DEPRESSIVE SYMPTOMS AND ASSOCIATION WITH SOCIO-DEMOGRAPHIC FACTORS AND OCCUPATIONAL FUNCTIONING AND A PILOT PRE-POST OCCUPATIONAL THERAPY INTERVENTION FOR ADOLESCENT DEPRESSION

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TABLE OF CONTENTS (word counts)

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LIST OF FIGURES

LIST OF TABLES

KEY TO ABBREVIATIONS (Acronyms)

AOTA:	American Occupational Therapy Association
BDI:	Beck's Depression Inventory
CIOMS:	Council for International Organizations of Medical Sciences
COPM:	Canadian Occupational Performance Measure
DSM V:	Diagnostic Statistical Manual 5
ICD-10:	International Classification of Disease 10
KS:	Knowledge Survey
OTPF:	Occupational Therapy Practice Framework
SMFQ:	Short Mood and Feeling Questionaire
UNICEF:	United Nations Children's Emergency Fund
WHO:	World Health Organization
WLSQ:	Wellness and Life Satisfaction Questions

ABSTRACT

BACKGROUND

According to the Centers for Disease Control and Prevention, there are approximately 1.9 million children and adolescents diagnosed with depression globally, and the prevalence is suspected to be on the rise. Literature has shown that impairment in occupational participation and functioning can have negative impact on young people's activities of daily living, academics, self-care, sleep, leisure, and mood. It is therefore important to explore the effects of an occupational therapy intervention on in-school adolescents with depressive symptoms on their mood, occupational functioning, and social participation.

METHOD

This was a two-stage study involving a cross-sectional survey and a one-group pre-post intervention study. For the cross-sectional survey, a random sampling technique was used to recruit 345 students from four schools (two public and two private schools) in Abeokuta to determine the prevalence and correlates of depression. The students completed the Beck Depression Inventory (BDI) along with a socio-demographic questionnaire. For the pre-post intervention Phase of the study, the students from the cross-sectional phase who scored 18 and above on the BDI were identified and the 10 highest scorers from each of the four schools were selected (40 students). These students completed the following additional instruments; the Canadian Occupational Performance Measure (COPM), Short Mood and Feelings Questionnaire (for depression) and Wellness and Life Satisfaction Questions. The original study design was for 20 students to receive a manualised occupational therapy intervention while 20 were to be controls. However, due to Covid-19 lockdown which led to closure of schools, only 10 students in one intervention school received the intervention for 5 weeks and completed baseline and post-intervention data. Due to the massive disruption caused by the lockdown, it was not possible to resume the study when schools resumed. It was therefore agreed with my supervisors that the data from the 10 students

who received the intervention and completed baseline and post intervention data will be treated as a pre-post intervention design (as opposed to the original two-group controlled design).

RESULT

Out of 345 students recruited in this study, 141 (40.9%) were males, while 204 (59.1%) were females. The mean age was 14.86 ± 1.24 years. A total of 90 participants had BDI score of 18 and above which shows a 26.1% prevalence of depression. The mean BDI score was 11.61 ± 10.23. There was a statistically significant association between depressive symptoms and gender such that girls had more depressive symptoms than boys (Mean 12.68 ± 10.72 vs 10.06 ± 9.29). There was no association between depressive symptoms and occupational functioning, knowledge of depression and measure of wellness. For the intervention Phase, there were statistically significant post-intervention reductions in depressive symptoms, and improvements in occupational functioning and social participation with large effect sizes. Participants reported a high level of satisfaction with the intervention can be inferred from a mean satisfaction rating score of 28 out of a maximum of 30. Majority of the participants stated that they liked the games and how it related to helping them cope with stress and control their emotions.

CONCLUSION

In this study, the prevalence of depression was 1 in 4 in-school adolescents, which suggests a significant burden. Findings from this study shows that occupational therapy intervention is feasible and effective in decreasing depressive symptoms, and improving occupational functioning and social participation in adolescents. The intervention was also well received by the participants.

KEY WORDS: Depression, Adolescents, Occupational therapy, occupational functioning, social participation

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The burden of adolescent depression is high worldwide with average prevalence of 5.6% (Costello et al 2006). In adolescent depression, serious public health concerns can be seen later in adulthood (Auerbach, 2015). Centers for Disease Control and Prevention, (2012) reported that one-third of adolescents with depression are not identified because of poor help-seeking behaviours. Of all mental and physical disorders that can be associated with depression, anxiety has been found to have significant relationship and co-occur in the same individuals (Silverman and Treffers, 2001; Costello *et al.*, 2003). According to the World Health Organisation (WHO), depression is the ninth leading cause of illness and disability, followed by anxiety as the eighth, while suicide in all is the third leading cause of death in 15-19year olds (World Health Organisation, 2019).

Studies in Nigeria have reported prevalence of depression between 12.6% to 16.3% and it is suspected to be on the rise (Bella-Awusah, Ani, Ajuwon, and Omigbodun, 2016; Oderinde *et al.*, 2018). Children and adolescents with depression have being found to be at significant risk of suicide because of the impact of depression on functioning and mental health (Omigbodun *et al.*, 2008; The AOTA School Mental Health Work Group, 2012). Risky social behaviours such as smoking has been associated with adolescent depression (Mason *et al.*, 2009).

One of the symptoms of depressive disorder is the impairment in occupational participation and functioning. This impairment has been found to be a risk for onset of other mental health difficulties (Krupa *et al.*, 2003). The World Health Organisation (WHO) defines participation as 'involvement in a life situation' or meaningful occupation, such as school or play. Functioning is defined as a combination of the body's physiological and anatomical structures and the 'execution

of a task or action by an individual' that impact on an individual's ability to participate in life situations (World Health Organisation, 2007).

Psychological and pharmacological interventions are evidence-based interventions widely used to manage depression. Cognitive Behavioural Therapy (CBT) is the most researched psychological intervention, reported to be effective and has been adapted into many settings (Qin *et al.*, 2015; Bella-Awusah *et al.*, 2016; Chan *et al.*, 2017). Other interventions include building social network, Interpersonal Therapy, and engaging in physical activities (Aseltine and DeMartino, 2004; Bonhauser *et al.*, 2005; Horowitz *et al.*, 2007; Adeniyi, Okafor and Adeniyi, 2011).

Occupational therapy interventions have also been found to be beneficial in managing depression and can serve as opportunities to address challenges in the child's natural context (AOTA., 2008, 2011; Clark, 2013; Benson, 2013). Occupational therapy has been seen as a form of behavioural therapy that is largely about functioning (Sullivan, 2013). Occupational Therapist can assess a child's ability and frequency of participation in daily occupations, and help to promote the child's wellbeing by using their performance to develop appropriate occupation (Zahn-Waxler, *et al.*, 2000; Costello, *et al.*, 2003; Cramm, *et al.*, 2012).

1.2 Statement of the Problem

Research efforts towards treatment of depression have focused majorly on medication and core psychotherapeutic treatment like cognitive behavioural therapy (CBT) with little attention to other potential means treatment modalities such as occupational therapy. There is a need to research the relationship between activity participation and mental illness, especially in children and adolescents (Tokolahi, *et al.*, 2013). Rather than cognitive processing errors alone, there are limited interventions that directly target functional impairment (Vitiello *et al.*, 2006). Cohen and colleagues found that reduction in depressive symptoms does not imply normal quality of social participation (Cohen, *et al.*, 2013). Difficulties in several domains of functioning, such as social

and occupational, have been found in many adolescents with severe depression (Birmaher, *et al.*, 2004). Also, Fergusson and Woodward, (2002), reported that high rates of school failure, unemployment and early parenthood were some of the severe outcomes of depression in adolescents. This study set out to investigate the impact of occupational therapy intervention on depressive symptoms and functioning among in-school adolescents.

1.3 Justification for the Study

Occupational therapy can provide cost effective interventions using available resources to promote health and functioning. There is dearth of information in Low and Middle Income Countries (LMICs) on role of preventive occupational therapy in child and adolescent mental health. Although a link has being established between activity participation and mental health, very few research studies have being carried out by occupational therapists in this area (Desha and Ziviani, 2007). When level of occupational functioning and social participation is concerned, occupational therapy provides effective interventions in both promoting and preventive context (Tokolahi *et al.*, 2013, 2014). The American Occupational Therapy Association (AOTA) described the role of school-based occupational therapy as support to enhance participation in daily activities of learning (AOTA)., 2011).

However, there is limited literature on the use of occupational therapy in children and adolescent population with depression especially in LMICs like Nigeria. Also, there seems to be no study in our setting that has objectively measured the effect of occupational therapy intervention in promoting mental health and increasing participation and functioning.

1.4 Research Questions

Please note that some of the original research questions and study aims and objectives of this study had to be altered because Covid-19 lockdown forced participating schools to close before some aspects of the original study design could be carried out. Due to this massive disruption caused by

Covid-19 lockdown, it was not possible to resume the original project when students eventually returned to school. It was agreed with my supervisors to change some aspects of the original study design, research questions and study objectives to reflect what was feasible to achieve following the severe disruption of the original study design due to Covid-19 lockdown.

1. What is the baseline prevalence of depressive symptoms in the four schools involved in the study?
2. What are the socio-demographic characteristics of adolescents with depressive symptoms in the four schools?
3. Is there a significant difference in depressive symptoms and level of occupational functioning and social participation in the four schools?
4. Is there a significant difference in the knowledge about occupation and wellbeing before and after intervention in one school?
5. What is the level of satisfaction with the intervention and what are the participants' views about school-based occupational therapy services?

1.5 Aims and Objectives of the study

Please refer to comments earlier under Section 1.4 about how Covid-19 lockdown led to some changes to the original study aims and objectives.

The overall aim of this study is to determine the effect of a school-based group occupational therapy intervention on depressive symptoms and level of occupational participation and functioning.

The specific objectives of the study were to:

1. Determine the prevalence of depressive symptoms among in-school adolescents in four schools.

2. Carry out a school-based group occupational therapy intervention for in-school adolescents with depressive symptoms.
3. Determine the effects of a school-based group occupational therapy intervention on adolescents' depressive symptoms
4. Determine the effects of a school based group occupational therapy intervention on the level of occupational functioning and social participation.
5. Determine the participants' knowledge about occupation and wellbeing before and after occupational therapy intervention
6. Determine the participants' satisfaction with the intervention and views on school based occupational therapy services?

1.6 Null Hypotheses

1. There will be no significant difference in the prevalence of depressive symptoms between the four schools involved in the study.
2. There will be no significant difference in depressive symptoms pre and post intervention among students who participated in the occupational therapy intervention.
3. There will be no significant difference in level of occupational functioning and social participation pre and post intervention
4. There will be no significant difference in the participants' knowledge of the content of the intervention programme before and after the intervention.

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CHAPTER TWO
LITERATURE REVIEW

2.0 Adolescence

There are about 1.2 billion persons aged 10-19 years in the world, which is 16% of the global population (UNICEF, 2019). World Health Organisation (WHO) defines an adolescent as a person aged 10-19 years, and the stage is one of the most rapid stages of human development (WHO), 2019). Most adolescents are found in South and East Asia, the Pacific, and Africa, but sub-Saharan Africa has the greatest proportion of adolescents because 23% of the population are persons aged 10-19 (UNICEF, 2019).

Adolescent stage is a period between childhood and adulthood (Blakemore, Burnett and Dahl, 2010), and it is defined by Viner and colleagues as a period from the beginning of puberty until maturity (Viner *et al.*, 2007). The clear distinction of these stages is usually not easy to make. The definition of the role of adolescents is influenced by culture and society across the world which makes this stage somewhat confusing. Defining an adolescent by age for instance is diverse across cultures. Across regions like the United States, persons between the ages of 10-16, and some till age 18 are considered adolescents. In Nigeria, the definition varies across authorities, region and culture.

Age is not the only parameter to define the adolescent stage as this period is also defined by series of changes happening physiologically, physically, cognitively and socially (WHO, 2019). Physiologically, puberty starts with increases in sexual hormones (Blakemore, *et al*., 2010). Cognitively, there is increase in quest for autonomy, decision making, intellectual prowess, experimentation, risky behaviours and increased mastery over complex tasks (Institute of Medicine (US) and National Research Council (US) Committee on the Science of Adolescence,

2011). Peer relationships and sense of identity and belonging is intensified in individuals of this age group (Tija, 2016). The social role of individuals in this age group is transitional and cultural.

Despite the turbulent progression from childhood to adulthood, it is reported that about 75% of adolescents successfully transition to adulthood (Thapar *et al*., 2012). There is however a play of factors as a result of a rise in social change, occupational and educational pressure which in turn is indicated to cause increase in mental health issues in adolescents in past two to three decades (Michaud and Fombonne, 2005).

2.1 Depression in Adolescents

According to Rey and colleagues, depression is an episodic, recurring disorder characterized by persistent and pervasive sadness or unhappiness, loss of enjoyment of everyday activities, irritability, and associated symptoms such as negative thinking, lack of energy, difficulty in concentration, and appetite and sleep disturbances (Rey *et al*., 2015). The DSM-5 and ICD-10 have used other terms to describe depression. Such terms are major depressive disorder or (episode), recurrent depressive disorder or (episode).

The difference in presentation of depression in children and adolescents from that in adults makes it sometimes difficult to describe. According to Rey *et al.*, (2015), symptoms are more common in adolescents than pre-pubertal children. Irritability is presented as temper tantrums, non-compliance, easy frustration, anger outburst and hostility (Rey *et al*., 2015). Furthermore, unlike in adults, children and adolescent can have reactive affect, increased appetite and weight gain, hypersomnia, somatic complaints, extreme sensitivity to rejections which in turn affects social and peer relationships. Depression is generally reported to have female predominance (Michaud and Fombonne, 2005).

In recent times, there has been a rise in world report of depression amongst children and adolescents (Mojtabai *et al*., 2016). The rate of reports however depends on the country, informant

and diagnostic criteria (Rey *et al.*, 2015). In the United States, prevalence of major depressive episode in adolescents aged 12 to 17 was found to be 13.3%, with 70.7% of depressed adolescents having severe impairment (National Institute of Mental Health, 2017). National Health Service in (2017) reported that 24% of girls and 9% of boys of age 14 years in Britain have depressive symptoms. In Nigeria, Omigbodun and Olatawura, (2008) reported a 12% prevalence among senior secondary school students in Ibadan. Oderinde *et al.*, (2018) found a point prevalence of 16.3% among 10-19 year olds in-school adolescents in a rural region in south Western Nigeria.

Adolescents with depression have been found to also have comorbidities with other psychiatric disorders such as anxiety disorder, attention deficit and hyperactivity disorder, conduct problems, learning difficulties, eating disorder, and substance abuse (Costello *et al.*, 2003). Findings have shown that material deprivation is strongly associated with mental and physical health, and some factors such as low income and adverse life events have been found to be strongly and consistently associated with high prevalence of some mental disorders such as depression (Friedli, 2004).

2.2 Aetiological Risk and Protective Factors of Depressive Disorders in Adolescents

Physiological chemical imbalances, hereditary and environmental factors have being considered as general aetiological factors for depressive disorders (Bhatia and Goyal, 2018). The biopsychosocial model is an explanatory model commonly used to describe the risk and protective factors of psychiatric conditions in children and adolescents. Biologically, brain and hormonal mechanism have been studied and findings show a link to risk of depression (Thapar *et al.*, 2012). Furthermore, studies have shown that genetic influences can contribute to the risk of depression. Offspring of mothers who had postpartum depression were likely to develop depression by age 18 (Pearson *et al.*, 2013). Most twin-studies show that depression is highly heritable from childhood to late adolescence (Thapar and Rice, 2006).

Stressful life events have been said to be associated with onset of depression (Haberstick *et al.*, 2016; Hariri *et al.*, 2002). This risk is strongly increased in girls and adolescents exposed to more than one unpleasant life event (Fleitlich-Bilyk and Goodman, 2004; Parker and Brotchie, 2010). Several studies show that acute and chronic life events like physical illness, poverty, family discord and negative family relationships, bullying, trauma, negative cognitive styles, isolation and maltreatment, and loss of parent(s) or a loved one are psychosocial risk factors for depression and anxiety (Thapar *et al.*, 2012; Abbo *et al.*, 2013; Pine *et al.*, 2002; Restifo and Bögels, 2009).

Despite high exposure to risks for developing depression or any other psychiatric condition, many adolescents, about 75%, are said to successfully overcome the adolescence stage to adult stage (Thapar *et al.*, 2012). This is because of the presence of resilience factors that significantly outweigh the risks. Positive parent-child relationship, supervision and monitoring, high intellectual ability in the child, participation in social and sporting activities, and healthy connection in school are some of the protective factors identified (Thapar *et al.*, 2012).

2.3 Occupational/ Public Health Impact of Depressive Disorders on Adolescents

Depression in adolescents is a public health concern with serious consequences. Depression is the ninth leading cause of illness and disability, followed by anxiety as the eighth, while suicide in all is the third leading cause of death in 15-19year olds (WHO, 2019). Some serious consequences of depression that can be seen later in adulthood are risky behaviours, suicidality, poor job placement and low income levels (Auerbach, 2015). Depression and anxiety have been found to have significant relationship, co-occurring in the same individuals (Silverman and Treffers, 2001; Costello *et al.*, 2003).

Other social problems associated with depression in youths are difficulties in schoolwork, peers and family relationships (Bernal-Morales *et al.*, 2015). Also, Wagner *et al.*, (2012) identified the tendency of high utility of health care services in persons with depression, resulting in high cost

and burden of care. One of the symptoms of depression disorders is the impairment in occupational participation and functioning (Tokolahi *et al.*, 2013). Social participation among others have been reported to be the major occupation affected by depressive symptoms (Bazyk and Brandenburger-Shasby, 2011; Bonder, 2015).

Cohen and colleagues found that reduction in depressive symptoms does not imply normal quality of social participation (Cohen *et al.*, 2013). Difficulties in several domains of functioning, such as social and occupational, have been found in many adolescents with severe depression (American Psychiatric Association, 1994; Birmaher *et al*., 2004). In a study conducted in New Zealand by Fergusson and Woodward, (2002), it was found that high rates of school failure, unemployment and early parenthood were some of the severe outcomes of depression in adolescents. Mason *et al.*, (2009) found associated risky social behaviours such as smoking and adolescent depression.

Other occupations affected by symptoms of depression identified by occupational therapists are difficulties in activities of daily living, academics, self-care, sleep, and leisure (The AOTA School Mental Health Work Group, 2012). Symptoms of depression affects concentration and participation in activities as compared to peers (American Psychiatric Association, 1994). Self-reported levels of anxiety in clinical and community samples of in-school adolescents increased with age but was negatively related to school performance (Mazzone *et al*., 2007).

Participation has been defined by the WHO as 'involvement in a life situation' or meaningful occupation, such as school or play, and functioning, as a combination of the body's physiological and anatomical structures and the 'execution of a task or action by an individual' that impact on an individual's ability to participate in life situations (WHO, 2007). Impairment in occupational participation and functioning has been found to be a risk for onset of mental health issues (Krupa *et al.*, 2003).

Four domains have been identified to be affected by depressive disorders in children and adolescents namely; school, social, family and self (Desha and Ziviani, 2007). The impact affects the role of the adolescent as a student and a member of the family (Handojo *et al.*, 2016).

2.4 Management of Depressive Disorders in Adolescents

The first line of treatment is usually to address triggers and stressors. Many evidenced-based techniques have been used to manage depressive disorders. Cognitive behavioural therapy (CBT) and Interpersonal Therapy are psychotherapy interventions that have lots of evidence-based support to be effective in reducing symptoms of depression in children and adolescents in many settings (Bella-awusah *et al*., 2016; Handojo *et a.l*, 2016; Qin *et al.*, 2015).

CBT explores breaking the chain of negative cognition, mood and behaviours associated with depressive disorder. CBT in previous years could only be carried out by trained professionals however in recent times, it has been adapted in many forms and settings and may be carried out without much expertise (Ani, 2019). Computerized version of CBT has been designed to be child and adolescent friendly. Some examples are FRIENDS, CopyCat, which have designs for all age groups (Bekker and Cooper, 2014). In Nigeria, a brief school-based group CBT was found to be effective with adolescents screened to have depressive symptoms (Bella-Awusah *et al.*, 2016).

Pharmacological treatment is usually employed to augment psychosocial management. The use of antidepressants such as Selective Serotonin Reuptake Inhibitors (e.g. Fluoxetine), has been found to be helpful in children and adolescents with depression. The setback as studies show is that the benefit can take up to three to eight weeks to become noticeable and one of the potential side effects is a rise in suicidal ideation (Hetrick *et al*., 2007). Other short comings of medications include weight gain, sexual dysfunction, and sleep disturbances (Rey, *et al.*, 2015). Side effects are to be considered especially in adolescents who are concerned with social perception of their body image and stigma.

A combination of psychological and pharmacological treatments have been found to be more effective in improving functioning, global health and quality of life in adolescents with depression (Vitiello *et al.*, 2006). Other interventions reported include building social network, interpersonal therapy and engaging in physical activities (Aseltine and DeMartino, 2004; Bonhauser *et al.*, 2005; Horowitz *et al.*, 2007; Adeniyi *et al*., 2011).

2.5 Occupational Therapy in Child and Adolescent Mental Health

In the past, occupational therapy has been involved in mental health with their role focused on enabling clients of all lifespans to function independently and participate in enjoyable activities (Kleinman, 1992; Lloyd *et al*., 2005). Over the years, the role of occupational therapy in child and adolescent mental health has been evidenced albeit in few studies. This can be because there seems to be more focus on physical conditions. Evidence supports that occupational therapists have roles facilitating positive functional outcomes in the children and adolescent population (Lougher, 2001).

Occupational therapy has been seen as a form of behavioural therapy that is largely about functioning (Sullivan, 2013). When level of functioning and participation is concerned, occupational therapy provide effective interventions in both promoting and preventive contexts (Tokolahi *et al.*, 2013, 2014). Time use in children and adolescents have being found to be an area of intervention for occupational therapists (Brooks, 2016). This is because it is an area where occupational participation and functioning can be measured (Tokolahi *et al.*, 2013). Understanding time use in children and adolescents helps occupational therapists in determining appropriate interventions to promote, prevent and treat where indicated (Brooks, 2016).

Studies have been conducted by occupational therapists to understand daily occupations of children and young people with autism spectrum disorder and attention deficit hyperactivity disorder (Brooks, 2016). In a systematic review (Hardaker *et al.*, 2007) to determine the role of

occupational therapists in adolescent mental health, it was found that the duties of occupational therapists range from designing community based programs that encompass adolescent rehabilitation to developing inpatient programs that incorporate meaningful activities to improve overall mental health. The area of pre-vocational training was also explored (Willoughby *et al.*, 2000) to determine changes in self-esteem, communication and confidence.

In South Africa, occupational therapists are employed in few private schools where interventions are designed to promote health, teach life skills and implement pre-vocational skills programmes (Fouché and Wegner, 2016). Children's homes and juvenile detention centres also employ the services of occupational therapists to implement rehabilitation and remediation programs.

Occupational therapists can either take the individual or group approach and incorporate them in order to optimize the goal of therapy (Marvel and Zimmerman, 2015). They use both approaches together, although each has its benefits, they have been found to produce optimal results. Some of the benefits include promotion of verbal and non-verbal skills, development of self-identity, promotion of social participation and development of relationship with peers, family and community (Jackson and Arbesman, 2005; Olson, 2011).

2.6 Occupational Therapy Interventions in Adolescent Depression

In children and adolescents with depressive symptoms, the goal of occupational therapy is stated as to reduce symptoms, assess occupation affected and improve competence and the use of time (Desha and Ziviani, 2007; Bazyk and Brandenburger-Shasby, 2011; Marvel and Zimmerman, 2015). Bonder, (2015) recommended activities according to the type (severity) of depression. These recommendations range from activities that allow emotional expressions such as art or craft, utilization of other techniques to teach anger management, social skills training, physical activities, social support and promotion of self-esteem, motivation and self-expression. In depression, studies

report that more benefits are derived in group-based intervention designs (Marvel and Zimmerman, 2015).

Ikiugu and Anderson, (2007) reported the cost-effectiveness of Instrumentalism in Occupational Therapy (IOT), which is designed to aid adolescents to become more adaptive in addressing life challenges, and to facilitate successful transition of adolescents with emotional and behavioural disorder to adulthood. Also, a client-centred small group occupational therapy program conducted by Jong-Seo and colleagues on adolescents at risk of suicide was found to be effective in reducing symptoms of depression, anxiety, alienation and suicidal ideation and improving occupational performance (Jong-Seo *et al*., 2015). Marvel and Zimmerman, (2015) designed an occupational therapy guide to facilitate social participation in youths with depressive disorders. The guide consists of activities that can be carried out with peers, family and the community, which are adaptable in different settings.

Furthermore, occupational therapists can address depression in youth by providing interventions at home, school and community. The AOTA School Mental Health Work Group, (2012) recommended interventions at promotion, prevention and intensive levels. Interventions can be driven to promote mental health at universal level such as education about how enjoyable activities can improve mood (The AOTA School Mental Health Work Group, 2012). Furthermore, interventions can be focused on preventing mental health issues in target groups such as promoting self-esteem, social skill building and sensory modulation. Lastly, intensive interventions such as targeting school processing needs can be designed to address poor occupational performance due to depression.

2.7 School-based Occupational Therapy Services

School-based mental health services began in the United States in the nineteenth century and have undergone various changes and developments over the years, with the goal of ensuring that

children and adolescents reach their full potentials and participate in the society (Flaherty and Osher, 2002). Core disciplines that were involved were nursing, psychology, psychiatry, school counselling, social work and special education (Flaherty and Osher, 2002). Occupational therapy became more established following the implementation of the Public Law in 1973 in United States (Colman, 1988). The World Federation of Occupational Therapists, (2016) stated that *"*the role of occupational therapists is to enable, support and promote full participation and wellbeing of students by supporting their strengths and finding solutions, reducing or removing learning activity limitations and participation restrictions*"* .

School has a vital role to play in early identification of emotional problems in children and adolescents (Friedli, 2004). The American Occupational Therapy Association described the role of school-based occupational therapy as support to enhance participation in daily activities of learning (AOTA, 2011). The unique services provided by occupational therapists in schools can also contribute to health promotion (Ball, 2018). In collaboration with the school team and parents, occupational therapists can help to identify and design activities and programs that will increase successful student participation (Mahaffey, 2016)

Three levels of service namely universal, targeted and intensive were identified in a systematic review by (Arbesman *et al*., 2013) in relation to occupational therapy and mental health promotion, prevention and intervention. In this review, universal services were done after school to support all children and addressed to improving social skills, reducing problem behaviours and stress. Furthermore, collaboration with other school mental health team was indicated to promote mental health in school environment. School-based occupational therapists employ the use of individual or group based intervention (Marvel and Zimmerman, 2015).

Assessment carried out by the occupational therapist on the child/adolescent includes the ability and frequency in which a child participates in daily occupations, which can be used to promote

wellbeing by using the child's performance to develop appropriate occupation (Zahn-Waxler et al., 2000; Costello et al., 2003; Cramm et al, 2012). School-based occupational therapy shows that integrating occupational therapy interventions in the classroom and other school settings is beneficial and serves as an opportunity to address challenges in the child's natural context (AOTA, 2008, 2011; Clark, 2013; Benson, 2013).

2.8 Relevance of this Study to Child and Adolescent Mental Health in Nigeria

There is a global rise in report of mental health disorders in children and adolescents, of which depressive disorder is among the top ten disorders (WHO, 2019). When mental disorders are left untreated, there are serious immediate and future consequences (Rapee, 2012; Chinawa et al, 2018). Occupational therapy is indicated when there is a disturbance in occupation and daily functioning (Ramano, 2015).

Although pharmacological and psychological interventions have been found to be effective in managing depressive disorders in children and adolescents, there is also need to explore occupational therapy interventions. Occupational therapy can provide cost effective interventions, using available resources to promote health and functioning. Moreover, there seems to be no study in Nigeria that has explored the effectiveness of occupational therapy for adolescent depression in this population.

There is dearth of information especially in developing countries on role of preventive occupational therapy in child and adolescent mental health. This may be because the role of occupational therapy is not fully understood (Hardaker *et al.*, 2007). Although a link has being established between activity participation and mental health, very few studies have being carried out by occupational therapists generally in this area (Desha and Ziviani, 2007). There is a need to research the relationship between activity participation and mental illness, especially in children and adolescents (Tokolahi *et al.*, 2013). Also, there seems to be no study in our setting carried out

to objectively measure the effect of occupational therapy intervention in promoting mental health and increasing participation and functioning.

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CHAPTER THREE
METHODOLOGY

3.1 Study Location / Area

Abeokuta, a city in South-western Nigeria is located in the East bank of the Ogun River (Hoiberg and Dale, 2010), bordered by Lagos state on the South, Oyo state on the North and Ketou, Benin Republic on the West. The city lies below the well-known Olumo Rock, where standing on the peak, the beautiful aerial view of the city can be captured. It became the capital city of Ogun state in 1976. According to the 2006 national population census, 3,751,140 people (density of 220/Km^2 570/square mile) live in Ogun state (National Population Commission Nigeria, 2012). The indigenous people are mainly Yorubas however persons from other tribes reside in the city. The major activities carried out by the people are farming. There are 20 local government areas in the state (National Population Commission Nigeria, 2010), from which Abeokuta North was selected as the site of study because of its proximity to the researcher.

There are 27 public and 48 private senior secondary schools in Abeokuta North local government. A list of secondary schools in the local government was collected from the Zonal Education Board Office and four schools were selected based on student population, staff strength and type of neighbourhood.

3.2 Study Design

The original study design was a combination of (a) cross-sectional survey and (b) a two-group intervention study. However, Covid-19 lockdown forced the researcher to change the design because schools were closed before the intervention part of the original design could be completed. Due to the prolonged and massive disruption in schools caused by the lockdown, it was no longer possible to resume the study as previously designed when schools reopened. Therefore, it was

agreed with my supervisors that the data available at the point of the lockdown will be written up for this thesis.

Thus the supervisors gave permission to change the design to a combination of (a) cross-sectional survey and (b) a one-group pre-post intervention study (instead of a two-group intervention study). A list of public and private secondary schools in the local government was obtained from the Ogun State Ministry of Education Zonal Office. Stratified random sampling techniques was used to select and recruit four senior secondary schools consisting of two public and private schools. The public schools were Saint Peters Secondary school (originally designated as intervention public school in the previous two-group intervention study design) and African Church Grammar School (originally designated as control public school in the previous two-group intervention study design). Saint Peters Secondary school was founded in 1914 by Catholic missionaries. It later became a public school and has 2474 students and 156 teachers as at when the data was collected. African Church Grammar school was founded in 1955 and currently has 5959 students and 170 teachers. The private schools are The Chief Cornerstone Secondary School (originally designated as intervention private school in the previous two-group intervention study design) which was established in 2010 with a capacity of 351 students and 21 teachers, and CLEMOFAD Group of Schools (originally designated as control private school in the previous two-group intervention study design) which was established in 2012 with a capacity of about 240 students and 18 teachers. For the intervention part of the study, adolescents who were the top scorers on the Beck Depression Inventory (BDI) were selected.

3.3 Study Population

Participants were in-school adolescents attending two public and two private senior secondary schools in Senior Classes 1 and 2. This is because students in Senior Class 3 were being prepared for national school exams at the period the study was conducted.

3.3.1 Inclusion Criterion

For the cross-sectional survey, students in senior secondary schools whose parents gave written informed consent and who provided assent to the study were included in this study.

3.3.2 Exclusion Criteria

1. Students who have suicidal behaviour or suicidal thoughts as ascertained from a score of 2 or 3 on question 9 of the BDI. Such students were offered counselling and appropriate referral.

2. Students involved in treatment of any kind to address symptoms of anxiety or depression. This was to avoid confounding.

3. Students identified by the teacher with any form of intellectual or learning disability.

3.4 Sample Size Calculation

Cross-section survey: sample size was calculated with the formula for estimating single proportions:

$$n = \frac{Z\alpha^2 pq}{d^2}$$

Where;

n = sample size

Zα = standard normal deviate corresponding to 5% level of significance =1.96

P = prevalence of depression – 20% (Thapar *et al*., 2012)

q = 1 –p = 80%

d = level of precision = 5%

$$N = \frac{1.96^2 \times 20 \times 80}{25} = 246$$

Assuming a 10% non-response rate this will be adjusted using the following formula:

$$\frac{246}{(100\text{-}10)\ \%}$$

$$= \frac{246}{0.9} = 273$$

This will be approximated to 350.

This was further rounded up to 400 participants overall with 100 per school (to ensure even distribution in the schools).

Pre-post intervention

Sample size for the minimum number to be included (for students with depressive symptoms) using the formula for one-group pre-post design (Wade, 1999)

$n = F\ (\sigma/d)^2$

where,

n = minimum sample size for the group

F = 18.37 assuming 99% power and 0.05% level of significance.

d = is the difference expected to be found between the pre and post intervention level of depression. Assuming that the intervention would result in one standard deviation reduction in depressive symptoms pre and post intervention then the sample size would be 18, which was increased to 20 to account for attrition in the course of administering the intervention.

3.5 Sampling Technique

For the cross-sectional survey part of the study, balloting was used to randomly select participants who meet the inclusion criterion from the four schools. This was done by compiling the names of all students in SS1- SS2 from the class registers of each school and assigning a number to each one. The numbers were written on a piece of paper, put into a box, and mixed up. Numbers were

selected blindly until the desired sample size was obtained. The selected students then completed the socio-demographic questionnaire and the Beck Depression Inventory (BDI). Students who scored 18 and above on the BDI were further selected for the intervention part of the study.

3.6 Study Procedure

3.6.1 Intervention part of the study

Manualized occupational therapy group intervention was adopted from clinical and school based trials carried out by (Tokolahi *et al*., 2016; Tokolahi *et al*., 2014; Tokolahi *et al*., 2013) and an intervention guide for occupational therapists designed by Marvel and Zimmerman, (2015).

The intervention adapted (Tokolahi *et al*., 2013 and Tokolahi *et al*., 2014) made use of developmentally appropriate occupations/activities to improve wellbeing. Furthermore, the group content included: didactic activities (e.g. occupational analysis, fight-or-flight response, relaxation techniques); peer exchange (e.g. occupational charades, brainstorming); direct experience (e.g. relaxation, games); and personal exploration (e.g. occupational analysis, *pepeha*, activity scheduling). Theoretical basis used in the intervention (Tokolahi et al., 2013; Tokolahi et al., 2014) were occupational therapy and science (lifestyle redesigning) and the five ways to wellbeing (Jackson *et al.*, 1998; Mandel *et al.*, 1999; Scott *et al.*, 2001; New Economics Foundation, 2008, 2011).

The social participation intervention guide designed by Marvel and Zimmerman, (2015) was based on the Ecology of Human Performance (EHP) model and Occupational Therapy Practice Framework (OTPF). This EHP model focused on the person and environment, stating that the environment shapes how a person performs a task (Turpin and Iwama, 2011). The OTPF in the group setting emphasizes self-awareness within peer, family and community (American Occupational Therapy Association, 2014).

Therefore, the step-wise intervention used in this study are:

Session 1: Introduction and psycho-education. In this session, rapport was established within the group and ground rules were set. Presentations on the definition, symptoms, aetiological factors and management of depression followed.

Session 2: The link between emotion and occupational functioning and social participation was established. With the aid of interactive lecture and discussion, the link on how emotion affects occupational functioning and social participation and vice versa was discussed.

Session 3: Activities that address the link between emotion and occupational functioning such as the occupational charade game designed by Tokolahi *et al.*, (2013) were carried out.

Session 4: Activities that address link between emotion and social participation. The "How to solve a problem" or "dealing with small stuff" was adopted from Marvel and Zimmerman, (2015).

Session 5: Review, conclusion and celebration. Here, a summary of what was learnt during the course of the intervention was done. Room was given for feedbacks, clarifications and concerns from the participants.

All sessions were led by the researcher, and lasted between forty-five minutes to one hour. The sessions took place in the school library, every Thursday over 5 weeks in a school term. Each session began with a summary of the previous session and ended with a recap of what was learnt to ensure clarity and proper assimilation of information. Participants were offered light snacks (biscuits) at the end of each session.

3.6.2 Study Instruments

Data was collected using the following study instruments:

- socio-demographic questionnaire {appendix 3}

- Beck Depression Inventory (BDI) {appendix 4}
- Short Mood and Feelings Questionnaire (SMFQ) {appendix 5}
- Canadian Occupational Performance Measure (COPM) {appendix 6}
- Knowledge Questionnaire {appendix 7}
- Client Satisfaction Questionnaire {appendix 8}
- Wellbeing and life satisfaction questions (WLSQ) {appendix 9}

3.6.2.1 Socio-demographic Questionnaire

Socio-demographic characteristics was measured with the School Health Questionnaire, a self-rated, 27 items designed in a study carried out by (Omigbodun, 2004) and adopted from the study carried out by Bella-Awusah *et al*., (2016).

3.6.2.2 The Beck Depression Inventory *(*BDI)

The BDI is a 21 item self-rated questionnaire which asks about symptoms of depression in the past two weeks and is designed for use among individuals who are 13 years and older (Beck et al, 2005). Items are rated on a 4 point Likert scale ranging from 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. In the present study, minor modifications were made as suggested by (Bella-Awusah *et al.*, 2016) to aid comprehensibility. These changes include the simplification of terms to aid understanding of some items (for example in Item 11 the word *annoyed* was used instead of irritable).

3.6.2.3 Short Mood and Feeling Questionnaire (SMFQ)

SMFQ is a self-rated screening tool for depression in children between ages 7 and 18 (Angold *et al.*, 1995). Some studies in Nigeria have used this tool (Ola and Ani, 2013; Bella-Awusah *et al.*,

2016). Statements are rated on a three-point scale ranging from not true - 0, sometimes true -1, and true - 2. Scores of 11 and above are indicative of depression.

3.6.2.4 Canadian Occupational Performance Measure (COPM)

This is a self-rated ability to participate in daily activities and satisfaction with one's ability to participate in those activities (Law, *et al*., 2000). The COPM is a semi-structured individual interview assessment tool in four stages that identifies areas of concern in occupational performance (self-care, productivity and leisure), and then rates these areas on a 10-point scale of importance.

Clients are then asked to choose five of the most important problems identified earlier as a focus for intervention. These problems were further rated on the client's level of satisfaction and performance. COPM is scored by calculating the average performance and satisfaction scores. The score typically ranges between 1 and 10, where 1 indicates poor performance and low satisfaction, respectively, while 10 indicates very good performance and high satisfaction. The reassessment was carried out after intervention was completed. A mean score change of two and above was set to indicate clinical significant change (Carpenter, et al, 2001). The COPM was administered by researcher.

3.6.2.5 Knowledge Survey

This is a multiple choice questionnaire designed by the researcher to measure change in participants' knowledge of concepts and strategies covered in the intervention.

3.6.2.6 Client Satisfaction Questionnaire

A modified Client satisfaction questionnaire (Attkinsson and Greenfield, 2004) was used for this study. Participants in the intervention group were asked to indicate how satisfied / dis-satisfied they were with the intervention. They were further asked three open-ended questions to elicit what

they liked or did not like about the intervention and their suggestions for improvement. The qualitative comments were analysed thematically.

3.6.2.7 Wellbeing and Life Satisfaction Questions

This is a self-rated instrument that measures a child's sense of wellbeing and life satisfaction designed by Thompson and Aked, (2009). Some questions were adopted to explore different facets of well-being.

3.6.3 Validity of Study Instruments

Both the English and Yoruba versions of the socio-demographic Questionnaire have been previously validated among secondary school students in Nigeria (Omigbodun et al., 2008). The English versions of the BDI (Adewuya *et al*., 2007) and SMFQ (Ola and Ani, 2013) have been used among Nigerian school students. The COPM was designed to be used with all clients, diagnosis and age groups (Law *et al*., 2004). It has been successfully used in many studies (Jong-Seo *et al*., 2015; Tokolahi *et al.*, 2014), but has not been used in our setting.

3.6.2 Data Collection

Each participant was randomly selected by balloting from each class until the desired number was reached. They were then approached and invited to take part in the study after explaining what would be involved. Informed written consents and assents were obtained from the students and their parents/guardians and those who agreed were recruited to the study.

Next, the cross-sectional survey (Phase 1) part of the study was conducted which involved the participants completing the BDI and socio-demographic questionnaire. Participants who scored above 18 on the BDI were identified and top ten highest scores were selected from each of the 4 schools.

Prior to the massive disruption and school closures caused by Covid-19 lockdown, the original

study design for Phase 2 was for a two-group intervention with 20 students in intervention group (10 from public and 10 from private schools) and 20 in a control group (10 from public and 10 from private schools). Unfortunately, due to the Covid-19 lockdown, the data available from Phase 2 before the schools were forced to close were as follows:

(a) Baseline SMFQ, COPM, knowledge questionnaire, and WLSQ obtained from 39 (of the 40 students selected for Phase 2), and

(b) Post-intervention SMFQ, COPM, knowledge questionnaire, and WLSQ from 10 students in one of the two intervention schools.

After the prolonged school closure due to the Covid-19 lockdown, it was no longer possible to resume the original study as was designed. It was therefore agreed with my supervisors that for this Thesis, these available data from Phase 2 will be written up along with the data from Phase 1. Thus this Dissertation is made up of the following sections based on the available data:

1. Analysis of the 345 students who completed the cross-sectional survey (Phase 1 part of the study) to identify prevalence of depression and the socio-demographic correlates,
2. Analysis of the 39 students in Phase 2 who completed the baseline SMFQ, COPM, knowledge questionnaire, and WLSQ to examine for association between depressive symptoms and occupational functioning, knowledge of depression and wellbeing measures, AND
3. A pre-post analysis of the 10 students in Phase 2 who completed the intervention and have data on baseline and post intervention outcome measures.

3.7 Primary and secondary outcome measures for the Intervention Phase of the Study

The effect of the intervention on the participants' self-rated depressive symptoms was the primary outcome measure for the intervention part of the study. Secondary outcomes were participants'

self-rated participation in daily occupations, life satisfaction and wellbeing and knowledge about occupation and wellbeing.

3.8 Data Analysis

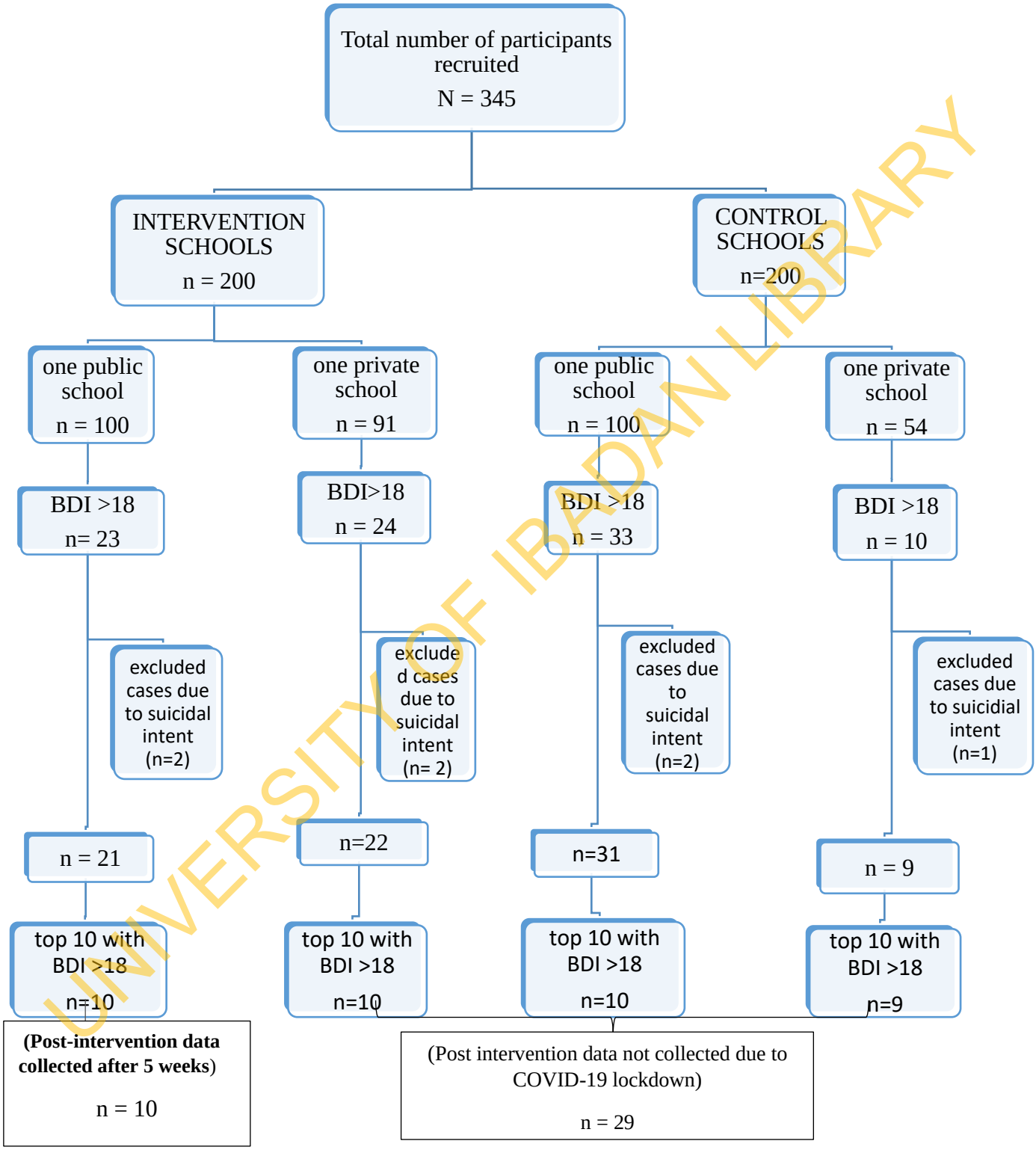
Statistical Package for Social Sciences (SPSS version 21) software was used to enter and analyse the data collected. Descriptive statistics like mean and standard deviation were used to summarise continuous measures, while, frequency and percentages were used to describe categorical variables. Inferential statistics such as chi-square test, independent samples T-test were used for bivariate comparisons. For the pre-post intervention part of the study, the continuous outcome measures were analysed with paired – t-test. Level of significance was set at 0.05 two tailed.

3.9 Ethical Approval

Ethical approval was granted from the Ethics Review Board in Ogun state and permission given by the Ogun state Ministry of Education, Science and Technology. Informed consent was obtained from the parents and assent from the adolescents (see Appendices 1 and 2). The principles of ethics according to CIOMS, (2016) were adequately followed. Results of the study will be disseminated to the participating schools in a manner that does not identify participants.

WORD COUNT: 2719

Figure 1: Flow Chart Showing Recruitment of Study Participants



CHAPTER FOUR

RESULTS

4.0 Introduction

The period of data collection for the study was between February 4th and March 19, 2020. A total of 345 students were recruited and screened for presence of clinical depressive symptoms from the selected schools. Of all these, 90 (26.1%) had BDI score of 18 and above. The mean BDI score was 11.61 ± 10.23. Thirty-nine students were recruited for the second phase of the study. However, due to the Covid-19 lockdown and closure of schools, only ten participants were able to complete post intervention data collection.

The results are presented as follows:

1. Analysis of 345 students who completed the cross-sectional survey to identify prevalence of depression and the socio-demographic correlates,
2. Analysis of the 39 students who completed the baseline SMFQ, COPM, knowledge questionnaire, and WLSQ to examine for association between depressive symptoms and occupational therapy, knowledge of depression and wellbeing measures, AND
3. A pre-post analysis of the 10 students who completed the intervention and have data on baseline and post intervention outcome measures.
4. A description of the knowledge of and satisfaction with the treatment programme, and views on provision of occupational therapy services in schools among the 10 participants in the intervention Phase.

4.1 Sample Description

4.1.1 Socio-demographic Characteristics of the Whole Cohort of 345 Students

A total of 345 students were recruited from four schools. There were more girls (59.1%) than boys (40.9%). Table 4.1.1 shows that 90 students scored 18 and above on the BDI which gives a prevalence of 26.1%. The age range for the whole cohort was 12 to 19 years with mean age of 14.86 ± 1.24 years. The mean BDI score was 11.61 ± 10.23. Sixty girls (66.7%) and 30 boys (33.3%) had scores above 18 on the BDI. Other socio-demographic variables are reported in Tables 4.1.1 and 4.1.2.

Table 4.1.1: Socio-demographic Characteristics of All Participants (Categorical variables)

Variables	Total
	N=345 (100%) n (%)
Gender	
Boy	141 (40.9)
Girl	204 (59.1)
BDI score <18	**255 (73.9)**
BDI score 18 and above	**90 (26.1)**
Class	
SS1	188 (54.5)
SS2	157 (45.5)
Do you do well in school?	
Yes	312 (90.4)
No	33 (9.6)
Religion	
Islam	99 (28.7)
Christianity	246 (71.3)
Family type	
Monogamous	290 (84.1)
Polygamous	55 (15.9)
Marital status of parents	
Married	282 (81.7)
Separated/divorced	63 (18.1)
Living Circumstances (with whom)	
With Parents	255 (73.9)
With Others	90 (26.1)
Brought up by	
Parents	276 (80.0)
Others	69 (20)
Fathers education	
Secondary school education and below	127 (36.8)
Post-Secondary school and above	171 (49.6)
I Don't know	47 (13.6)
Mothers education	
Secondary school education and below	138 (40.0)
Post-Secondary school and above	162 (47.0)
I Don't know	45 (13.0)

Table 4.1.2: Socio-demographic Characteristics and BDI scores of the Whole Cohort N=345 (continuous variables)

Variables	Total N =345 Mean (SD)
Age (years)	14.86 (1.24)
BDI Score	11.61 (10.23)
Number of Mothers' children	3.75 (1.29)
Number of Fathers' children	4.17 (1.82)
Number of people lived with from childhood	0.58 (1.02)
Position among fathers' children	2.45 (1.75)
Position among mothers' children	2.20 (1.30)
Number of students in your class	65.68 (39.59)

4.1.2 Analysis of the Cross-Sectional Survey to Identify Prevalence of Depression and the Socio-Demographic Correlates

4.1.2.1 Socio-demographic Correlates of Depressive Symptoms

The mean BDI score among the boys and girls were found to be 10.06 ± 9.29 and 12.68 ± 10.97 respectively and the difference was statistically significant (p = 0.02). There was a weak but significant positive correlation between the mean BDI score and the number of fathers' children, (r=0.12, p = 0.03). However, there was no statistical relationship between the mean BDI score and class, academic performance, religion, family type, school type (public or private) and other socio-demographic variables (See Table 4.1.3a, b and c).

Table 4.1.3a: Socio-demographic Correlates of Depressive Symptoms in the Whole Cohort N=345

Variables	Mean (SD)	df	t	Confidence Interval		P value
Sex						
Boy	10.06 (9.29)	343	-2.36	-4.81	-0.44	0.02*
Girl	12.68 (10.72)					
Class						
SS1	12.46 (10.46)	343	1.69	-0.30	4.04	0.09
SS2	10.59 (9.88)					
Do you do well in school?						
Yes	11.34 (10.11)	343	-1.49	-6.46	0.90	0.14
No	14.12 (11.19)					
Religion						
Islam	10.96 (10.07)	341	-0.80	-3.38	1.43	0.43
Christianity	11.93 (10.32)					
Family type						
Monogamous	11.47 (10.35)	343	-0.57	-3.82	2.11	0.57
Polygamous	12.33 (9.61)					
School Type						
Public	12.02 (10.50)	343	0.87	-1.23	3.16	0.39
Private	11.05 (9.86)					

*Significant at P < 0.05

Table 4.1.3b: Socio-demographic Correlates with Depressive Symptoms N=345

Variables	Mean (SD)	df	t	Confidence Interval		P value
Living with whom						
Parents	11.73 (10.11)	343	0.37	-2.00	2.93	0.71
Others	11.27 (10.61)					
Brought up						
Parents	11.99 (10.37)	343	1.37	-0.82	4.57	0.17
Others	10.11 (9.58)					
Marital status of parents						
Married						
Separated / divorced	11.29 (9.60)	343	-1.22	-4.54	1.06	0.22
	13.03 (12.67)					
Fathers education						
Secondary school education and below	9.76 (8.49)	343	-0.99	-1.52	1.54	0.26
Post-Secondary school and above	9.68 (9.12)					
Mothers education						
Secondary school education and below	9.80 (8.08)	343	-0.27	-3.42	2.60	0.99
Post-Secondary school and above	11.73 (9.90)					

Table 4.1.3c: Socio-demographic Correlates with Depressive Symptoms (Continuous Variables) N=345

Variables	Pearson's Correlation r	P value
Age	0.03	0.64
Number of students in your class	0.07	0.22
Number of Mothers' children	0.04	0.50
Number of Fathers' children	0.12	0.03*
Number of people lived with from childhood	0.04	0.46
Position among fathers' children	0.10	0.05
Position among mothers' children	0.01	0.79

*P value is significant < 0.05

4.2 Analysis of the 39 students in Phase 2 who completed the baseline SMFQ, COPM, knowledge questionnaire, and WLSQ to examine for association between depressive symptoms and occupational functioning, knowledge of depression and wellbeing measures

4.2.1 Socio-demographic Characteristics of Study Participants in Phase 2

Among the 39 students recruited in Phase 2 of the study, 28 were girls (71.8%) and 11 were boys (28.2%) with a girl to boy ratio of 2.5:1. The age range was between 13 to 18 years and the mean age was 15.33±1.34 years (see Tables 4.2.1 and 4.2.2). The mean BDI score was 30.13 ± 6.14, COPM performance and satisfaction mean scores were 4.45 ± 1.58 and 3.53 ± 1.51 respectively (see Table 4.2.3).

Table 4.2.1: Socio-demographic Characteristics of students in Phase 2 (categorical variables) N=39

Variables	Total N=39 n (%)	χ^2	P value
Gender			
Male	11 (28.2)	0.936	0.48
Female	28 (71.8)		
Class			
SS1	18 (46.2)	0.022	1.00
SS2	21 (53.8)		
Do you do well in school?			
Yes	26 (66.7)	0.821	0.50
No	13 (33.3)		
Religion			
Islam	7 (17.9)	0.117	1.00
Christianity	32 (82.1)		
Family type			
Monogamous	**26 (66.7)**	**6.209**	**0.02***
Polygamous	**13 (33.3)**		
Marital status of parents			
Married	24 (61.5)	0.208	0.75
Others	15 (38.5)		
Living Circumstances			
With Parents	23 (59.0)	0.268	0.75
With Others	16 (41.0)		
Brought up by			
Parents	27 (69.2)	0.011	1.00
Others	12 (30.8)		
Fathers education			
Secondary school education and below	16 (41.1)	2.185	0.70
Post-Secondary school and above	16 (41.1)		
I don't know	7 (17.9)		
Mothers education			
Secondary school education and below	18 (46.2)	3.510	0.62
Post-Secondary school and above	17 (43.6)		
I don't know	4 (10.2)		

*P value is significant

Table 4.2.2: Socio-demographic Characteristics of Participants in Phase 2 (Continuous Variables) N=39

Variables	Total		
	Mean (SD)	t	P value
Age (years)	15.33 (1.34)	-0.87	0.39
BDI Score	30.13 (6.14)	-0.65	0.52
Number of Mothers' children	3.74 (1.53)	-0.39	0.70
Number of Fathers' children	5.10 (2.92)	-0.77	0.45
Number of people lived with from childhood	1.00 (1.43)	-0.44	0.66
Position among fathers' children	3.49 (2.50)	0.41	0.68
Position among mothers' children	2.62(1.41)	1.07	0.29
Number of students in your class	55.00 (30.24)	-1.61	0.12

Table 4.2.3: Depression, COPM, Knowledge Survey and WLSQ Scores of Participants in Phase 2 N=39

Variables	Mean (SD)	t	P value
BDI Score	30.13 (6.140)	-0.651	0.519
SMFQ Score	13.41 (5.174)	1.299	0.202
COPM Performance mean score	4.45 (1.582)	0.607	0.548
COPM Satisfaction mean score	3.53 (1.512)	-0.128	0.899
WLSQ score	47.26 (10.779)	-0.092	0.927
Knowledge survey	11.38 (2.290)	1.615	0.115

4.2.2 Correlates between Depressive Symptoms and Occupational Functioning, Wellness Measures and Knowledge of Depression

Table 4.2.4 shows that for the 39 students in Phase 2, there was no association between depressive symptoms (SMFQ) and Occupational Functioning, Wellness Measures and Knowledge of Depression.

Table 4.2.4: Socio-demographic Correlates of Depressive Symptoms and occupational functioning, wellness measures and knowledge of depression N=39

Variables	Pearson's Correlation r	P value
SMFQ Score	0.27	0.10
COPM Performance mean Score	-0.03	0.84
COPM Satisfaction mean Score	-0.12	0.47
WLSQ Score	0.10	0.53
Knowledge Survey	-0.08	0.65

4.3.1 A Pre-post analysis of the 10 Students who completed the intervention and have data on Baseline and Post-Intervention Outcome Measures.

Depression, Wellness and Life Satisfaction Questions and Knowledge Survey Scores Pre and Post Intervention in One School

Pre and Post-intervention data was available from 10 participants from one school. There was post-test reduction in BDI score in all but one participant. Post-test SMFQ scores were reduced in all participants. WLSQ score increased in all participants and knowledge survey score was found to increase in six of the 10 participants (See Table 4.3.1).

Table 4.3.1: BDI, SMFQ, WLSQ and Knowledge Survey Scores Post Intervention in One Treatment school (N=10)

Participants	BDI score		SMFQ score		WLSQ score		Knowledge Survey	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	41	27	14	9	45	56	12	10
B	38	8	22	5	28	46	12	14
C	35	4	12	5	52	53	12	16
D	29	18	14	14	54	58	11	9
E	29	6	11	7	58	67	12	10
F	28	5	8	4	46	54	10	12
G	28	6	22	13	44	64	7	14
H	25	5	17	9	43	72	16	12
I	24	5	12	9	50	66	16	14
J	21	31	14	9	26	60	8	13
Mean (SD)	**29.8 (6.34)**	**11.5 (10.10)**	**14.6 (4.55)**	**8.4 (3.31)**	**44.6 (10.43)**	**59.6 (7.78)**	**11.6 (2.9)**	**12.4 (2.22)**

4.3.2 Occupational Functioning Scores Pre and Post Intervention in One School n=10

On pre and post comparison, occupational performance and satisfaction mean scores in each selected area increased in all participants. Six and eight participants had a mean score change of two and above in performance and satisfaction respectively See Table 4.3.2a, b, c. Participants identified productivity and leisure as the top five problem areas on the COPM See Figure 2.

Table 4.3.2a: COPM Score of Participants in One Treatment School (n=10)

Participants	Occupational Performance Problems	Importance	Performance		Satisfaction	
			Pre	Post	Pre	Post
A	Attend classes	9	3	6	6	7
	After school work	8	8	8	5	9
	Reading	8	5	9	8	9
	Going out with friends	1	2	5	4	6
	Feeding	2	5	3	9	2
B	Reading	7	6	8	2	7
	Homework	7	5	8	2	8
	Sports	3	4	6	2	2
	Traveling	1	2	2	2	2
	Going out with friends	5	4	5	2	8
C	Reading	5	4	7	2	5
	Craft	7	6	6	3	6
	Sport	4	2	5	1	4
	Homework	6	4	6	1	7
	Feeding	4	3	5	2	4
	Going out with friends	1	1	4	5	2
D	Attending party	1	3	5	7	8
	Shopping	7	1	7	5	9
	Reading	7	8	9	7	9
	Sports	3	5	8	4	7
E	Homework	7	9	10	3	10
	Going out with friends	1	4	6	2	4
	Shopping	1	9	1	4	2
	laundry	10	5	9	7	8
	Reading	5	3	8	2	7

Table 4.3.2b: COPM Score of Participants in One Treatment School (N=10)

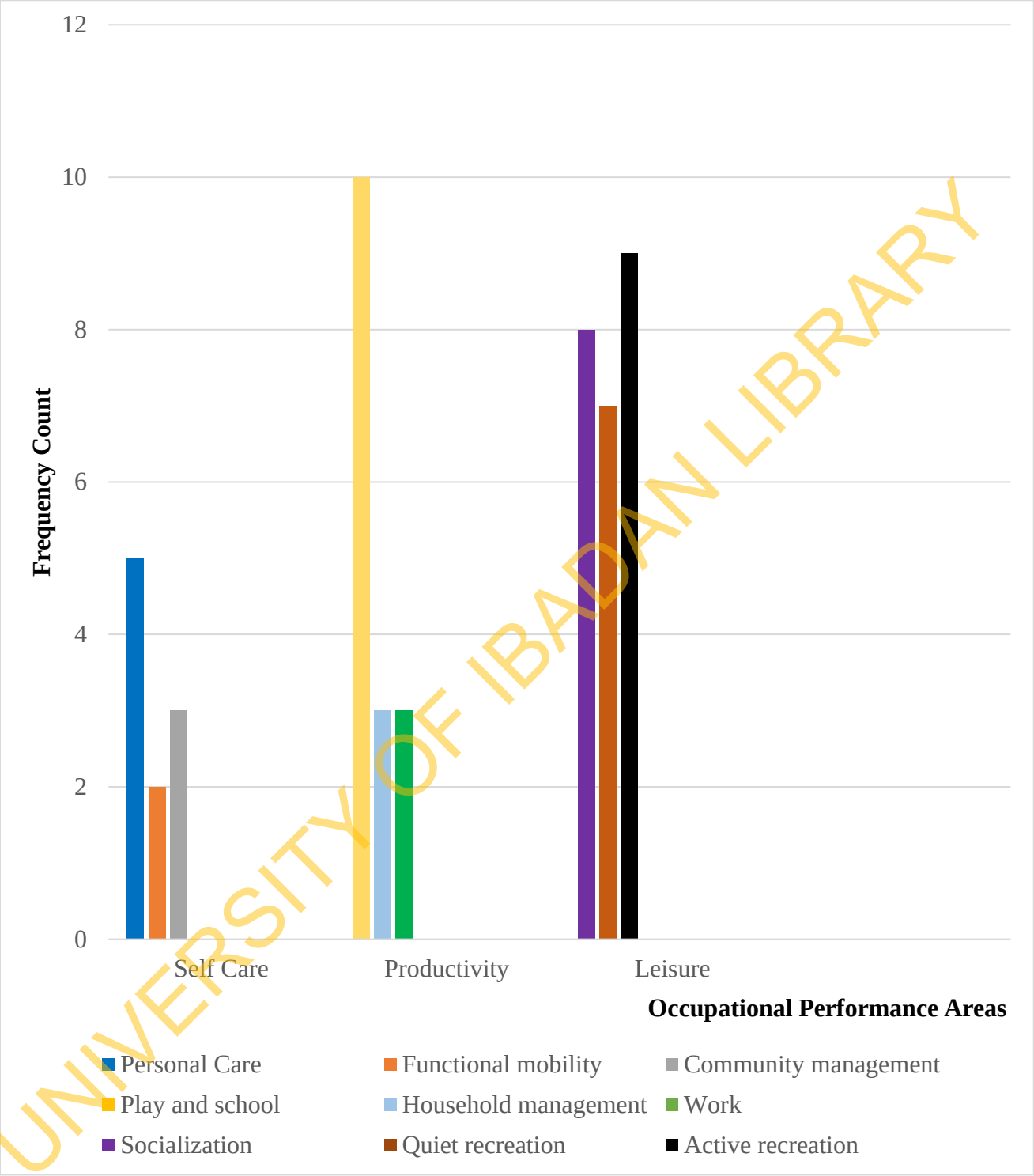
Participants	Occupational Performance Problems	Importance	Performance		Satisfaction	
			Pre	Post	Pre	Post
F	Extracurricular activities	5	5	6	4	7
	Attend classes	7	5	10	5	10
	Going out with friends	5	4	6	5	9
	Outdoor mobility	6	4	6	5	8
	Sport	4	3	5	4	5
G	Homework	9	3	7	2	4
	Crafts	9	3	8	2	5
	Sports	8	4	8	3	5
	Feeding	6	4	9	4	7
	Travel	8	3	8	3	7
	Travel	4	4	8	1	10
H	Going out with friends	7	7	9	2	9
	Outdoor mobility	9	8	10	2	8
	Cooking	9	9	10	2	10
	Sweeping	9	6	8	4	10
I	Going out with friends	1	1	9	1	9
	Attend classes	10	6	10	8	10
	Reading	6	7	10	5	10
	Afterschool work	9	8	10	8	10
	Dressing	8	8	9	8	9
J	Going out with friends	1	1	8	2	8
	Homework	10	2	10	2	10
	Shopping	1	2	10	2	10
	Afterschool work	1	5	10	2	10
	Dressing	10	5	10	2	10

Table 4.3.2c: Individual Score Changes of Performance and Satisfaction (N=10)

Participants	Mean Performance			Mean Satisfaction		
	Pre	Post	score change	Pre	Post	score change
A	4.6	6.2	1.6	6.4	6.6	0.2
B	4.2	5.8	1.6	2.0	5.2	3.2*
C	9.5	5.8	-3.7	1.8	5.6	3.8*
D	3.6	6.6	3.0*	5.6	7.0	1.4
E	6.0	6.8	0.8	3.6	5.8	2.2*
F	4.2	6.6	2.4*	4.6	7.8	3.2*
G	3.4	8.0	4.6*	2.8	5.6	2.8*
H	6.8	9.0	2.2*	5.5	9.4	3.9*
I	6.0	9.6	3.6*	6.0	9.6	3.6*
J	3.0	9.6	6.6*	2.0	9.6	7.6*

*More than two point changes

Figure 2: Chart Showing the Frequency Count Distribution of Occupational Performance Problem Areas of Participants N=10



4.3.3 Depression, Occupational Functioning, Wellness and Life Satisfaction Questions and Knowledge Survey Scores Post Intervention

Further analysis was carried out to determine statistical significant difference. Paired Sample T-test was used to determine the significant difference with level of significance at 0.05. The reductions in BDI and SMFQ scores and increase in WLSQ scores showed statistical significant difference. Although there was an increase in the knowledge survey score, there was no statistical significant difference. See Table 4.3.3.

In addition, the increase in the COPM performance and satisfaction scores in most of the participants showed statistical significant difference, which indicated improvement in occupational functioning. See Table 4.3.3

Table 4.3.3: Paired Sample Test of BDI, SMFQ, WLSQ, Knowledge Survey scores and Occupational Performance and Satisfaction Mean Scores (N=10)

	Mean difference (SD)	df	t	Confidence Interval		P value
BDI Score						
Pre-intervention – Post-intervention	18.30 (11.70)	9	4.95	9.93	26.67	0.001*
SMFQ Score						
Pre-intervention – Post-intervention	6.20 (4.59)	9	4.27	2.92	9.48	0.002*
Performance mean score						
Pre-intervention – Post-intervention	-2.27 (2.69)	9	-2.67	-4.20	-0.34	0.026*
Satisfaction mean score						
Pre-intervention – Post-intervention	-3.19 (1.94)	9	-5.21	-4.58	-1.80	0.001*
WLSQ						
Pre-intervention – Post-intervention	-15.00 (10.59)	9	-4.48	-22.58	-7.42	0.002*
Knowledge Survey						
Pre-intervention – Post-intervention	-0.80 (3.71)	9	-0.68	-3.45	1.85	0.512

*Significant at $P < 0.05$

4.4 Effect Sizes Following the Intervention

The effect size of the treatment on depressive symptoms and occupational performance and satisfaction was computed using the Cohen's d method. The effect sizes on depressive symptoms (BDI and SMFQ scores) were 1.56 and 1.35 respectively. These are large effect sizes. Also, the effect sizes of 0.84 and 1.64 respectively for occupational performance and satisfaction were high. See Table 4.4.

Table 4.4: Effect Sizes of Treatment (N=10)

Variables	N (10)	Effect size Cohen's d
BDI Score		
Post-intervention – Pre-intervention	10	1.56
SMFQ Score		
Post-intervention – Pre-intervention	10	1.35
Performance mean score		
Post-intervention – Pre-intervention	10	0.84
Satisfaction mean score		
Post-intervention – Pre-intervention	10	1.64
WLSQ		
Post-intervention – Pre-intervention	10	1.42
Knowledge Survey		
Post-intervention – Pre-intervention	10	0.22

4.5 Level of Satisfaction with the Intervention among Adolescents in One Intervention School

4.5.1 Level of Satisfaction Rating

The level of satisfaction rating score ranged from 24 – 30 with a mean of 28.8 and a standard deviation of 1.93. The average ratings of the individual sessions ranged from 5 to 10 out of 10. These findings suggest a high level of satisfaction with the sessions. See Table 4.5.1

4.5.2 Emerging Themes from Responses to Level of Satisfaction and Views on School-Based Occupational Therapy Services

Three questions were asked concerning the intervention which were: what did you liked best, what didn't you like and your suggestions to improve the intervention. Majority stated that they liked the games and how it related to helping them cope with stress and control their emotions. None of the participants reported a session that they did not like. However, one participant mentioned that the questionnaires should be reduced. Most of the participants suggested public enlightenment and that the intervention should be carried out in other schools See Table 4.5.2

Table 4.5.1: Individual rating of each session

Session	How useful / how easy to understand Mean (SD)
Session 1 **Introduction and psycho-education**	8.10 (1.73)
Session 2 **Explaining link between emotion and occupational functioning and social participation**	8.50 (1.08)
Session 3 **Activities explaining link between emotion and occupational functioning (Occupational charade)**	9.30 (1.06)
Session 4 **Activities explaining link between emotion and social participation (How to solve a problem)**	8.60 (0.97)

Table 4.5.2: Emerging themes from responses to level of satisfaction (N=10)

Participants	What you liked best	What you didn't like	Suggestions to improve the intervention
A	*We are free to express ourselves.*	*I think there isn't*	*There should be more enlightenment in the public for people who have this problem...*
B	*I like the talk on depression and the causes, the games and so on.*	*I like everything*	*...take it to the public and enlighten parents and guardians*
C	*The game we play, occupational charade*	*Nothing*	*There should be more enlightenment in public…*
D	*The game and interaction we had*	*Nothing*	*...try to talk to us one on one or privately*
E	*The charade game…*	*I don't like to disclose my feelings, I want the intervention to be private*	*You should go to different schools too*
F	*The best of it was the charade game*	*I like everything, I hate nothing*	*There should be more enlightenment publicly…*
G	*I love the 'how to solve a problem' part…it gives us the ability to share things…with our friends and rub minds together...*	*None*	*..minimize the amount of forms to fill*
H	*We are free to say our mind*	*I don't think there is*	*I suggest finding more ways to solve depression...*
I	*I like the game we played…*	*Nothing*	*Help other people…*
J	*I like the game*	*Nothing*	*Nothing*

WORD COUNT: 1081

CHAPTER FIVE
DISCUSSION, RECOMMENDATION AND CONCLUSION

5.0 Discussion

This study was a combination of a cross-sectional survey and a one-group pre-post intervention study. The aim was to determine the effect of a school-based group occupational therapy intervention on depressive symptoms and level of occupational functioning and social participation. The study found that female participants had statistically significant higher depressive symptoms than males. There was no significant association between depressive symptoms and occupational functioning, knowledge of depression and measure of wellness. However, the intervention showed statistically significant reduction in depressive symptoms, and improvement in occupational functioning and social participation with large effect sizes. Participants in the intervention phase reported a high level of satisfaction with the programme. Findings from the study are discussed in three sections.

The first section describes the socio-demographic characteristics, prevalence and correlates of depressive symptoms among the adolescents. The effect of the intervention is discussed in the second section and the participants' knowledge of and satisfaction with the treatment programme, and their views on provision of occupational therapy services in schools in the third section. Limitations and strength of the study are included in other sub-sections.

5.1.1 Socio-demographic Characteristics of Participants

The mean age of the adolescents recruited in the first Phase of the study was approximately 15 years with an age range of 12 to 19 years. Local studies carried out to determine the prevalence of depression in adolescents reported a similar mean age of 15.6 years (Bella-Awusah *et al.*, 2016; and age range between 10 to 19 years (Oderinde *et al.*, 2018). Adeniyi and colleagues found the mean age to be 15.2 years in their study to determine the relationships between depression and

physical activity among urban-dwelling secondary school adolescents (Adeniyi, Okafor and Adeniyi, 2011).

Furthermore, the current study reported that two-third (66.7%) of the cohort are from monogamous homes. This is similar to findings of other studies in the region where most of the participants were from nuclear family settings (Malik *et al.*, 2015; Bella-Awusah *et al.*, 2016). Most of the participants (73.9%) in the current study reported living with both their parents. This is similar to another study conducted in South-eastern Nigeria to determine the prevalence of depression in secondary school students found that almost all (95.4%) of the study cohort lived with their parents (Chinawa *et al.*, 2015). Similarly, in a study from Kenya, majority (77.0%) of adolescents identified as clinically depressed were living with their parents (Khasakhala *et al.*, 2012). These findings could be due to cultural and religious beliefs and practices such that recently, there has seemingly been a reduction in child-rearing practices that involved extended family and other parties.

5.1.2 Prevalence of Depressive Symptoms

The mean BDI score of all recruited participants in this study was 11.61 ± 10.230. This score is slightly lower than reports from other studies. For example, studies from India recorded slightly higher BDI score of 13.2 and 13.7 (Nagendra *et al.*, 2012; Malik *et al.*, 2015) school-going adolescents. In Brazil, Salle and colleagues found a mean BDI score of 14.18 ± 8.5 among 503 high-school adolescents between ages 15 to 17 years (Salle *et al.*, 2012). A study of 2432 adolescents in Norway identified that about one in ten (9.5%) adolescents aged 15 years reached the cut-off of 26 on the Mood and Feeling Questionnaire (Sund, Larsson and Wichstrøm, 2011).

In the current study, significantly more girls in the while cohort who scored above 18 on the BDI than boys. This finding is in keeping with many epidemiological findings both locally and globally. Studies have consistently reported higher prevalence of depression in female adolescents than boys

in both rural and urban settings (Adewuya, Ola and Aloba, 2007; Adeniyi, Okafor and Adeniyi, 2011; Khasakhala *et al.*, 2012; Chakraborty *et al.*, 2016). Other studies have shown that girls report more emotional difficulties than boys (Rescorla, Achenbach and Ivanova, 2007). It has been suggested that the biological changes that occur during puberty may play a role in the higher prevalence of depression in girls (Thapar *et al.*, 2012).

One in four (26.1%) in-school adolescents were found to score above the cut-off for depressive symptoms in this study. In the past decade, findings of the prevalence of depression among adolescents in Nigeria have varied between 9% and 29.5%. In a cross-sectional survey among over 1000 in-school adolescents in a rural setting, the prevalence of depression was reported as 21.2%. (Fatiregun and Kumapayi, 2014). However, Oderinde and colleagues carried out a cross-sectional survey and reported a one-month prevalence of 16.3% (Oderinde *et al.*, 2018).

The prevalence of depression in this study is similar to findings from other countries. In Kenya, in a random stratified sampling of 1276 school-going adolescents, the prevalence of 26.4% was found (Khasakhala *et al.*, 2012). In a systematic review and meta-analysis of literatures between 1991 and 2018, a pooled prevalence of depressive symptoms among Chinese children and adolescents was found to be 22.2% (Li *et al.*, 2019). In Jamaica, 1 in 7 high school students were reported to have depressive symptoms (Ekundayo *et al.*, 2007).

In Northern Europe and United States, there has also been an increase in cases of adolescent depression. In 2011, a life-time prevalence of major depressive disorder of one in four (23%) adolescent was reported in Central Norway (Sund, Larsson and Wichstrøm, 2011). In a National Survey in the US, a 37% increase in 12-month prevalence was observed between 2005 and 2014 period (Mojtabai, Olfson and Han, 2016). Many authors have reported that as many as one in five adolescents will have developed depression at some point (Cook, Peterson and Sheldon, 2009;

Khasakhala, Ndetei and Mutiso, 2012). Variation in the prevalence rate can be due to research methodological and cultural differences (Thapar *et al.*, 2012).

5.1.3 Correlates between Depressive Symptoms and Occupational Functioning, Wellness Measures and Knowledge of Depression

The current study found no statistically significant association between depression and Occupational Functioning, Wellness Measures and Knowledge of Depression. Nevertheless, authorities and researchers have stated that depression can seriously affect adolescents' daily functioning and social participation. Cook, Peterson and Sheldon, (2009) and Flanigan, (2001) mentioned rising concern on the impact of mental health conditions in adolescents affecting domestic activities, social functioning, education and community involvement (Flanigan, 2001; Cook, Peterson and Sheldon, 2009). Lawrence and colleagues carried out a national survey where a severe level of impact on functioning in school or work, friends and social activities, family and self were reported in two-fifth (42.8%) of 4-17 year olds with major depressive disorder living in Australia (Lawrence *et al.*, 2015).

Adolescents in the current study mostly identified that productivity (school, home management and work) and leisure (socialization and recreation) were areas they wanted to improve their participation and satisfaction. Studies have also shown that social participation is usually mostly affected by depression. Marvel and Zimmerman, (2015) highlighted four occupational areas that depression impacts namely home life, school or work, family relationships, and social life.

In a study aimed to determine the impact of adolescent depression on peer, family, school, and physical functioning and the burden on parents, Jaycox and colleagues found that adolescents with depression were significantly more impaired in almost all the domains with their parents also reporting a reduction in the social and family relationships of these adolescents (Jaycox *et al.*,

2009). In addition, Glied and Pine, (2002) found that depressive symptoms are correlated with not only missing school but other risky behaviours such as smoking, bingeing, and suicidal ideation.

5.2 Effect of the Intervention

Compared with pre-intervention scores, this study found significant post-intervention reductions in depressive symptoms, and post-intervention increase in occupational performance and satisfaction, as well as wellness. More than half (6 out of 10) and (8 of 10) of the participants in the intervention had more than a 2-point change in COPM performance and satisfaction respectively.

The findings in this study is in agreement with other studies. Jong-Seo-Lee and colleagues examined the effects of a client-centred small group occupational therapy on depression, anxiety, alienation and suicidal ideation of adolescents at risk of suicide, and changes in occupational performance (Jong-Seo-Lee, Dae-Hyuk-Kang and So-Yeon-Park, 2015). The intervention was implemented for 50 minutes in a 10-week duration. The authors reported a statistical significant reduction in depressive symptoms and increase (improvement) in occupational performance with all but one participant having more than a clinical 2-point change in COPM scores.

A cluster-randomized controlled trial was carried out by Tokolahi *et al.*, (2018) in selected schools in New Zealand to investigate an evidence-based occupational therapy intervention designed to increase participation in daily occupations to prevent symptoms of mental illness (depression and anxiety) for children aged between 11-13 year olds. This intervention took place for an hour per week in 8weeks duration. The findings from the study showed that there was significant improvement in child-rated occupational performance and satisfaction. Teachers' rating on the children's' anxiety was significant improved post-intervention. The COPM satisfaction score was statistically significant, however, a clinical 2-point score change was not achieved.

In a community-based study in the US reported by Knis-matthews *et al.*, (2005), an occupational therapy intervention was incorporated in a residential program for adolescents with any psychiatric diagnosis to help them reach and maintain their highest level of functioning from a psychological, social, behavioural, and emotional perspective. This program was implemented on six female adolescents of ages between 14 and 15 years for an average period of 12weeks. The intervention involved the use of occupation-based activities to achieve participants' treatment goals. Group discussions, one-to-one meetings and trips in the community were also some of the methods used to address treatment goals. The authors reported improvement in self-image, reintegration into family relationships, understanding their illness, improved communication and the development of hobbies, interests and healthy lifestyles. Increase in the wellness measure score was also found to be statistically significant (p value=0.002), along with reduction in symptoms of depression and increased wellness and life satisfaction. Similarly, Moksnes *et al.*, (2016) in a cross-sectional study of 1924 students found that life satisfaction was inversely associated with depressive symptoms using the Satisfaction with Life Scale. Also, Okwaraji, Aguwa and Shiweobi-eze, (2016) reported that 30% of adolescents were dissatisfied with their lives.

5.3 Adolescents' Views on Provision of Occupational Therapy Services in Schools

In this study, all the participants found the intervention to be useful. Overall, there was a high level of satisfaction with the sessions. Participants reported that the intervention was helpful as they have observed better participation and functioning in their daily occupations. This finding was similar to that reported by Knis-matthews *et al.*, (2005) where one of the adolescents in the study was said to be excited about achieving her treatment goals.

Furthermore, participants expressed that the intervention should be made public and introduced in other schools. School-based health services should not only address physical conditions but mental health issues as well. Occupational therapy assessments done in one of the adolescent's natural

environment can help provide information about the functional level and give recommendation on how learning, socialization and independence can be optimized (Mahaffey, 2016). In addition, occupational therapy services can be incorporated into schools (one of the natural environment) of children and adolescents) to support their learning and functioning (Christner, 2015).

5.4. Limitation and Strength of the Study

5.4.1 Limitation of the Study

1. A limitation in this study is the use of screening and not diagnostic tools to select participants with depressive symptoms. The use of a screening tool may have overestimated the prevalence rate. A diagnostic tool could have been included to confirm the diagnosis of depression.

2. Like many cross-sectional study designs, it is impossible to explain causality effects and identify which variable comes first: was depression a cause of poor occupational functioning and social participation? Or was poor occupational functioning a cause to poor wellbeing?

3. Data collection in the other study schools could not be completed due to pandemic lockdown. The COVID-19 pandemic resulted in an immediate shutdown of schools that in return affected the completion of the intervention and collection of post-intervention data in some of the schools.

4. Other outcome measure tools could not be taken on the whole cohort. A richer data could have been available for analysis if the COPM and other tools used in phase 2 were administered in phase 1. Administering COPM in phase 1 to over 300 students would have however required the services of several occupational therapy experts, which was not feasible.

5. This study depended only on participants' responses to all screening tools. A better design would have included feedback from other observers through teachers and or parents rated tools.

6. The sample size used to eventually compute the data was small. A larger-scale research is needed to confirm the effectiveness of occupational therapy intervention identified in this study.

7. The pre-post design of the intervention phase means that in addition to the intervention, other factors such as socially desirable responding can explain the positive findings.

5.4.2 Strength of the Study

1. Findings from this study provides some support for the use of occupational therapy in reducing symptoms of depression.

2. This study provides some evidence to support advocacy for inclusion of occupational therapy services in schools.

3. This study raised curiosity of what occupational therapy is about. Participants, teachers and students wanted to know more about occupational therapy thereby raising the chance for occupational therapists to take more active roles in providing their services in non-clinical setting such as schools.

5.5 Conclusion

In this study, the prevalence of depression was high with 1 in 4 in-school adolescents found to have depressive symptoms. To the best of our knowledge, this is the first study in the country set out to determine the effect of an occupational therapy intervention on adolescent depression. Findings in this study suggest that occupational therapy intervention can help to reduce depressive symptoms and improve occupational functioning and social participation in adolescents.

5.6 Recommendations

5.6.1 Recommendations to the Ministries of Health and Education

1. Periodic screening and intervention in schools should be conducted in order to address the rising prevalence of depression (and other mental health conditions) in adolescents.

2. Inclusion of occupational therapy in mental health services provided in schools. This should include employment of occupational therapists as members of the school health team.

3. Teachers can be trained in the basics of occupational therapy to aid their roles in school.

5.6.2 Recommendation to the Researchers

Larger controlled studies are recommended to further explore the benefits and cost-effectiveness of Occupational Therapy intervention in managing depression in this region.

WORD COUNT: 2351

TOTAL WORD COUNT: 11436

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APPENDIX 1a

Information Sheet for Parents/Guardians

(Date:

Title of project: Effects of a School-Based Group Occupational Therapy Intervention for Adolescents with Depressive Symptoms in Senior Secondary Schools in Abeokuta North Nigeria

What is this about?

Your child is being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve.

Please take time to read the following information carefully and ask us if there is anything that is not clear.

Thank you for reading this information.

What is the purpose of the project?

There is need for this research to better understand and explore the effects of an occupational therapy intervention in the management of depression in adolescents.

The purpose of this research is to determine the effects of an occupational therapy intervention on depressive symptoms and occupational functioning and social participation among school adolescents and to explore their views about occupation and well-being and school-based occupational therapy services.

Why has my child been chosen?

All young people in Abeokuta North who attend public and private secondary schools are being invited to participate. We hope that a total of 400 young people will take part.

Does my child have to take part?

Taking part in the research is voluntary, so it is up to you and your child to decide whether or not to take part. Also you are both free to decide to withdraw from the research at any time and without giving a reason.

What will happen if I agree for my child to take part?

If you are happy for your child to take part, you will be asked to sign a consent form. Your child will be given a questionnaire to complete. The questionnaire will take about 30 minutes to complete. We appreciate the time involved in completing the questionnaire and we will offer your child a pen as a gift.

What are the possible disadvantages and risks of taking part?

Apart from the minor inconvenience of taking a few minutes to complete the questionnaire, we do not envisage any risks or disadvantages to your child. All information collected will be kept strictly confidential.

What are the possible benefits of taking part?

The information we get might help improve our understanding of occupational therapy based management for depression in adolescents.

Who is organizing the research?

The research is organised by _____, a M.Sc. student of the Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria.

Who has reviewed the study?

The protocol for this research will be reviewed by the Research Ethics Committee in Ogun State.

Contact for Further Information

If you would like any further information about the research, please _____

Thank you for agreeing for your child to take part in this study. You will be given a copy of this information sheet and a signed consent form to keep for your records.

APPENDIX 1b

Informed Consent Form (Parent/Guardian)

Title of Research: Effects of a School-Based Group Occupational Therapy Intervention for Adolescents with Depressive Symptoms in Senior Secondary Schools in Abeokuta North Nigeria

This study is being conducted by _____, a M.Sc. student of the Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria. The purpose of the research is to determine the effects of an occupational therapy intervention on depressive symptoms and occupational functioning and social participation among school adolescents and to explore their views about occupation and well-being and school-based occupational therapy services.

This study will be carried out in two stages. In the first stage, your child will be asked to fill two questionnaires. The first will ask questions about age, gender, family etc. The second will ask about some symptoms of stress and depression which young people experience. If your child is selected for the second stage he/she will be asked to fill another questionnaire which asks about their school, house and social activities and about your child identifying areas of problems in daily activities and rating them on a scale of importance, performance and satisfaction. They will then be asked to participate in the programme which will be done with other students with similar experiences where issues like stress, depression and how to cope will be discussed. This programme will take place once weekly for 6 weeks after which they will be asked to fill the questionnaires they had filled earlier again.

We expect your child to be involved in this research for a period of 6 weeks in total. The programme will take 45 minutes to one hour once a week in the school. Your child does not have to answer any question or take part in the discussions during the programme if he/she feels the questions are too personal or if talking about them makes them uncomfortable. The goal of this study is to find an effective way to reduce stress and depression for young people. We hope this intervention programme will be able to achieve that but we are not certain about this.

All information collected in this study will be given code numbers and no name will be recorded. This cannot be linked to your child in any way and his/her name or any identifier will not be used in any publication or reports from this study. We will ask your child and others in the programme not to talk to people outside the programme about what was discussed. You should know, however,

that we cannot stop or prevent participants who were in the group from sharing things that should be confidential. We will not record your child's name and make sure that none of the information given can be linked to him/her by others.

Your child's participation in this research is entirely voluntary. It is their choice whether to participate or not. If they choose not to participate, this will have no effect on them, family members or their education. Your child will not be provided any money or gifts for taking part in the research. However, we will give light refreshments (sweets) and pens to fill the questionnaires. Your child does not have to take part in this research if they do not wish to do so. They may stop participating at any time that they wish.

Statement of person giving consent

I confirm that I have read and understand the information about this project.

I understand that my child's participation is voluntary and that we are free to withdraw at any time, without giving any reason,

I agree that my child may take part in the study.

_____	_____	_____
Name of Parent/ guardian	Date	Signature/ Thumbprint

APPENDIX 2a

Information Sheet for Young People

(Date:

Title of research project: Effects of a School-Based Group Occupational Therapy Intervention for Adolescents with Depressive Symptoms in Senior Secondary Schools in Abeokuta North Nigeria.

What is this about?

You are being invited to take part in a research project to explore the effects of an occupational therapy intervention in the management of depression in adolescents.

Before you decide if you want to join in, it is important to understand why the research is being done and what it will involve for you. So please read this leaflet carefully. Talk about it to your family if you want to.

Thank you for reading this.

Why are we doing this research?

It is important to understand the role of occupational therapy in the management for depression in adolescents.

The purpose of this research is to determine the effects of an occupational therapy intervention on depressive symptoms and occupational functioning and social participation among school adolescents and to explore your views about occupation and well-being and school-based occupational therapy services

Why have I been asked to take part?

All children and young in Abeokuta North who attend public and private secondary schools are being invited to participate. We hope that about 400 young people will take part.

Do I have to take part?

Taking part is voluntary. If you do, you will be asked to sign a form to show you agree. You are free to stop taking part at any time if you change your mind without any problem.

What will happen to me if I take part?

You will be given a questionnaire to complete. The questionnaire will take about 30 minutes to complete. The information will be kept strictly confidential. We appreciate the time involved in completing the questionnaire and we will offer you a pen as a gift.

Is there anything else to be worried about if I take part?

Apart from the minor inconvenience of taking a few minutes to complete the questionnaire, there is nothing else to be worried about.

What are the possible benefits of taking part?

The information we get might help improve our understanding of occupational therapy based management for depression in adolescents.

Who is organising the research?

The research is organised by _____, a M.Sc. student of the Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria

Who has reviewed the study?

Before any research goes ahead it has to be checked by an Ethics Committee. They make sure that the research is OK to do. This project will be checked by Research Ethics Committee in Ogun State.

Contact for Further Information

If you would like any further information about the research, please contact _____

Thank you for taking part in this study.

APPENDIX 2b

Informed Consent Form (Adolescent)

Title of Research: Effects of a School-Based Group Occupational Therapy Intervention for Adolescents with Depressive Symptoms in Senior Secondary Schools in Abeokuta North Nigeria

This study is being conducted by _____, a M.Sc. student of the Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria. The purpose of the research is to determine the effects of an occupational therapy intervention on depressive symptoms and occupational functioning and social participation among school adolescents and to explore their views about occupation and well-being and school-based occupational therapy services.

This study will be carried out in two stages. In the first stage, you will be asked to fill two questionnaires. The first will ask questions about age, gender, family etc. The second will ask about some symptoms of stress and depression which young people like you may be experiencing within the last one month. If you are selected for the second stage, you will be asked to fill another questionnaire which asks about your school, house and social activities and about you identifying areas of problems in daily activities and rating them on a scale of importance, performance and satisfaction. You will then be asked to participate in the programme which will be done with other students with similar experiences where issues like stress, depression and how to cope will be addressed. This programme will take place once weekly for 6 weeks after which you will be asked to fill the questionnaires they had filled earlier again.

We expect you to be involved in this research for a period of 6 weeks in total. The programme will take 45 minutes to one hour once a week in the school. You do not have to answer any question or take part in the discussions during the programme if you feel the questions are too personal or if talking about them makes you uncomfortable. The goal of this study is to find an effective way to reduce stress and depression for young people. We hope this intervention programme will be able to achieve that but we are not certain about this.

All information collected in this study will be given code numbers and no name will be recorded. This cannot be linked to you in any way and your name or any identifier will not be used in any publication or reports from this study. We will ask you and others in the programme not to talk to people outside the programme about what was discussed. You should know, however, that we

cannot stop or prevent participants who were in the group from sharing things that should be confidential. We will not record your name and make sure that none of the information given can be linked to you by others.

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate, this will have no effect on you, family members or your education. You will not be provided any money or gifts for taking part in the research. However, we will give you light refreshments (Sweets) and pens to fill the questionnaires. You do not have to take part in this research if you do not wish to do so. You may stop participating at any time that you wish.

Statement of person giving consent:

Please write "yes" if you agree, or "no" if you do not agree with the following statements:

I have read the Information about this project

I understand what this project is about

I know that I can stop taking part at any time without giving reason

I am happy to take part in the study

Your name _____

Sign _____

Date _____

Thank you for your help.

APPENDIX 3

Socio-demographic Questionnaire
School Health Questionnaire in English & Yoruba

Serial Number: __ __ __ __

Today's Date: __ __/__ __/__ __

Please write the answers to the questions or draw a circle where it applies to you. This is not an examination it is only to find out about you and your health.

Jọwọ kọ idahun si awọn ibeere ti o jẹ mọ ọ, tabi ki o fa igi si abẹ eyi to o jẹ mọ ọ. Eleyii kii ṣe idanwo; a kan fẹ mọ nipa rẹ ati ilera rẹ ni.

SECTION I

Personal Information

1. Name of School (1. Orukọ ile-iwe):

2. Class (2. Kilaasi):

3. Where do you live? (Address of Present Abode):

3. Nibo ni o n gbe? (Ibugbe):

4. What is your date of birth? Date of Birth: _____ _____ _____

4. Kini ọjọ ibi rẹ? Ọjọ ibi: Day Month Year

ọjọ oṣu ọdun

5. How old are you? 5. Ọmọ ọdun melo ni ọ? ____

6. Are you a boy or a girl? (a) boy (b) girl

6. Ṣe ọkunrin tabi obinrin? (a) Ọkunrin (b) Obinrin

7. Do you practise any religion? No Yes

7. Njẹ ẹ manse ẹsin kankan? Bẹẹkọ Bẹẹni

8. Please write down the exact place you attend for worship

8. Kọ ibi ti o ti maa njọsin

_____

(a) Islam (b) Orthodox Christian (c) Pentecostal Christian (d) Traditional religion (e) Other

9. How much does the teaching of your religion guide your behaviour?

9. Bawo ni igbagbọ rẹ ṣe ntọ ihuwasi rẹ?

(a) Very much (b) much (c) Just a little (d) Not at all

(a) O ntọ ọ gan an (b) O ntọ ọ (c) O ntọ ọ diẹ (d) Ko tọ ọ rara

10. How much does the teaching of your religion guide your family life?

10. Bawo ni ẹsin naa se se pataki to ni ẹbi ẹ?

(a) Very much (b) much (c) Just a little (d) Not at all

(a) O ṣe pataki gan-an (b) O ṣe pataki (c) O ṣe pataki diẹ (d) Ko ṣe pataki

Family Information

11. Family Type:

11. Iru ẹbi:

(a) Monogamous (b) Polygamous

(a) Oniyawo kan (b) Oniyawo meji tabi ju bẹẹlọ

12. Number of Mother's Children:

12. Ọmọ melo ni Iya rẹ ni?:

13. Number of Father's Children:

13. Ọmọ melo ni Baba rẹ ni?:

14. What is your position among your father's children?

14. Ipo wo lo wa ninu awon ọmọ baba rẹ?

15. What is your position among your mother's children?

15. Ipo wo lo wa ninu awọn ọmọ iya rẹ?

16. Marital Status of Parents:

16. Ibagbepọ awọn obi rẹ:

(a) Married (b)Separated/Divorced (c) Father is dead (d) Mother is dead (e) Mother & Father are dead

(a) Ṣe wọn gbe pọ? (b) Ṣe wọn ti kọ ra wọn silẹ? (c) Baba ti ku (d) Iya ti ku (e) Iya ati Baba ti ku

17. How many husbands has your mother had?

17. Ọkọ melo ni Iya rẹ ti ni ri?

18. Who do you live with presently?

18. Tani o n gbe pẹlu lọwọlọwọ?

(a) Parents (b) Mother (c) Father (d) Grandparents (e) Grandmother

(a) Awọn obi (b) Iya nikan (c) Baba nikan (d) Iya ati Baba Agba (e) Iya Agba nikan

(f) Grandfather (g) Other [please specify] _____

(f) Baba Agba nikan (g) Awọn Iyoku [Jọwọ sọ nipato] _____

19. Who brought you up from your childhood?

19. Talo tọ ẹ dagba lati kekere?

(a) Parents (b) Mother (c) Father (d) Grandparents (e) Grandmother

(a) Awọn obi (b) Iya nikan (c) Baba nikan (d) Iya ati Baba Agba (e) Iya Agba nikan

(f) Grandfather (g) Other [please specify] _____

(f) Baba Agba nikan (g) Awọn Iyoku [Jọwọ sọ nipato] _____

20. How many different people have you left your parents to live with from your childhood?____

20. Awon eniyan ọtọọtọ melo ni o fi awon obi rẹ silẹ lati lọ gbe pẹlu wọn?____

21. If more than one person, list the people, time spent and whether experience was good or bad?

21. Ti o ba ju ẹnikan lọ, ka wọn, akoko ti o lo lọdọ ẹnikọọkan ati bi o ba dara tabi ko dara?

Person lived with	From which age to which age	Experience (good or bad)
Ẹni ti o ba gbe	Ọmọ ọdun melo ni ọ nigba naa	Iriri rẹ nibẹ (O dara tabi ko dara)
_____	_____	_____
_____	_____	_____
_____	_____	_____

22. Do you do any kind of work to earn money before or after school? Yes No

22. Njẹ o maa nṣiṣẹ lati ri owo lẹhin tabi saaju ki o to lọ si ile iwe? (Bẹẹni tabi bẹẹkọ)

23. If yes, please describe what you do _____

23. Ti o ba je bẹẹni, ṣe alaaye ohun ti o ṣe

_____

24. Level of Father's Education

24. Iwe melo ni baba rẹ ka?

(a) No Formal Education (b) Koranic School (c) Primary School (d) Secondary School

(a) Ko kawe rara (b) Ile-keu (c) Ile-Iwe Alakọbẹrẹ (d) Ile iwe girama

(e) Post Secondary (Non-University) (f) University Degree and above (e) I do not know

(e) Ile-iwe agba (Yatọ fun yunifasiti) (f) Yunifasiti ati ju bẹẹ lọ (e) Nko mo

25. Occupation of Father: [Write the exact occupation] _____/ I do not know

25. Iṣẹ wo ni Baba rẹ n ṣe: [Kọ iṣẹ ti wọn nṣe pato lẹkunrẹrẹ] _____/Nko mo

26. Level of Mother's Education

(a) No Formal Education (b) Koranic School (c) Primary School (d) Secondary School

(a) Ko kawe rara (b) Ile-keu (c) Ile-Iwe Alakọbẹrẹ (d) Ile iwe girama

(e) Post Secondary (Non-University) (f) University Degree and above (e) I do not know

(e) Ile-iwe agba (Yatọ fun yunifasiti) (f) Yunifasiti ati ju bẹẹ lọ (e) Nko mo

27. Occupation of Mother: [Write in the exact occupation] _____/ I do not know

27. Isẹ wo ni iya rẹ nṣe: [Kọ iṣẹ ti wọn nṣe pato lẹkunrẹrẹ] _____

28. Do you like your family? Yes No

28. Ṣe o fẹran ẹbi rẹ? Bẹẹni/Bẹẹkọ

29a. If Yes, Why? _____

29a. Bẹẹni, Ṣe alaye? _____

29b. If No, Why? _____

29b. Bẹẹkọ, Ṣe alaye? _____

School-Related Questions

30. Do you like your school? Yes/ No

30. Ṣe o fẹran ile-iwe rẹ? Bẹẹni / Bẹẹkọ

31. How many children are there in your class?___

31. Akẹkọọ melo ni o wa ni kilaasi rẹ?_____

32. Do you do well academically? Yes No

32. Njẹ o nṣe daada ninu ẹkọ rẹ? Bẹẹni/ Bẹẹkọ

33a. If Yes, explain_____

33a. Bẹẹni, Ṣe alaye_____

33b. If No, explain_____

33b. Bẹẹkọ, Ṣe alaye_____

34. Are you having difficulties with your teachers? Yes No

34. Nje o ni iṣoro kankan pẹlu awọn olukọ rẹ? Bẹẹni Bẹẹkọ

35. If yes, what sort of difficulties?

_____

35. Ti o ba jẹ bẹẹni, iru iṣoro wo ni?

_____

36. Do you have guidance counsellors in your school? Yes No

36. Nje ẹ ni awon Oludamọran Atọnisọna ni ile-Ẹkọ rẹ? Bẹẹni Bẹẹkọ

37. Have you ever gone to see them? Yes No

37. Nje o ti lo sọdọ wọn ri? Bẹẹni Bẹẹkọ

38. If yes, what did you go to see them for?

_____

38. Ti o ba jẹ bẹẹni, ki ni o lọ ri wọn fun?_____

39. If you have a problem at school would you go to the guidance counsellor for help? Yes No

39. Ti o ba ni idaamu ni Ile-Ẹkọ, nje iwọ o lọ ri Oludamọran Atọnisọna? Bẹẹni Bẹẹkọ

40a. If yes, why would you go?

40a. Bẹẹni, Ṣe alaye_____

40b. If no, why not?

40b. Bẹẹkọ, Ṣe alaye_____

41. If occupational therapy services were to be given in school, how often should it be_____

42. Where should It be given?_____

43. When should it be given_____?

APPENDIX 4

Beck's Depression Inventory

Please tick or circle the statement that applies to you in the past 2 weeks (please choose only one answer per question)

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

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.

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 annoyed by things than I used to be.
	1	I am slightly more annoyed by things now than before.
	2	I am quite annoyed or irritated a good part of the time.
	3	I feel annoyed 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 ugly.
	2	I feel there are permanent changes in my appearance that make me look ugly
	3	I believe that I look ugly
15.	0	I can do my 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.
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 the same as 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, lately.
	1	I have lost more than 2 kg or a little weight
	2	I have lost more than 4kg or some weight
	3	I have lost more than 6kg or a lot of weight
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.

APPENDIX 5

Moods and Feelings Questionnaire (7-18)

This form is about how you might have been feeling or acted recently.
Please tick how much you have felt or acted this way in the past two weeks

	0 Not true	1 Some Times true	2 True
1. I felt miserable or unhappy.			
2. I didn't enjoy anything at all.			
3. I felt so tired I just sat around and did nothing.			
4. I was very restless.			
5. I felt I was no good anymore.			
6. I cried a lot.			
7. I found it hard to think properly or concentrate.			
8. I hated myself.			
9. I felt I was a bad person.			
10. I felt lonely.			
11. I thought nobody really loved me.			
12. I thought I would never be as good as other children.			
13. I did everything wrong.			

Score: _____

APPENDIX 6a

Canadian Occupational Performance Measure (COPM)

STEP 1: IDENTIFICATION OF OCCUAPTIONAL PERFORMANCE AREAS

1A: Self-care **2: Importance (1-10)**

Personal care (e.g. dressing, bathing, feeding, etc.) _____ .....

_____ .....

_____ .....

Functional Mobility (e.g. transfers indoor, outdoor) _____ .....

_____ .....

_____ .....

Community Management (e.g. shopping) _____ .....

_____ .....

_____ .....

1B: Productivity **2: Importance (1-10)**

Play and School (e.g. homework, extra lessons, classes etc.) _____ .....

_____ .....

_____ .....

Household management (e.g. sweeping, laundry, etc.) _____ .....

_____ .....

_____ .....

Paid and unpaid work (e.g. after school work) _____ .....

_____ .....

_____ .....

1C: Leisure **2: Importance (1-10)**

Socialization (e.g. going out with friends, attend party, etc.) _____ .....

_____ .....

_____ .....

Quiet Recreation (e.g. reading, crafts, hobbies, etc.) _____ .....

_____ .....

_____ .....

Active recreation (e.g. sports, travel, etc.) _____ .....

_____ .....

_____ .....

3&4: SCORING AND REASSESSEMENT

Five most important problems from those identified above

OCCUPATIONAL PERFORMANCE PROBLEMS

	INITIAL ASSESSMENT		REASSESSMENT	
	PERFORMANCE & SATISFACTION		**PERFORMANCE & SATISFACTION**	
1. _____	……..	……..	……..	……..
2. _____	……..	……..	……..	……..
3. _____	……..	……..	……..	……..
4. _____	……..	……..	……..	……..
5. _____	……..	……..	……..	……..
5: SCORING:	……..	……..	……..	……..

CHANGE IN PERFORMANCE:

CHANGE IN SATISFACTION:

APPENDIX 6b

Canadian Occupational Performance Measure (COPM) score

IMPORTANCE

1	2	3	4	5	6	7	8	9	10
Not									Extremely
Important									Important
At all									

PERFORMANCE

1	2	3	4	5	6	7	8	9	10
Not								Able to do it	
Able								extremely	
To do it								well	

SATISFACTION

1	2	3	4	5	6	7	8	9	10
Not									Extremely
Satisfied									Satisfied
At all									

APPENDIX 7

Knowledge Survey

1. Depression can be caused by stress
    a. True [ ] Not sure [ ]. False [ ]

2. Depression can affect young people too.
    a. True [ ] Not sure [ ]. False [ ]

3. No treatment can make depression better. So the affected person has to just cope with it.
    a. True [ ] Not sure [ ]. False [ ]

4. Identifying the major things that cause stress and how to cope with them can help us improve our mood.
    a. True [ ] Not sure [ ]. False [ ]

5. Doing enjoyable activities cannot affect how we feel in our mood.
    a. True [ ] Not sure [ ]. False [ ]

6. When a person becomes depressed they may stop doing enjoyable activities.
    a. True [ ] Not sure [ ]. False [ ]

7. How we feel in our mood cannot affect how we take care of ourselves and relate with our friends and family.
    a. True [ ] Not sure [ ]. False [ ]

8. Understanding how my mood can affect the way I take care of myself is important. It can help me improve how I function and participate daily.
    a. True [ ] Not sure [ ]. False [ ]

APPENDIX 8

Client Satisfaction Questionnaire (short)

(1) How would you rate the intervention?

Excellent Good Fair Poor

(2) If a friend had a similar problem, would you recommend the intervention to him/her?

Yes definitely, Yes Probably, Probably not, Definitely not

(3) Overall, how satisfied are you with the intervention?

Very satisfied Mostly satisfied Not very satisfied Very dissatisfied

(4) What I liked best about the intervention is _____

(5) What I didn't like about the intervention is _____

(6) My suggestions to improve the intervention are: _____

APPENDIX 9

Wellbeing and Life Satisfaction Questions

1. How much of the time during the past week were you happy?

   Never On One Day On a few days Most days Everyday

2. How much of the time during the past week have you felt sad?

   Never On One Day On a few days Most days Everyday

3. How satisfied are you with how your life has turned out so far?

   Not satisfied Fully Satisfied

   1 2 3 4 5 6 7 8 9 10

4. How much of the time during the past week have you had a lot of energy?

   1 2 3 4 5 6 7 8 9 10

5. I'm always optimistic about my future (agree – disagree)

   Agree Disagree

   1 2 3 4 5 6 7 8 9 10

6. When things go wrong in my life, it generally takes me a long time to get back to normal (agree – disagree)

   Agree Disagree

   1 2 3 4 5 6 7 8 9 10

7. I feel I am free to decide how to live my life (agree – disagree)

   Agree Disagree

   1 2 3 4 5 6 7 8 9 10

8. I generally feel that what I do in my life is valuable and worthwhile (agree – disagree)

   Agree Disagree

   1 2 3 4 5 6 7 8 9 10

9. There are people in my life who really care about me (agree – disagree)

   Agree Disagree

   1 2 3 4 5 6 7 8 9 10

APPENDIX 10

Ethical Approval

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS

ABEOKUTA, OGUN STATE, NIGERIA

Ref No.....HPRS/381/330..... Date.....12/02/2020.....

RE: "EFFECTS OF A SCHOOL-BASED OCCUPATIONAL THERAPY INTERVENTION ON ADOLESCENTS WITH DEPRESSIVE SYMPTOMS IN SENIOR SECONDARY SCHOOLS IN ABEOKUTA NORTH."

Notice of Research Exemption.

This is to inform you that the activities described in the submitted protocol/documents have been reviewed by the State Health Research Ethics Committee, the activities described there-in meet the criteria for exemption and is therefore approved as exempt from SHREC oversight.

The State code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code. The HREC reserves the right to conduct compliance visit to your research site without previous notification.

Please note that, you are expected to share with us the findings of your research work via ogundprs@yahoo.com and olukayodekusimo@yahoo.com

Dr. Olukayode Kusimo
Director, Planning, Research and Statistics
Secretary, State Research Ethics Committe

MINISTRY OF SCIENCE AND EDUCATION, TECHNOLOGY

DEPARTMENT OF PLANNING, RESEARCH AND STATISTICS,
OKE-MOSAN, ABEOKUTA, OGUN STATE, NIGERIA

Our Ref: PL545/VOL.III/168 **Date:** 19th February, 2020

Miss Yewande Christiana Adeniyi
Center for Child and Adolescent Mental Health,
University of Ibadan.
Ibadan

RE: LETTER OF REQUEST TO CONDUCT POST-GRADUATE RESEARCH AMONG SENIOR SECONDARY SCHOOL STUDENTS IN ABEOKUTA NORTH LOCAL GOVERNMENT

I am directed to refer to your letter dated 27th of January, 2020 on the above subject and to convey the approval of the Ministry to you. You are to conduct the research on Senior Secondary School Students in Abeokuta North Local Government.

2. You are requested to furnish the Ministry, through the department of Planning, Research and Statistics, the report of the research work.

3. The Principals will have to inform the Parents of the affected students to be carried along in the process.

4. Many thanks, please.

O. O. Majekodunmi
Director of Education
Planning, Research and Statistics
For: Permanent Secretary

cc: The Zonal Education Officer
Zonal Education Office, Abeokuta North