the intervention. (Appendix VIIIa and b). It is an 8-item, 4-point likert scale. Higher score indicates higher satisfaction with the intervention.

3.7 Ethical Consideration

Approval to carry out the study was obtained from the Oyo State Ethical Review Committee and permission was obtained from the management of the two hospitals (Appendices I to III). Also, written informed consent was obtained from the parents/guardians of participants; and

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written informed consent/assent was obtained from the participants depending on their age. The consent forms were translated into Yoruba language for easy understanding by non English-speaking participants and parents (Appendices IV and V).

Beneficence to participants

Participants identified as having mild and moderate depression received intervention which helped them to cope better with their medical illness and mental health problem.

Non- maleficence to participants

The study did not involve any invasive procedure or sample collection, and so it was assumed that it posed no or minimal risk to the study participants.

Voluntariness

Participation in the study was entirely voluntary. They were told that refusal to participate would not affect their clinical management in any way.

Due inducement

Study participants were either given lunch and drinks or snacks and transport fare according to their preference.

Confidentiality of Data

Names were not required on the questionnaire, but on the consent forms and cannot be linked in any way to their names or any identifier. Data from participants were coded.

3.8. Study procedure

A two stage design was used to select adolescents that participated in the study from Adeoyo Teaching Hospital and Ring road State Hospital, Ibadan.

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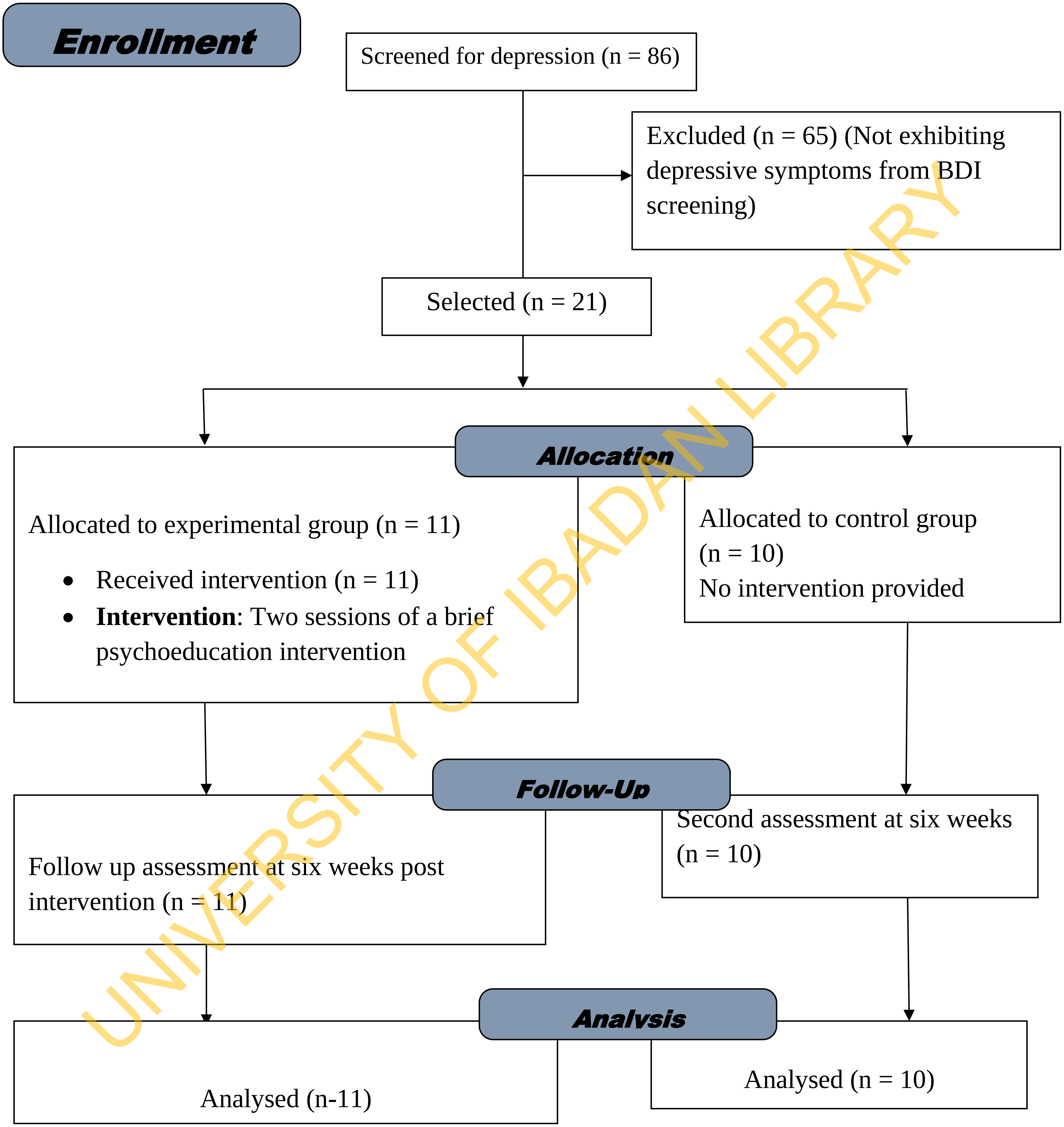

Figure 3.2: Study flow chart

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First Stage: Stage 1 included completion of the Socio demographic Questionnaire and the Becks Depression Inventory by eighty six adolescents with sickle cell disease, aged 13 to 19 years, attending Adeoyo Maternity Teaching Hospital and Ring road State Hospital, irrespective of the presence or absence of depressive symptoms. This was done after the aim and procedure for the programme has been duly explained to them and the consent and assent forms were voluntarily filled. The consent and assent forms were translated to Yoruba Language for easy understanding by Yoruba speakers. Participants were given a choice to complete the forms in either English Language or Yoruba Language. Their names were not required on the questionnaires to ensure confidentiality.

Second Stage: Here, 21 adolescents with BDI scores of 13 or greater were selected. 11 adolescents out of this group were then exposed to a brief psychoeducation intervention as the intervention group. They were asked to complete the Client Satisfaction Questionnaire afterwards. The remaining 10 adolescents were the control group.

The Intervention: A brief psychoeducation was delivered using a manual developed by the researcher (Appendix IX) to the 11 adolescents in groups of two during their clinic visits after giving them prior information about the date and time. It consisted of two hours structured session, divided into two, with 15 minutes break time in between sessions. Pre- arrangement was made with the nurses to ensure that the selected adolescents were attended to as soon as possible on their clinic days by their consulting haematologists. Intervention took place in one of the consulting rooms. The first session started by general introduction of participants and explanation of the rationale for psychoeducation.

This was followed by explanation of information to these adolescents about what is widely known about characteristics of their diagnosis (SCD), such as the meaning of specific symptoms

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and what is known about the causes, effects, and implications of the problem, medications, prognosis, and alleviating and aggravating factors. Information was also provided about early signs of relapse of depression and how they can be actively monitored and effectively managed. They were helped to understand their disorders with the aim of enhancing their therapy, improving their mental state and assisting them to live more mentally stable and productive lives. Second session included a brief lecture on the causes, symptoms and treatment of depression and identification of pleasurable activities and the activities that should be avoided in order to promote their mental health.

Their questions were then answered in order to clarify their misconceptions. Session ended with a brief evaluation and recap of what has been taught; and sharing of refreshments to the participants.

Post intervention evaluation: this was done at 6 weeks post intervention (19th April, 2016) to re-assess the depressive symptoms among the adolescents in the experimental and control groups to determine the effectiveness of the intervention.

3.9. Data Management

Data was entered and analysed using the Statistical Package for Social sciences (SPSS) 20.0 version (Chicago, Illinois). Data was checked for errors and edited. Quantitative variables were summarized using means, median, standard deviation and range while qualitative variables were summarized using frequencies and proportions. Beck's Depression Inventory (BDI) scores were summarized using means and standard deviation. The association between depression and socio-demographic and family variables was tested using the Pearson Chi-square test. The difference in BDI scores between the intervention and control groups pre- and post-intervention was tested using the Independent samples t test. The reduction in BDI scores were also computed and compared

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between the intervention and control groups using the Independent samples t test. Within group comparisons of change in BDI scores separately for the intervention and control groups were done using the Paired t test. Level of significance was at 5%.

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CHAPTER FOUR

RESULTS

4.0. Introduction

This chapter presents the results of the intervention under two sections. Section A consists of baseline survey and Section B describes the post intervention data.

Section A: Baseline Survey

4.1. Socio demographic characteristics of study participants

Table 4.1.shows the socio-demographics of the participants. The mean age of the participants was 15.8 (SD=2) years while the median age was 16 (range = 6) years. There were more respondents aged 13 years (19.8%) and 18 years old (18.6%). A slightly higher proportion were females (52.3%) and 47.7% were males. Concerning religion, 46.5% were Muslims, 26.7% were Pentecostal Christians and 26.8% were Orthodox Christians.

Table 4.1.: Socio demographic characteristics of study participants (N = 86)

Variable	Frequency	%
Age:		
13	17	19.7
14	10	11.6
15	11	12.8
16	12	14.0
17	12	14.0
18	16	18.6
19	8	9.3
Mean age (SD) = 15.8 (2) years		

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Median age (Range) = 16 (6) years		
Gender:		
Male	45	52.3
Female	41	47.7
Religion:		
Islam	40	46.5
Orthodox Christian	23	26.8
Pentecostal Christian	23	26.7

4.2. Family information of study participants

The frequency distribution of family related characteristics are as shown in Tables 4.2 a and b. Majority (72.1%) were from monogamous homes and from families where the parents were currently married (86%). Other categories of marital status included separated or divorced parents (4.7%), dead father (7%), dead mother (1.2%), and double orphan (1.2%). Over half (57%) reported less than four children from their mothers while 45.3% reported same from their fathers. Concerning position among father's children, 31.4% were first, while 36% were first among mother's children. Majority of the participants live with their parents (74.4%) followed by mother only (15.1%) and father only (3.5%).

Concerning family history of SCD, 32.6% reported a SCD among their siblings, with 23 reporting SCD among one other sibling and 5 reporting the condition among two other siblings.

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Table 4.2.a: Frequency distribution of family related characteristics of study participants (N=86)

Variable	Frequency	%
Family type:		
Monogamous	62	72.1
Polygamous	24	27.9
Marital status of parent:		
Married	74	86.0
Separated/divorced	4	4.7
One or both parents dead	8	9.3
Number of mother`s children:		
1-3	49	57.0
4 and above	37	43.0
Number of father`s children:		
1-3	39	45.3
4 and above	47	54.7
Position among father`s children:		
First	27	31.4
Second	20	23.3
Third or higher	39	45.3

Table 4.2.b: Frequency distribution of family related characteristics of study participants (N= 86)

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Position among mother`s children:		
First	31	36.0
Second	22	25.6
Third or higher	33	38.4
History of sickle cell disease in the family		
Yes	28	32.6
No	58	67.4
Number of siblings with sickle cell disease (n =28)		
One	23	82.1
Two	5	17.9
Persons that participants live with presently		
Parents	64	74.4
Mother	13	15.1
Father	3	3.5
Grandparents	5	5.8
Other (Uncle)	1	1.2
Persons that brought participants up from childhood		
Parents	67	77.9
Mother	10	11.6
Father	2	2.3
Grandparents	6	7.0
Other (Uncle)	1	1.2

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Level of Father`s education:		
No Formal Education	3	3.5
Quranic School	7	8.1
Primary School	4	4.7
Secondary School	14	16.3
Post Secondary (Non-University)	18	20.9
University Degree and above	34	39.5
I do not know	6	7.0
Level of Mother`s education:		
No Formal Education	3	3.5
Quranic School	3	3.5
Primary School	8	9.3
Secondary School	17	19.8
Post Secondary (Non-University)	17	19.8
University Degree and above	28	33.6
I do not know	9	10.5

4.3 Participants’ perception of preferred place for receiving mental health services

Participants were asked about their perception towards the haematology clinics as a good place to receive treatment for mental health service. Majority (84.9%) thought the clinics were appropriate for mental health care. Less than a quarter (18.6%) had received treatment for stress or psychological problems in the past (Table 4.3).

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Table 4.3: Participants' perception of preferred place for receiving mental health service

Variable	Frequency	%
History of previous treatment for stress or psychological problem in the past? (N=86)		
Yes	16	18.6
No	70	81.4
Perception of facility as a good place to receive treatment for stress or mental health problems (N=86)		
Yes	73	84.9
No	9	10.5
No comment	4	4.6

4.4. Experience of depression among study participants (N=86)

Participants' responses to items on the BDI scale are shown in Table 4.4.a, b and c. The highest proportion of respondents reported not feeling sad (64%), 26.7% felt sad while 5.8% reported feeling sad all the time. Less than 5% were so sad that they couldn't stand it. Over three quarters of respondents indicated they didn't feel like a failure (79.1%), that they get as much satisfaction out of things as they used to (75.5%), don't feel particularly guilty (75.6%), and don't feel disappointed in themselves (80.2%). Majority of participants (70.9%) didn't feel that they were worse than anybody else; almost all respondents (90.3%) didn't have the thoughts of killing themselves, while less than 5% would like to kill themselves or would kill themselves if they had the chance.

More than three quarters of respondents (75.6%) reported not crying any more than usual and majority (66.3%) were not more irritated by things than they ever were. Majority (83.7%) had not

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lost interest in other people, 76.7% reported being able to make decisions about issues just as well as they ever could, and almost three quarters of respondents (72.1%) didn’t feel that they looked any worse than they used to. About three quarters of respondents (73.3%) could work about as well as before, 77.9% could sleep as well as usual, 62.8% reported not getting tired more than usual, while less than twenty percent reported changes in their appetite. About ten percent of respondents (10.5%) reported loss of more than five (2.3kg), but less than ten pounds (4.6kg) of body weight, slightly more than half of respondents (58.1%) were not worried about their health than usual, while 22.1% of respondents had noticed one form of recent change or the other in the opposite sex.

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Table 4.4.a: Experience of depression among participants

Item	Frequency	%
I do not feel sad	55	64.0
I feel sad	23	26.7
I am sad all the time and I can't snap out of it.	5	5.8
I am so sad and unhappy that I can't stand it.	3	3.5
I am not particularly discouraged about the future.	61	70.9
I feel discouraged about the future.	19	22.1
I feel I have nothing to look forward to.	4	4.7
I feel the future is hopeless and that things cannot improve	2	2.3
I do not feel like a failure	68	79.1
I feel I have failed more than the average person.	14	16.3
As I look back on my life, all I can see is a lot of failures.	4	4.6
I feel I am a complete failure as a person	0	0.0
I get as much satisfaction out of things as I used to.	65	75.5
I don't enjoy things the way I used to.	19	22.1
I don't get real satisfaction out of anything anymore.	1	1.2
I am dissatisfied or bored with everything.	1	1.2
I don't feel particularly guilty	65	75.6
I feel guilty a good part of the time.	10	11.6
I feel quite guilty most of the time.	8	9.3
I feel guilty all of the time.	3	3.5
I don't feel I am being punished.	64	74.4
I feel I may be punished.	14	16.3
I expect to be punished.	2	2.3
I feel I am being punished.	6	7.0

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Table 4.4.b: Experience of depression among participants contd.

I don't feel disappointed in myself.	69	80.2
I am disappointed in myself.	13	15.2
I am disgusted with myself.	2	2.3
I hate myself.	2	2.3
I don't feel I am any worse than anybody else.	61	70.9
I am critical of myself for my weaknesses or mistakes.	13	15.1
I blame myself all the time for my faults.	9	10.5
I blame myself for everything bad that happens.	3	3.5
I don't have any thoughts of killing myself.	80	93.0
I have thoughts of killing myself, but I would not carry them out.	3	3.5
I would like to kill myself.	1	1.2
I would kill myself if I had the chance	2	2.3
I don't cry any more than usual.	65	75.6
I cry more now than I used to.	13	15.1
I cry all the time now.	0	0.0
I used to be able to cry, but now I can't cry even though I want to.	8	9.3
I am no more irritated by things than I ever was.	57	66.2
I am slightly more irritated now than usual.	20	23.3
I am quite annoyed or irritated a good deal of the time.	6	7.0
I feel irritated all the time.	3	3.5
I have not lost interest in other people.	72	83.7
I am less interested in other people than I used to be.	10	11.6
I have lost most of my interest in other people.	3	3.5
I have lost all of my interest in other people.	1	1.2
I make decisions about as well as I ever could.	66	76.7
I put off making decisions more than I used to.	9	10.5
I have greater difficulty in making decisions more than I used to.	7	8.1
I can't make decisions at all anymore	4	4.7
I don't feel that I look any worse than I used to.	62	72.1
I am worried that I am looking old or unattractive.	12	14.0
I feel there are permanent changes in my appearance that make me look unattractive	8	9.2
I believe that I look ugly	4	4.7
I can work about as well as before.	63	73.3
It takes an extra effort to get started at doing something.	14	16.3
I have to push myself very hard to do anything.	8	9.2
I can't do any work at all.	1	1.2
I can sleep as well as usual.	67	77.9
I don't sleep as well as I used to.	13	15.1
I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.	2	2.3
I wake up several hours earlier than I used to and cannot get back to sleep	4	4.7
I don't get more tired than usual.	54	62.8
I get tired more easily than I used to.	29	33.7
I get tired from doing almost anything.	3	3.5
I am too tired to do anything.	0	0.0
My appetite is no worse than usual.	71	82.5

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My appetite is not as good as it used to be.	14	16.3
My appetite is much worse now.	0	0.0
I have no appetite at all anymore.	1	1.2

Table 4.4.c: Experience of depression among participants contd.

I haven't lost much weight, if any, lately.	77	89.5
I have lost more than five pounds.	9	10.5
I have lost more than ten pounds.	0	0.0
I have lost more than fifteen pounds.	0	0.0
I am no more worried about my health than usual.	50	58.1
I am worried about physical problems like aches, pains, upset stomach etc.	28	32.6
I am very worried about physical problems and it's hard to think of anything	7	8.1
I am so worried about my physical problems that I cannot think of anything	1	1.2
I have not noticed any recent change in my interest in (the opposite) sex.	67	77.9
I am less interested in (the opposite) sex than I used to be.	7	8.1
I have almost no interest in (the opposite) sex.	11	12.8
I have lost interest in (the opposite) sex completely	1	1.2

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4.5. Prevalence of depression and association between depression and socio-demographics and family characteristics among participants

As shown in Figure 4.5, the prevalence of depression among the study participants is 25.6%. The association between depression and socio-demographics and family characteristics is presented in Table 4.5 None of the associations was significant at 5.0%. A higher proportion of females (31.7%) compared to males (20%) had depression, though the difference was not statistically significant. Depression was also commoner among those from polygamous compared to monogamous homes; among older respondents compared to younger; among children that lived only with their parents; and among first children compared to other children. However, none of the associations were significant. Also, there was a higher proportion with depression among respondents that had parents with lower education though not statistically significant.

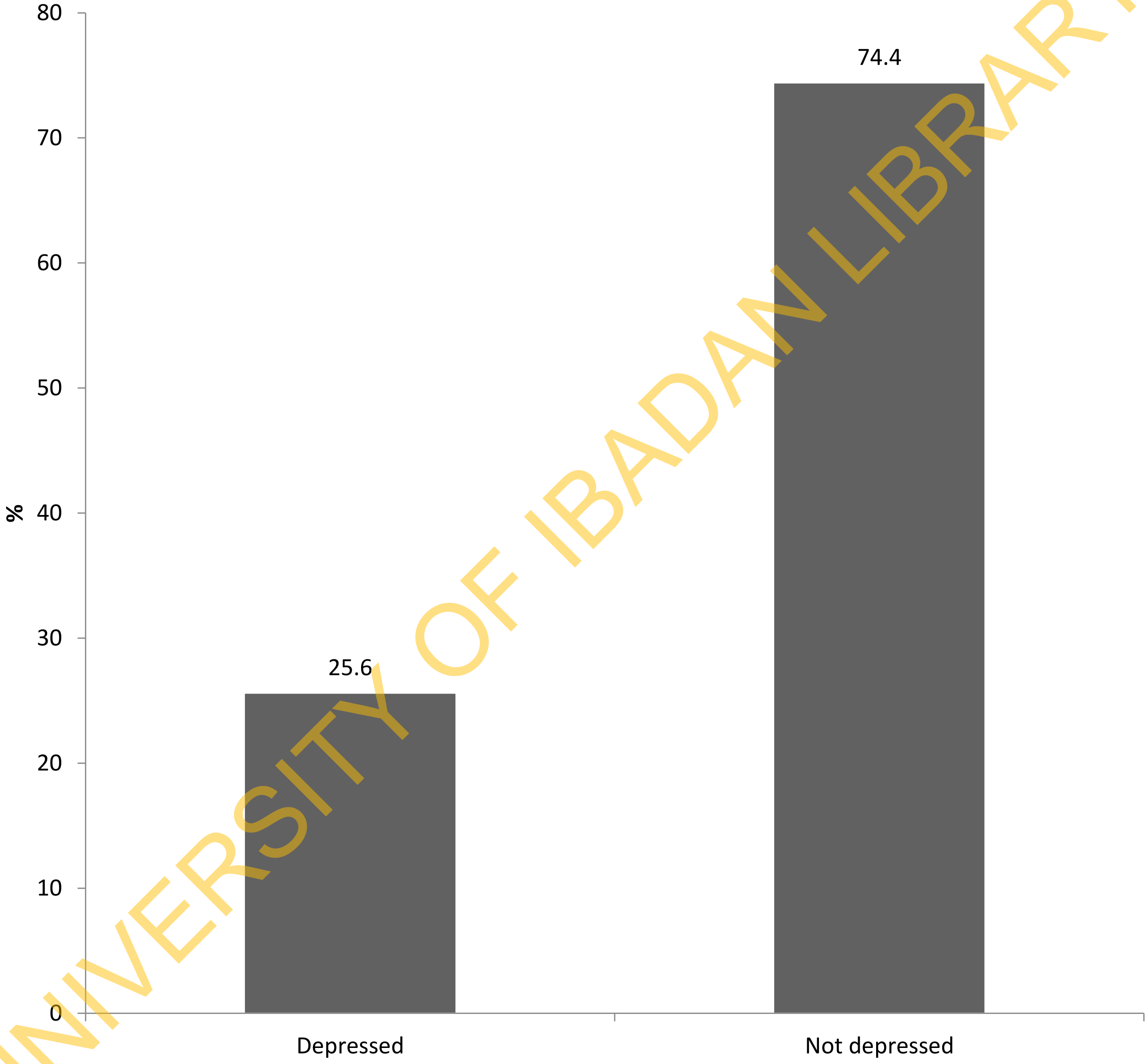

Figure 4.1 Prevalence of depression among adolescents with sickle cell disease attending Adeoyo Maternity Teaching Hospital and Ring Road State Hospital in Ibadan

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Table 4.5: Association between depression and socio-demographic and family characteristics of adolescents with sickle cell disease in Ibadan

Variable	Depression		Total	Chi-square	P value
	Yes (%)	**No (%)**			
Gender					
Male	9 (20.0)	36 (80.0)	45	1.54	0.214
Female	13 (31.7)	28 (68.3)	41		
Type of family					
Monogamous	15 (24.2)	47 (75.8)	62	0.225	0.635
Polygamous	7 (29.2)	17 70.8)	24		
Age in groups (years)					
13-15	6 (15.8)	32 (84.2)	38	3.429	0.064
16-19	16 (33.3)	32 (66.7)	48		
Marital status of parents					
Married	19 (25.7)	55 (74.3)	74	0.002	0.960
*Others	3 (25.0)	9 (75.0)	12		
Number of mother's children					
1-3	13 (26.5)	36 (73.5)	49	0.054	0.816
4 and above	9 (24.3)	28 (75.7)	37		
Number of father's children					
1-3	10 (25.6)	29 (74.4)	39	0.000	0.991
4 and above	12 (25.5)	35 (74.5)	47		
Position among father's children					
First	9 (33.3)	18 (66.7)	27	1.308	0.520
Second	4 (20.0)	16 (80.0)	20		
Third or higher	9 (23.1)	30 (76.9)	39		
Position among mother's children					
First	10 (32.3)	21 (67.7)	31	1.390	0.499
Second	4 (18.2)	18 (81.8)	22		
Third or higher	8 24.2	25 (75.8)	33		

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Whether child has lived with anyone before					
Yes	5 (20.8)	19 (79.2)	24	0.394	0.530
No	17 (27.4)	45 (72.6)	62		
Father's education					
Primary school and below	5 (35.7)	9 (64.3)	14	0.749	0.688
Secondary school and Post secondary	9 (28.1)	23 (71.9)	32		
University	8 (23.5)	26 (76.5)	34		
Mother's education					
Primary school and below	6 (42.9)	8 (57.1)	14	2.576	0.276
Secondary school and Post secondary	7 (20.6)	27 (79.4)	34		
University	7 (25.0)	21 (75.0)	28		
Any other siblings with SCD					
Yes	10 (35.7)	18 (64.3)	28	2.239	0.135
No	12 (20.7)	46 (79.3)	58		

*Others category include: Separated/divorced, mother or/and mother are dead.

Section B: Post intervention data

4.6. Comparison of socio-demographic and family characteristics of intervention and control groups

The socio-demographic and family characteristics of study participants in the intervention and control groups are shown in Table 4.6. The two groups were similar on most of the variables. However, the intervention group was significantly older than the control group though the age difference was small. (Mean age 16.6 [SD 1.9] and 14.6 [SD 1.4] respectively). Concerning the cross-tabulations however, the Fisher's exact p values were not significant for all the comparisons. However, the intervention group had slightly more females, more Christians and more from monogamous homes.

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Table 4.6: Comparison of socio-demographic and family characteristics of intervention and control groups

Variable	Intervention (N=11)	Controls (N=10)	p value (Fishers Exact Value)
Age group (years):	n%	N%	
13-15	3 (27.3)	7 (70.0)	0.086
16-19	8 (72.7)	3 (30.0)	
Gender:			
Male	5 (45.5)	7 (70.0)	0.387
Female	6 (54.5)	3 (30.0)	
Religion:			
Islam	5 (45.5)	6 (60.0)	0.670
Christian	6 (54.5)	4 (40.0)	
Family type:			
Monogamous	8 (72.7)	4 (40.0)	0.198
Polygamous	3 (27.3)	6 (60.0)	
Marital status of parent:			
Married	8 (72.7)	8 (80.0)	0.999
Others	3 (27.3)	2 (20.0)	
Number of mother`s children:			
1-3	5 (45.5)	7 (70.0)	0.387
4 and above	6 (54.5)	3 (30.0)	
Number of father`s children:			
1-3	5 (45.5)	4 (40.0)	0.999
4 and above	6 (54.5)	6 (60.0)	
Position among your father`s children:			
First	2 (18.2)	4 (40.0)	0.361
Other	9 (81.8)	6 (60.0)	
Position among your mother`s children:			
First	3 (27.3)	4 (40.0)	0.659

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Other	8 (72.7)	6 (60.0)	
Any siblings with sickle cell disease			
Yes	5 (45.5)	5 (50.0)	0.999
No	6 (54.5)	5 (50.0)	
Lived with other people apart from parents			
Yes	1 (9.1)	5 (50.0)	0.063
No	10 (90.9)	5 (50.0)	
Level of Father`s education:			
Secondary and below	4 (40.0)	7 (77.8)	0.170
University Degree	6 (60.0)	2 (22.2)	
Level of Mother`s education:			
Secondary and below	5 (55.6)	6 (75.0)	0.620
University Degree	4 (44.4)	2 (25.0)	

4.7: Comparison of BDI scores between the intervention and control groups at baseline

The mean BDI scores at baseline and post intervention are shown in Table 4.7 for the intervention and control groups. At baseline the mean BDI score was significantly higher among the intervention group (21.2, SD = 6.7) than for controls (15.44, SD = 3.7) (P = 0.013).

Table 4.7: Comparison of mean BDI scores between the intervention and control groups at baseline

Variable	**Intervention (n=11)**	**Controls (n=10)**	**t**	**p value**
	Mean (SD)	Mean (SD)		
Baseline BDI scores	21.2(6.7)	15.4(3.7)	2.75	0.013

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4.8. Comparison of Mean BDI scores in the intervention group at baseline and post-intervention

Within group comparison of BDI scores at baseline and post intervention are shown in Table 4.8 for the experimental group. At baseline the mean BDI score was significantly higher (21.2, SD = 6.7) than the mean BDI score at post-intervention (5.3, SD = 3.6). This difference was statistically significant.

Table 4.8: Comparison of Mean BDI scores in intervention group at baseline and post-intervention

	Mean (SD)	**n**	**Paired t**	**p value**
Pre-intervention	21.2(6.7)	11	11.89	<0.001
Post-intervention	5.3(3.6)	11		

4.9. Comparison of Mean BDI scores in the control group at baseline and post-intervention

The BDI scores at baseline and post intervention in the control group are presented in Table 4.9. At baseline the mean BDI score was slightly high (15.4, SD = 3.7). However post-intervention, the mean BDI score only reduced by 1.1 in the control group. This difference was not statistically significant.

Table 4.9: Comparison of Mean BDI scores in the control group at baseline and post-intervention

	Mean (SD)	**n**	**Paired t**	**P value**
Pre-intervention	15.4(3.7)	10	1.32	0.221
Post-intervention	14.3(3.5)	10		

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4.10. Comparison of BDI scores between the experimental and control groups

The BDI scores at baseline and post intervention are shown in Table 4: 10 and Figure 4.2 for the intervention and control groups. At baseline the mean BDI score was significantly higher among the intervention group (21.2, SD = 6.7) than for controls (15.44, SD = 3.7) (P = 0.013). However post-intervention, the intervention group had a lower mean score (5.3, SD = 3.6) compared to controls (14.3 (3.5) (p <0.001). The reduction in mean BDI scores was also compared between the two groups. The mean BDI scores for participants in the intervention group reduced by 15.9 compared to 1.1 in the control group. This difference was statistically significant.

Table 4.10: Comparison of BDI scores between the intervention and control groups

Variable	**Intervention (n=11)**	**Controls (n=10)**	**t**	**p value**
	Mean (SD)	Mean (SD)		
Baseline BDI scores	21.2(6.7)	15.4(3.7)	2.75	0.013
Post intervention BDI scores	5.3(3.6)	14.3(2.5)	5.52	<0.001
Red uction in BDI scores (Post – Pre intervention)	15.9 (4.4)	1.1(2.8)	8.62	<0.001

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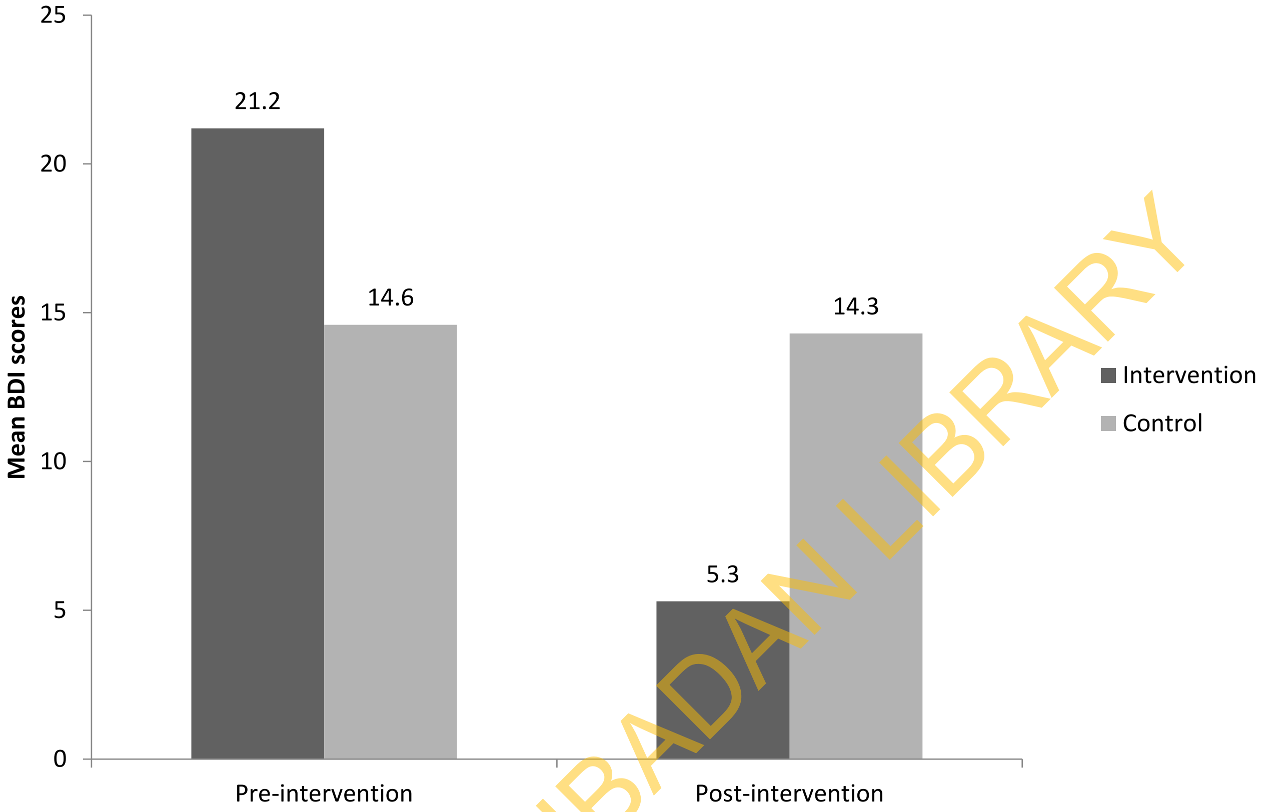

Figure 4.2: Comparison of Mean BDI scores between the intervention and control groups showing reduction in Mean BDI scores pre- and post- intervention.

4.11 Participants' Responses to Client's Satisfaction on Quality of Mental Health Service

As presented in Table 4.11, majority (81.8%) of the respondents rated the quality of the mental health service received during the intervention as good and excellent, 81.9% got the kind of mental health service they anticipated while more than half of the respondents felt that the intervention almost fully met their needs. Majority (81.8%) would recommend the intervention program to friends with similar mental health needs or experience and all the respondents were satisfied with the amount of mental health help received. The intervention had helped all the respondents to cope better with their medical and psychosocial problems while 90.9% of the respondents were generally satisfied with the mental health service received.

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4.11 Participants' Responses to Client's Satisfaction on Quality of Mental Health Service (N=11)

Item	Frequency	%
Perceived rating of quality of service received during intervention		
Excellent	2	18.2
Good	7	63.6
Fair	2	18.2
Poor	0	0.0
Perceived receipt of anticipated mental health service		
Yes, definitely	4	36.4
Yes, generally	5	45.4
No, not really	2	18.2
No, not at all	0	0.0
Perceived degree of met mental health needs		
Fully	2	18.2
Almost Fully	6	54.5
Just fairly	3	27.3
Not at all	0	0.0
Perceived intention of recommendation of mental health service to others		
Yes, definitely	6	54.5
Yes, probably	3	27.3
No, probably not	2	18.2
No, definitely not	0	0.0
Perceived satisfaction with the amount of mental health help received		
Very satisfied	4	36.4
Quite satisfied	7	63.6
Dissatisfied	0	0.0
Very dissatisfied	0	0.0
Perceived mental help received in coping better with medical and psychosocial problems		
Yes, a great deal	7	63.6
Yes, a little way	4	36.4
No, it didn't really help	0	0.0
No, it worsened my situation	0	0.0
Perceived general satisfaction with the mental health service received		
Very satisfied	6	54.5
Mostly satisfied	4	36.4
Indifferent	1	9.1
Quite dissatisfied	0	0.0
Perceived intention of returning to the clinic to seek mental help in future		
Yes, definitely	6	54.5
Yes, probably	5	45.5
No, probably not	0	0.0
No, definitely not	0	0.0

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CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. DISCUSSION

This study determined the prevalence of depressive symptoms among adolescents with sickle cell disease attending two state hospitals in Ibadan and assessed the effects of psychoeducation on their depreasive symptoms.

Socio demographic characteristics and correlates of study participants

Eighty-six (86) adolescents with sickle cell disease aged thirteen to nineteen were screened for depressive symptoms in the two state hospitals. The socio demographic characteristics of the study participants are similar to those in a previous study by Adewuya et al., (2007) among Nigerian adolescents in Senior Secondary Schools in Ilesa, an urban community in Osun state, Western Nigeria. The age range and mean age of respondents in this study were 13-19 years and 15.8 (SD=2) years respectively while the median age was 16 (range=6) years. There were more respondents aged 13 and 18 years old. In Adewuya's study, the age range was 13-18 years, mean age was 15.25 (1.68) years.

Majority were from monogamous homes and from families where the parents were currently married. Majority of the respondents lived with their parents. This is expected given the practice of child fostering in this region.The parents of the majority of the respondents had at least secondary school education and above. Almost a third of respondents reported a SCD among their siblings. The Majority thought the haematology clinics were appropriate for treatment of psychiatric problem while less than a quarter had received treatment for stress or psychological problems in the past.

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Prevalence of depressive symptoms among the study participants

Prevalence of depressive symptoms in this study was 25.6% with a mean BDI score of 7.31 (SD =7.6). This is similar to the prevalence rate of 22% reported by John-Olabode et al., (2015) in a previous study among adolescents with sickle cell disease in private tertiary hospital serving a tertiary institution in Southwest, Nigeria. Expectedly, a higher proportion of females compared to males had depression, though the difference was not statistically significant. Thaper et al., (2012) reported a male to female ratio of post pubescent adolescent depression as 1:2. This is probably due to the sensitizing effect of oestrogen on the female brain to the harmful effects of stress (Shansky et al., 2004). In a similar study, Adewuya et al., (2007) reported prevalence rates of 6.3% and 8.7% among adolescents females aged 13-14 years and 15-16 years respectively, compared with the prevalence rates of 3.6% and 4.9% in their male counterparts. This high female to male ratio of depression is also in keeping with the findings reported all over the world, and especially in this region (Adewuya et al, 2007; Omigbodun et al, 2008; Rey et al., 2012).

There was no association between depression and any of the socio-demographic variables in this study. A possible reason for this finding is the relatively small sample size that reduces the power to detect an association if it exists. However, the pattern of depression across socio-demographics will be discussed here. The variable that was closest to significance was age. Older respondents had higher prevalence of depression and this finding could be reflective of the longer period of suffering of older SCD cases compared to younger ones.

Depression was commoner among adolescents from polygamous compared to monogamous homes. This is somewhat expected due to the poor parenting, rivalry and low socio-economic status often associated with polygamy in this region. In a similar study conducted by Bosco et al.,

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(2003) among teenagers, it was reported that teenagers whose parents demonstrate low levels of parental control and high levels of interparental conflict as a result of polygamy are more likely to exhibit depressive symptoms as well as externalizing behavior problems. This connotes those polygamous homes that are presumed to be experiencing marital conflicts are more likely to have adolescent children who experience depressive cognitions arising out of a threatened sense of well-being due to an environment constantly in turmoil and a lack of support and acceptance (Bosco et al., 2003). Additionally, fathers in most polygamous homes in this region are perceived as unsupportive. Previous findings have shown that unsupportive fathers are more likely to have adolescent children who experience depressive symptoms (Bean et al.,2006).

Depression was also commoner among older respondents compared to younger ones; among children who lived with their parents; and among first children compared to other children. However, none of the associations were significant. This might not be unconnected with the fact that the older adolescents are usually more sensitive to psychosocial issues and are likely unable to meet up with a lot of expectations from their parents as first children due to their medical challenge. More so, research findings among children with sickle cell disease have shown that higher levels of parent support were significantly associated with decreased depressive symptoms and better quality of life (Sehlo and Kamfar 2015). Larger studies are needed to investigate the true nature of the association between depression and the socio-demographic characteristics. Consistent with the literature, there was a higher proportion with depression among respondents that had parents with lower education though this was not statistically significant. This also might be connected with parental low socio-economic status, and probably, poor support from poverty.

The highest proportion of respondents reported not feeling sad while only a few were so sad that they couldn’t stand it. The majority of respondents indicated they didn’t feel like a failure,

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didn’t feel particularly guilty or disappointed in themselves. It should be noted that Question 9 on the BDI asks specifically about suicidal ideation. In this study, 3.5% of the respondents would like to kill themselves or would kill themselves if they had the chance and another 3.5% had thoughts of killing themselves, but would not carry it out. This is rather alarming and is in keeping with the reports of previous studies which established a strong relationship between suicidal ideation, suicide attempts and chronic medical illness. It went further to explain that many adolescents with chronic illness and depressive disorder often contemplate suicide (Edwards et al., 2009). This group of adolescents (about 7%) who had suicidal ideation were individualy counseled and had changed their minds during post-intervention assessment but they still require special intervention to prevent suicidal attempts. About one quarter of the respondents reported changes in their appetite while about ten percent reported loss of more than five, but less than ten pounds of body weight. About one fourth of respondents had noticed one form of recent change or the other in their interest in the opposite sex.

Outcome of the Intervention

The brief psycho education therapy in this study was effective in reducing depression scores. Pre intervention, the mean BDI score was significantly higher among the intervention group (21.2, SD = 6.7) than for controls (15.44, SD = 3.7) (P = 0.013). However post-intervention, the intervention group had a lower mean score (5.3, SD = 3.6) compared to controls (14.3 (3.5) (p <0.001). Comparing the reduction in mean BDI scores between the two groups, it was discovered that the mean BDI scores for participants in the intervention group reduced by 15.9 compared to 1.1 in the control group. This difference was statistically significant. Thus, the intervention has a great potential to reduce BDI scores among SCD patients and should be tested in bigger studies.

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The slight reduction in the depressive symptoms noticed in the control group post intervention is possibly due to the fact that depression was assessed at the level of point prevalence, or participants in the control group responded within a context of expectation—reporting a change simply because they felt they were supposed to. But in the experimental group, reduction of depressive symptoms was significantly noticeable and this is convincingly attributable to the psycho educational components that they were exposed to. More so, the intervention was brief and interactive, simple and local language was used, clarification of myths and misconceptions about sickle cell disease was done, and the participants were satisfied with the intervention.

With specific regard to adolescent depression, psycho education has been found to be effective in reducing depressive cognitions. In a study conducted by Mallory involving older adolescents (18-19 years) in Missoula, Montana area (USA), he reported that psycho education was effective in decreasing depressive cognitions in adolescents (Mallory, 2009). In the same study, he indicated that adolescents in the treatment group gained a better understanding of depressive symptoms as well as a sense of control over their symptoms. In addition, the finding is consistent with prior research by Gaynor and Lawrence (2002) who examined the effects of coupling a psycho educational cognitive-behavioral treatment with therapy focusing on interpersonal interactions when treating 13 to 18 year old adolescents experiencing depressive cognitions. The combination of psycho education and therapy was found to be effective in significantly reducing adolescent depressive symptoms.

Consistent with literature, brief psychoeducation was effective in increasing adolescents' knowledge about the symptoms and potential outcomes of their depressive symptoms and in reducing their suicidal thoughts. A study conducted by Portzky et al., (2006) looked at the effect of a psychoeducational program on improving adolescents' knowledge, attitudes, coping

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strategies, and feelings of hopelessness specifically concerning suicidal ideations. The study consisted of 172 non-clinical participants, with a mean age of 15.6years. The program was found to be effective in improving adolescents' knowledge about suicidal thoughts and gestures.

Participants' Satisfaction with the Intervention Programme

Majority of the respondents rated the intervention programme as good and excellent and also got the kind of mental health service they anticipated, like reduction of their depressive symptoms, while more than half of the respondents felt that the service almost fully met their mental health needs. Majority also would recommend the program for friends with similar mental health needs or experience. It is worthy of note that all the respondents were satisfied with the amount of mental help they received from the brief psycho education therapy. The intervention had helped all the respondents to cope better with their medical and psychosocial problems while almost all the respondents were generally satisfied with the service received. The is similar to the findings of Bella- Awusah et al., (2014) among school adolescents where all the study participants were generally satisfied with the intervention programme

All the respondents agreed to come back to the clinic for the intervention if they were to seek help again. This shows high level of satisfaction of the intervention among the treatment group. This result is expected considering the fact that such services are lacking in this region, especially for adolescents with sickle cell disease whose care emphasis is often placed on relief of painful crises alone.

Hypotheses testing

It was hypothesized that psychoeducation would not significantly reduce symptoms/severity of depression among patients with sickle cell disease compared with those who received no psychoeducation. Although both groups reported a reduction in depressive symptoms post

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intervention, the experimental group reported a significant reduction in depressive symptoms. At baseline the mean BDI score was significantly higher (21.2, SD = 6.7) than the mean BDI score at post-intervention (5.3, SD = 3.6). This difference was statistically significant. The null hypothesis is hereby rejected.

In addition, it was hypothesised that there is no significant association between gender of the adolescents with sickle cell disease and presentation of depressive symptoms Although more females than male adolescents exhibited symptoms of mild to moderate depression, however, there was no significant association between gender and presentation of depression among the participants. The Fisher's exact p value was 0.387. The researcher fails to reject the null hypothesis.

It was further hypothesized that there is no significant association between age of adolescents with sickle cell disease and presentation of depressive symptoms. The Fisher's exact p value (0.086) was not significant for this comparison. The researcher fails to reject the null hypothesis.

The last hypothesis stated that there is no significant association between family type of adolescents with sickle cell disease and presentation of depressive symptoms. The Fisher's exact p value (0.198) was not significant for this comparison. The researcher fails to reject the null hypothesis.

Limitations

The present study had several limitations necessitating urgent attention. These include the extremely brief nature of the psychoeducation intervention which could have underestimated the real effect of the intervention, the relatively small sample size which can explain the lack of statistically significant findings concerning association between depression and socio-demographic variables and the limited funding and time for the study by the researcher.

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Other limitations include the use of psychoeducational manual of unknown psychometric properties and the use of BDI which is a screening instrument and not diagnostic instrument. However, the intervention, though brief, was effective in reducing the depressive sympotoms in the study participants.

5.2. CONCLUSIONS

Depression is a common problem among this population as approximately one in four adolescents with sickle cell disease exhibit depressive symptoms. This calls for an urgent need for intervention as depression is an additional burden for this group of people.

A brief psycho education intervention for reducing depressive symptoms in these adolescents is feasible and the effectiveness compares favourably with similar intervention programs in other parts of the world.

Satisfaction of participants with the intervention was appreciably high. Majority of the participants agreed that the haematology clinic is the best place to receive treatment for stress and psychiatric problems like depression.

5.3. RECOMMENDATIONS

1. The findings in this study underscore the need for including psycho education therapy in the routine care of patients with sickle cell disease.
2. As evidenced by research findings, non-pharmacological interventions should be first line management of mild to moderate depressive illness associated with psychosocial factors.
3. In order to make the effect of the intervention sustainable, health care workers and policymakers should advocate for routine assessment of depression in SCD patients and the implementation of psychoeducation therapy in haematology clinics to reduce suffering and disability among adolescents with sickle cell disease exhibiting mild to moderate symptoms of depression.
4. It also recommends exposure of the control group to thesame brief psychoeducational intervention.

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APPENDIX IVa

INFORMED CONSENT FORM (PARENT/GUARDIAN)

Title of Research: Effects of a Brief Psychoeducation Intervention on Depressive symptoms in Adolescents with Sickle cell disease in Ibadan.

This study is being conducted by Mrs. Christianah Adeola Adeleke, an M.Sc student of The Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria. The research is aimed at evaluating the effects of a brief psychoeducation Intervention on depressive symptoms of adolescents with sickle cell disease. The purpose of this study is to find a scientific way to reduce depression among adolescents living with sickle cell disease, even though the reality of this cannot be absolutely guaranteed.

No names will be recorded during the study. Participants will be identified only by code numbers that will be assigned. However, be assured that your child cannot be linked to his/her assigned number. Your child's name or identity will not be disclosed in any reports from this study. Your child and others participating in the programme will be asked not to discuss what happens during the sessions with anyone outside the group. However, some of the sessions may be audio taped, but this is strictly for the purpose of the study. And if this happens, such recordings will be destroyed after the study is completed.

The study is proposed to be carried out in two stages. The first stage of the study involves completion of two questionnaires by your child. The first questionnaire will be used to inquire about some personal information from your child like age, gender, family type and size, parents' level of education, etc. The second questionnaire will be used to ask about some symptoms of depression in the adolescents. This will then be followed by second stage for only the eligible adolescents. If your child is selected for the second stage, he/she will be asked to join three other adolescent students having similar experiences. The group will be taught on symptoms of depression and ways of coping with depression. The programme will take place once a week during his/her clinic visits, in one of the consulting rooms in the hospital. After the completion of the therapy, your child will be asked to fill one of the questionnaires that has been filled earlier, and another one that inquires about how satisfied your child is with the programme.

Your child's participation in the study is entirely voluntary, based on his/her choice. He/she will not be paid to participate in the study. However, light refreshments will be served during the sessions. He/she will also be given a pen to fill the questionnaires. Your child will be free to withdraw from the study at any time.

Statement of person giving consent: This study has been well explained to me and I understand the nature and the purpose of the research. I will be willing for my child/ward to take part in the study.

Signature/ thumbprint of participant…………………………………………………………..

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Date……………………………………………………………………………………….

Name………………………………………………………………………………………..

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APPENDIX IVb

IWE ALAYE IFOWOSI (OBI/ALAGBATO)

Iwadii yii n waye lati odo iyaafin Christianh Adeola Adeleke, akekoo imo ijinle sayensi onipo keji fun ilera opolo, eka omode ati odomode, ile iwe giga julo ti ilu Ibadan, Naijiria. Eto iwadii naa ni lati mo ipa ti itoju okan n ko l'ori irewesi okan laarin awon odomode ti o ni aisan aromolegun.

Iwadii yii yoo di gbigbe kale ni ipele meji. Ninu ipele akoko, a o so fun omo re lati dahun/fowosi awon iwe ibeere. Ipele akoko yoo beere nipa ojo ori, ako/abo, idile, abbl. Ipele keji yoo beere nipa awon ifarahan idaamu ati irewesi eyi ti awon odomode n koju. Ti omo re lokunrin tabi lobinrin ba ye, yio bo si ipele keji.

Eto yii yoo maa waye leekan lose. Lehin ose mefa, omo re yoo tun fowo si iwe awon ibeere ti won ti fowo si tele leekan sii. A n reti ki omo re kopa ninu iwadii yii fun ose mefa lapapo. Eto naa yoo gba wakati meji leekan lose. Erongba iwadii yii ni lati wa ona to peye lati din wahala ati irewesi awon odomode ku.

Gbogbo oro ti a ba gba ninu iwadii yii ni a o fun ni nomba to pamo ati pe oruko kankan ko ni je gbigba sile. Eyi ko nii se pelu omo re lona kankan, oruko re tabi ohun idanimo kan ko ni je lilo ninu iwe atigbadegba tabi awon abajade iwadii yii. A o so fun omo re ati awon yooku to n kopa ninu eto naa lati ma ba eniken ti kopa ninu eto yii soro nipa nnkan ti a jiroro, oye ko di mimo, botiwu-kori pe a ko le di gbogbo olukopa to wa ninu apejopo naa lowo lati pin ninu awon nnkan to je asiri. A ko ni gba oruko omo re sile ati pe a o ri daju pe ko si enikan ti yoo fura sii nipa gbogbo oro ti a gba sile.

Ikopa omo re ninu iwadi yii je gbefe. Ti won ba fe, won si le ko lati kopa. Ti won ba yan lati ma kopa, eyi ko ni koba awon itoju ilera won. A ko ni fun omo re ni owo kankan tabi awon ebun fun kikopa ninu ise iwadii yii. Botiwu kori, a o fun ni ipanu (ounje) pelu nkan mimu.

Omo re le ma kopa ninu ise iwadii yii ti ko ba wu won lati se bee. Won le yowo kuro nigba kuugba to ba wu won.

Nibayii ti a ti salaye ise iwadi naa fun mi daadaa, ti mo si ti mo irufe ati ete ise iwadii naa, yoo wu mi ki omo mi kopa ninu eto naa.

Fifiwosi / Titeka ti olukopa --- ojo -------------------------------

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APPENDIX Va

INFORMED CONSENT FORM (ADOLESCENT)

Title of Research: Effects of a Brief Psychoeducation Intervention on Depressive symptoms in Adolescents with Sickle cell disease in Ibadan.

This study is being conducted by Mrs. Christianah Adeola Adeleke, an M.Sc student of The Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria. The research is aimed at evaluating the effects of a brief psychoeducation Intervention on depressive symptoms of adolescents with sickle cell disease. The purpose of this study is to find a scientific way to reduce depression among adolescents living with sickle cell disease, even though the reality of this cannot be absolutely guaranteed.

You are expected to be involved in the research for a period of 6 weeks: one week of therapy session, and a post assessment at 6 weeks after therapy has ended. The duration of each session will be two hour. You will not be required to answer personal questions or participate in any discussions that he/ she does not feel comfortable with.

No names will be recorded during the study. Participants will be identified only by code numbers that will be assigned. However, be assured that your assigned number cannot be linked to you. Your name or identity will not be disclosed in any reports from this study. You and others participating in the programme will be asked not to discuss what happens during the sessions with anyone outside the group. However, some of the sessions may be audio taped, but this is strictly for the purpose of the study. At anytime this happens, such recordings will be destroyed after the study is completed.

The study is proposed to be carried out in two stages. In the first stage of the study, you will be required to complete two questionnaires. The first questionnaire will be used to inquire about some personal information from you like your age, gender, family type and size, parents' level of education, etc. The second questionnaire will be used to ask about some symptoms of depression in the adolescents. This will then be followed by second stage for only the eligible adolescents. If you are selected for the second stage, you will be asked to join another adolescent having similar experiences. In a group of two, you will be taught on symptoms of depression and ways of coping with depression. The programme will take place once a week during your clinic visits, in one of the consulting rooms in the hospital. After the completion of the therapy, you will be asked to fill one of the questionnaires that you have filled earlier, and another one that inquires about how satisfied you are with the programme.

Your participation in the study is entirely voluntary, based on your choice. You will not be paid to participate in the study. However, light refreshments will be served during the sessions. You will also be given a pen to fill the questionnaires. You will be free to withdraw from the study at any time.

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Statement of person giving consent/assent:

The information given me about the study is well understood. I will be willing to take part in the study.

Name……………………………………………………………………………………..

Signature/ thumbprint……………………………………………………………………

Date…………………………………………………………………

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APPENDIX Vb

IWE ALAYE IFOWOSI (ODO)

Iwadii yii n waye lati odo iyaafin Christianh Adeola Adeleke, akekoo imo ijinle sayensi onipo keji fun ilera opolo, eka omode ati odomode, ile iwe giga julo ti ilu Ibadan, Naijiria. Eto iwadii naa ni lati mo ipa ti itoju okan n ko l'ori irewesi okan laarin awon odomode ti o ni aisan aromolegun.

Iwadii yii yoo di gbigbe kale ni ipele meji. Ninu ipele akoko, a o so fun o lati dahun/fowosi awon iwe ibeere. Ipele akoko yoo beere nipa ojo ori, ako/abo, idile, abbl. Ipele keji yoo beere nipa awon ifarahan idaamu ati irewesi eyi ti awon odomode n koju. Ti o ba ye, o bo si ipele keji.

Eto yii yoo maa waye leekan lose. Lehin ose mefa, omo re yoo tun fowo si iwe awon ibeere ti won ti fowo si tele leekan sii. A n reti ki o kopa ninu iwadii yii fun ose mefa lapapo. Eto naa yoo gba wakati meji leekan lose. Erongba iwadii yii ni lati wa ona to peye lati din wahala ati irewesi awon odomode ku.

Gbogbo oro ti a ba gba ninu iwadii yii ni a o fun ni nomba to pamo ati pe oruko kankan ko ni je gbigba sile. Eyi ko nii se pelu re lona kankan, oruko re tabi ohun idanimo kan ko ni je lilo ninu iwe atigbadegba tabi awon abajade iwadii yii. A o so fun o ati awon yooku to n kopa ninu eto naa lati ma ba eniken ti kopa ninu eto yii soro nipa nnkan ti a jiroro. Oye ko di mimo, botiwu-kori pe a ko le di gbogbo olukopa to wa ninu apejopo naa lowo lati pin ninu awon nnkan to je asiri. A ko ni gba oruko re sile ati pe a o ri daju pe ko si enikan ti yoo fura sii nipa gbogbo oro ti a gba sile.

Ikopa re ninu iwadi yii je gbefe. Ti o ba fe, o si le ko lati kopa. Ti o ba yan lati ma kopa, eyi ko ni koba awon itoju ilera re. A ko ni fun o ni owo kankan tabi awon ebun fun kikopa ninu ise iwadii yii. Botiwu kori, a o fun o ni ipanu (ounje) pelu nkan mimu.

O le ma kopa ninu ise iwadii yii ti ko ba wu o lati se bee. O le yowo kuro nigba kuugba to ba wu o.

Nibayii ti a ti salaye ise iwadi naa fun mi daadaa, ti mo si ti mo irufe ati ete ise iwadii naa, yoo wu mi ki n kopa ninu eto naa.

Fifiwosi / Titeka ti olukopa -- ojo ------------------------------

AFRICAN DIGITAL HEALTH REPOSITORY PROJECT

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APPENDIX VIa

SOCIO DEMOGRAPHIC QUESTIONNAIRE

PERSONAL INFORMATION

1. Date of birth/ Age
2. Gender: (a) Male (b) Female

RELIGION

3. Do you practice any religion?
4. Please write down the exact place you attend for worship
   (a) Islam (b) Orthodox Christian (c) Pentecostal Christian (d) Traditional religion
   (e) Other

FAMILY INFORMATION

5. Family type: (a) monogamous (b) polygamous
6. Marital Status of parents: (a) Married (b) Separated/Divorced (c) Father is dead (d) Mother is dead (e) Mother and Father are dead
7. Number of mother`s children:
8. Number of father`s children:
9. What is your position among your father`s children ___________________
10. What is your position among your mother`s children __________________
11. Does any of your siblings have sickle cell disease? Yes/No. How many? __________
12. Who do you live with presently? (a) Parents (b) Mother (c) Father (d) Grandfather (e) Grandmother (f) Grandparents (g) other (Please specify)_____________
13. Who brought you up from childhood? (a) Parents (b) Mother (c) Father (d) Grandfather (e) Grandmother (f) Grandparents (g) other (Please specify)_________
14. How many different people have you left your parents to live with from your childhood?
    ____
15. Level of Father`s education: (a) No Formal Education (b) Quranic School (c) Primary School (d) Secondary School (e) Post Secondary (Non-University) (f) University Degree and above (e) I do not know
16. Level of Mother`s education: (a) No Formal Education (b) Quranic School (c) Primary School (d) Secondary School (e) Post Secondary (Non-University) (f) University Degree and above (e) I do not know
17. Occupation of Father: (Write the exact occupation) _____________/ I do not know
18. Occupation of Mother: Write the exact occupation) _____________/ I do not know
19. Have you received treatment for stress or psychological problem in the past?
    (a) Yes (b) No. If yes specify____
20. Do you think Sickle cell/ Haematology/Children Out-patient Clinic or ward is a good place to receive treatment for stress or mental health problems?
    (a)Yes (b) No. Give reasons for your answer ______________________________________

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APPENDIX VIb

SCHOOL HEALTH QUESTIONNAIRE (YORUBA)

Jowo ko idahun si awon ibeere ti o je mo o, tabi ki o fa igi si abe eyi to o je mo o. eleyii kii se idanwo; a kan fe mo nipa re ati ilera re ni.

ID NUMBER

PERSONAL INFORMATION

1. Omo odun melo ni o? ________________________
2. Se okunrin tabi obinrin? (a) Okunrin (b) Obinrin

RELIGION

3. Nje e man se esin kankan? Beeni / Beeko
4. Ko ibi ti o ti maa njosin

   ____

   ____

   (a) Islam (b) orthodox Christian (c) Penticostal Christian (d) Traditional religion (e) Other

FAMILY INFORMATION

5. Iru ebi (a) Oniyawo kan (b) Oniyawo meji tabi ju beelo
6. Ibagbepo awon obi re:
   (a) Se won gbe po? (b) Se won ti ko ra won sile? (c) Baba ti ku (d) Iya ti ku
   (e) Iya ati Baba ti ku
7. Omo melo ni Iya re ni?
8. Omo melo ni Baba re ni?
9. Ipo wo lo wa ninu awon omo Baba re? ____
10. Ipo wo lo wa ninu awon omo Mama re? ____
11. Nje okankan ninu awon egbon tabi aburo re ni arun aromolegun? Beeni/ Beeko. To ba ri be, awon melo ni? ____
12. Tani o n gbe pelu lowolowo? (a) Awon obi (b) Iya nikan (c) Baba nikan (d) Iya ati Baba Agba (e) Iya Agba nikan (f) Baba Agba nikan (g) Awon Iyoku [Jowo so nipato]

    ____
13. Talo to e dagba lati kekere?
    (a) Awon obi (b) Iya nikan (c) Baba nikan (d) Iya ati Baba Agba (e) Iya Agba nikan (f) Baba Agba nikan (g) Awon Iyoku [Jowo so nipato]

    ____
14. Awon eniyan otooto melo ni o fi awon obi re sile lati lo gbe pelu won? _____________
15. Iwe melo ni Baba re ka?

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(a) Ko kawe rara (b) Ile-keu (c) Ile-Iwe Alakobere (d) Ile-Iwe girama (e) Ile-iwe agba (Yato fun yunifasiti) (f) Yunifasiti ati ju bee lo (g) Nko mo

16. Iwe melo ni Mama re ka?

(a) Ko kawe rara (b) Ile-keu (c) Ile-Iwe Alakobere (d) Ile-Iwe girama (e) Ile-iwe agba (Yato fun yunifasiti) (f) Yunifasiti ati ju bee lo (g) Nko mo

17. Ise wo ni Baba re n se: [Ko ise ti won nse pato lekunrere]

____ / Nko mo

18. Ise wo ni Mama re n se: [Ko ise ti won nse pato lekunrere]

____ / Nko mo

19. Nje o ti gba itoju fun aisan opolo ri?

(a) Beeni (b) Beeko

To ba je bee ni, salaye ____

____

20. Nje o lero pe clinic re je ibi ti o dara lati gba itoju fun idaamu tabi isoro ilera opolo?

(a) Beeni (b) beeko

So ero re ____

____

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APPENDIX VIIa

BECK'S DEPRESSION INVENTORY

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1. 0 I do not feel sad.
1 I feel sad
2 I am sad all the time and I can't snap out of it.
3 I am so sad and unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.

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8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11. 0 I am no more irritated by things than I ever was.
1 I am slightly more irritated now than usual.
2 I am quite annoyed or irritated a good deal of the time.
3 I feel irritated all the time.

12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions more than I used to.
3 I can't make decisions at all anymore.

14. 0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel there are permanent changes in my appearance that make me look unattractive
3 I believe that I look ugly.

15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

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16. 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.
1 I have lost more than five pounds.
2 I have lost more than ten pounds.
3 I have lost more than fifteen pounds.

20. 0 I am no more worried about my health than usual.
1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think of anything else.

21. 0 I have not noticed any recent change in my interest in (the opposite) sex.
1 I am less interested in (the opposite) sex than I used to be.
2 I have almost no interest in (the opposite) sex.
3 I have lost interest in (the opposite) sex completely.

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APPENDIX VIIb

IWE AKOSILE IREWESI TI BECK

1. 0 Inu mi ko baje
1 Inu mi baje
2 Inu mi n baje nigbogbo igba ati pe n ko le bo ninu re
3 Inu mi baje gan, aidun nu mi si ti koja ifarada

2. 0 N ko ni irewesi okan lori ojo ola mi
1 Mo ni irewesi okan lori ojo iwaju
2 Mo lero pe ko si ireti lori ojo ola mi.
3 Mo lero pe ko si ireti lori ojo ola mi ati wipe nkan ko le dara si.
.

3. 0 N ko lero wipe ijakule ni mi
1 Mo lero pe mo ti ni ijakule ju ara yoku lo
2 Ninu iwoye aye mi, opolopo ijakule ni ohun gbogbo ti mo ri
3 Mo lero pe ijakule patapata ni mi.

4. 0 Ohun ti mo n se n telemilorun bi t'ateyin wa
1 N ko gbadun ohun ti mo nse bi ti ateyin wa
2 Ko si ohun ti o n fun mi ni igbadun gidi mo
3 Ohun gbogbo ni ti su mi

5. 0 N ko lero wipe mo jebi
1 Ni igba miran, mo ma n ni idalebi l'okan mi
2 Ni opolopo igba, mo ma n ni idalebi l'okan mi
3 Ni gbogbo igba, mo ma n ni idalebi l'okan mi

6. 0 N ko lero wipe a n fi iya jemi
1 Mo lero wipe a le fi iya jemi
2 Mo ni ireti wipe ki a fi iya jemi
3 Mo lero wipe a n fi iya jemi.

7. 0 Mi o ni ijakule ninu ara mi
1 Mo ni ijakule ninu ara mi
2 Oro ara mi ti su mi
3 Mo korira ara mi

8. 0 N ko lero pe oro mi buru ju ti elomiran lo
1 Mo n se afokansi ara mi nitori ailagbara mi tabi asise mi
2 Mo n da ara mi lebi ni igba gbogbo nitori asise mi

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3 Mo n da ara mi lebi fun gbogbo nkan buburu to n sele.

9\. 0 Nko ni ero kankan lati pa ara mi.
1 Mo ni erongba lati pa ara mi, sugbon nko ni se be e
2 Maa fe lati pa ara mi
3 No pa ara mi ti mo ba ni anfani lati se be.

10\. 0 Mi o ki n sukun ju bo se ye lo
1 Nibayi, mo n sukun ju ateyinwa lo
2 Mo n sukun ni gbogbi igba bayi
3 Mo ma n le sukun tele, sugbon nibayi, n ko le sukun mo bi o tile je wipe owu mi lati se be.

11\. 0 Nkan ko binu ninu ju t'ateyin wa lo
1 Ni bayi, inu ma n bi mi die ju ti bo se ye lo
2 Inu ma n bi mi ni opolopo igba
3 Inu ma n bi mi ni gbogbo igba.

12\. 0 N ko ti padanu ife mi si awon elomiran
1 N ko ni ife ninu awon elomiran to ateyinwa
2 Mo ti so opolopo ife ti mo ni ninu awon elomiran nu
3 Mo ti so gbogbo ife ti mo ni ninu awon elomiran nu

13\. 0 Mo ma n se ipinnu nipa nkan bi mo ti le se tele
1 Ju bi mo ti n se tele lo, mo n yago fun sise ipinnu
2 Mo ni isoro pipo nipa ipinnu sise ju bi mo se n se tele lo
3 N ko le se ipinnu mo rara.

14\. 0 N ko lero wipe irisi mi buru ju bi mo ri tele lo
1 Mo n se aniyan wipe mo ti n dabi arugbo tabi oburewa
2 Mo lero wipe awon iyipada baraku wa ninu irisi mi ti ko je ki n dun wo
3 Mo gbagbo wipe mo burewa.

15\. 0 Mo le se ise mi daradara bii ti ateyinwa
1 Ibere ohunkohun ni sise fun mi, pe fun opolopo igbiyanju
2 Lati se ohunkohun, mo ni lati ti ara mi lopopon-on
3 N ko le se ise kankan rara.

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16. 0 Mo le sun daradara bi ti ateyinwa
1 N ko sun daradara bi ti ateyinwa
2 Mo n ji bii wakati kan si meji saju akoko ti mo ma n ji tele, o si nira fun mi lati sun pada
3 Mo n ji ni wakati pupo saju akoko ti mo ma n ji tele, o si nira fun mi lati sun pada.

17. 0 Kii remi ju bi o se ye lo
1 O n re mi kiakia ju a teyinwa lo
2 O ma n re mi ti mo ba se ohunkohun
3 O ma n re mi debi wipe nko le se ohunkohun.

18. 0 Ife mi lati jeun ko yato si ti tele
1 Ife mi lati jeun ko dara to ti tele
2 Ife mi lati jeun buru pupo bayi
3 N ko ni ife lati jeun mo rara.

19. 0 N ko ti padanu iwon pupo ni kopekope yi
1 Mo ti padanu ju iwon marun lo
2 Mo ti padanu ju iwon mewa lo.
3 Mo ti padanu ju iwon medogun lo.

20. 0 N ko se aniyan nipe ilera mi ju bo se ye lo mo
1 Mo n se aniyan nipa isoro ara bii ori fifo, ara riro, inu rirun tabi airi igbe ya
2 Mo n se aniyan nipa isoro ara to be ge ti o nira fun mi lati ni ero miran.
3 Mo n se aniyan nipa isoro ara to be ge ti n ko ni ero miran rara.

21. 0 N ko ti kiyesi ayipada ninu ife mi si ibalopo tabi eya keji
1 Ife mi si ibalopo tabi eya keji ti n din ku si ti ateyinwa
2 N ko fere ni ife kankan ninu ibalopo tabi eye keji mo
3 Mo ti padanu ife ninu ibalopo tabi eya keji patapata.

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APPENDIX VIIIa

CLIENT SATISFACTION QUESTIONNAIRE

1. How would you rate the quality of service you have received?

______________1_________________2____________________3_____________________4
Excellent Good Fair Poor

2. Did you get the kind of health service you anticipated?

______________1________________2_____________________3______________________4
Yes, definitely Yes, generally No, not really No, not at all

3. To what extent has the study met your needs?

______________1________________2_____________________3______________________4
Fully Almost fully Just fairly Not at all

4. Would you recommend this program to a friend with similar need or experience?

______________1________________2_____________________3______________________4
Yes, definitely Yes, probably No, probably not No, definitely not

5. How satisfied are you with the amount of help you have received?

______________1________________2_____________________3______________________4
Very satisfied Quite satisfied Dissatisfied Very dissatisfied

6. Have the programme helped you to cope better with your medical and psychosocial problems?

______________1________________2_____________________3______________________4
Yes, a great deal Yes, a little way No, it didn’t really help No, it worsened my situation

7. Generally, how satisfied are you with the service you have received?
______________1________________2_____________________3______________________4
Very satisfied Mostly satisfied Indifferent Quite dissatisfied

8. If you were to seek help again, would you come back to our program?
______________1________________2_____________________3______________________4
Yes, definitely Yes, probably No, probably not No, definitely not

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APPENDIX VIIIb

TO N FI ITELORUN OLUKOKAN HAN

1. Bawo ni eto naa se kese jari loju re si?

   ___________1___________2___________3___________4

   Odara gan an   O dara   O dara die   Ko dara.

2. Nje o ri iru iranwo ti o fe gba?

   _____________1_____________2________________3___________________4

   Beeni, dajudaju   Beeni, nigbakuugba   Ko daju   Kori ri bee rara

3. Ba wo ni eto yii se ba aini re pade to?

   ________________1__________________2_________________3_________________4

   O fere ba won pade   O ba oplolopo pade   Oba die pade   Ko ba okankan pade

4. Ti Ore re ba ni iru awon isoro yii, se waa gba a ni moran nipa eto yii?

   _________________1__________________2__________________3___________________4

   Dajudaju   Boya   Ko jo bee   Ko dami loju

5. Bawo ni iranwo ti o rigba se te o lorun si?

   _______________1__________________2_________________3___________________4

   O te mi lorun gan an   O te mi lorun pupo   Ko te mi lorun tan   Ko te mi lorun rara

6. Se eto yii ti ran o lowo lati koju awon isoro re daadaa?

   ___________1__________________2_________________3_________________4

   Bee ni, lopolopo   Bee ni, niwonba   Rara, ko daju   Rara, nnkan tun buru si ni

7. Lakotan, bawo ni eto yii se te o lorun si?

   ___________1__________________2_________________3_________________4

   O te mi lorun gan an   O te mi lorun pupo   Ko te mi lorun tan   Ko te mi lorun rara

8. Ti o ba se wipe o tun nilo iranlowo sii, se waa pada wa fun eto naa?

   ________________1__________________2__________________3___________________4

   Dajudaju   Boya   Ko jo   Rara, ko dami loju

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APPENDIX IX

MANUAL FOR A BRIEF PSYCHOEDUCATION INTERVENTION FOR ADOLESCENTS WITH SICKLE CELL DISEASE AND DEPRESSIVE SYMPTOMS

1. General introduction of participants.
2. Explanation of meaning and rationale for psychoeducation:

   Psychoeducation refers to the education offered to individuals with a mental health condition and their families to help empower them and deal with their condition in an optimal way.

   Rationale for psychoeducation:

   - Information transfer (as when clients/patients and their families and carers learn about symptoms, causes, and treatment concepts)
   - Emotional discharge (a goal served as the patient/client or family ventilates frustrations during the sessions or exchanges with similar others their experiences concerning the problem)
   - Support of a medication or other treatment, as cooperation grows between professional and client/patient and adherence and compliance issues diminish
   - Assistance toward self-help (that is, training in aspects such as prompt recognition of crisis situations and knowledge of what steps should be taken).

3. Characteristics of sickle cell disease:

   Sickle cell disease is a severe hereditary form of anaemia in which a mutated form of haemoglobin distorts the red blood cells into a crescent shape at low oxygen levels. It is commonest among those of African descent.

   Specific symptoms include anaemia, fatigue, pain crises, dactylitis (swelling and inflammation of the hands and/or feet) and arthritis, bacterial infections, splenic

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sequestration (sudden pooling of blood in the spleen) and liver congestion, lung and heart injury, leg ulcers and jaundice or yellowish discolouration of the whites of the eyes, known as *icteris.*

Psychosocial implications of sickle cell disease:

Prognosis:

Alleviating factors:

Aggravating factors:

4. Risk factors for depression:
5. Symptoms of depression:
6. Identification of pleasurable activities and the activities that should be avoided in order to promote mental health.
7. Relaxation techniques such as deep breathing exercise, progressive muscle relaxation and positive imagery.
8. Examples of self talk therapy.
9. Questions and answers.
10. Evaluation and recap.

Seligman, M.E.P., Walker, E.F., Rosenhan, D.L. *Abnormal psychology* (4th ed.). New York: W.W. Norton & Company.

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