PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG YOUTHS IN IBADAN NORTH AND EGBEDA LOCAL GOVERNMENT AREAS OF OYO STATE

BY

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DECLARATION

This dissertation is submitted in partial fulfilment for the award of Master of Science degree in Child and Adolescent Mental Health, University of Ibadan.

This study has not been presented to any other university for the award of Master of Science degree or submitted elsewhere for publication.

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CERTIFICATION

I certify that the study reported in this project was done by Mrs. Bukola Felicia ADEOYE of the Centre for Child and Adolescent Mental Health of the University of Ibadan, Oyo State under my supervision

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DEDICATION

This study is dedicated to God almighty and also to my beloved husband and my God-given Heritage.

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KEY TO ABREVIATIONS (Acronyms)

AACAP: American Academy of Child and Adolescent Psychiatry

ANC: Antenatal care

CAC: Christ Apostolic Church

CBT: Cognitive Behavioural Therapy

CHEW: Community Health Extension Workers

CHO: Community Health Officer

DALY: Disability Adjusted Life years

EPDS: Edinburgh Postpartum Depression Scale

HIV: Human Immunodeficiency virus

LGA: Local government area

MCH: Maternal and Child Health

NAMI: National Alliance on Mental Health

NDHS: Nigeria Demographic and Health Survey

NIHCM: National Institute for Health Care Management

SSRI: Selective Serotonin Reuptake Inhibitor

TBA: Traditional Birth Attendants

UNESCO: United Nations educational, scientific and cultural organisation

UNFPA: United Nations Population Fund

WHO: World Health Organisation

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ABSTRACT

Background: Depression is a major mood disorder affecting all age groups across the world. It is more common in women than in men at a ratio of 2:1. Perinatal depression affects approximately 10-20% of women during pregnancy and in the postpartum period which extends to 12 months after delivery. Studies have revealed that the rate of perinatal depression is higher in the adolescent population when compared to the general adult female population. Even though Nigeria has one of the largest youth populations in the world, very little is known about perinatal depression in Nigerian youth. This study set out to explore the prevalence and determinants of perinatal depression in Nigerian youth.

Methodology: This study was a cross sectional survey of 270 pregnant youths aged 15-24 years attending maternity services in Ibadan North and Egbeda local government areas of Oyo State, Southwest Nigeria. The Maternity centres included Adeoyo Maternity Hospital, four Primary Maternity and Child Health Centres and two Church owned Maternity Centres. Depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS). Respondents with scores equal or greater than 12 were scored positive to depression and social support was assessed using the Multidimensional Scale of Perceived Social Support Assessment. Socio-demographic correlates of depression were assessed with adapted Global School Health Questionnaire (GSHQ). Bivariate analysis was done to identify correlates and perinatal depression at 5% (0.05) level of significance.

Results: A total of 270 pregnant youths in the age range of 15-24 years were recruited into the study. The mean age was 19.1± 2.23 years. The results were presented in two sections. Section one presented the respondents as adolescents (15-19 years) and compared them to young adults (20-24 years). Out of the 270 pregnant youths interviewed**,** about 118 (43.7%) of the respondents were aged 15-19 years while 152 (56.3%) were between 20 and 24 years. The respondents were regrouped again into those in the child age range (15-17 years) and older persons aged 18-24 years. Only 27 (10%) of the respondents were within the age of 15-17 years and 243(90%) were between

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ages 18-24 years. More than three quarters (85.2%) of the respondents were educated up to secondary school level and 76.3% were married. The prevalence of perinatal depression in this sample of youths was 20%. Socio-demographic characteristics such as low economic status (p= <0.001) and being single (p=<0.001) were identified as significant correlates of perinatal depression in this sample of pregnant youth. Pearson correlation revealed a negative association between social support scores and depression scores in this sample of pregnant youths (p= r -0.241, p< 0.001). The study also revealed an association between suicidal thought and percieved low social support among respondents (p=0.012).

Conclusions: This study confirms that perinatal depression is a common mental disorder among youths in Ibadan. The study identified low socioeconomic status, being single, living with other relatives instead of the husband and lack of social support from husband, family and friends as common correlates of perinatal depression in this sample of pregnant youth. The author therefore suggests incorporation of screening for depression into routine ANC services in Nigeria.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Depression is a major mood disorder affecting all age groups across the world regions (WHO, 2001). The World Health Organisation (WHO), (2008), reported that depression is the fourth leading cause of disease burden worldwide and is projected to become the second leading cause of burden of disease by 2020 (Ellsberg *et al*., 2008). However, the Global Burden of Disease (2010), identified depression as the leading cause of burden of disease worldwide (Whiteford *et al*., 2013).

Depression is more common in women than men at about a ratio of 2:1 (Kessler *et al*., 2003). Worldwide, it affects 21% of women and 12% of men regardless of race or ethnicity (WHO, 2001).The WHO also noted that depression affects 1 out of every 4 women while the National Alliance on Mental Illness (NAMI) reported that 1 in 8 women will suffer major depression at some point in their life time (WHO, 2001; Byers *et al*., 2010). These findings are in accordance with various studies of depression in women (Kessler *et al*., 2003; Bennett *et al*., 2004). Studies have shown that the hormonal make up of women and changes in level of the hormones across the life cycle, from the onset of puberty through the reproductive years and into the period of menopause, contributes to this observed higher prevalence (McKinlay *et al*., 1987). Other studies have suggested that the higher prevalence of sexual abuse , gender discrimination and genetic make-up of women are other important factors accounting for the higher prevalence of depression in women (Sullivan *et al*., 2014).

Perinatal depression can be defined as depression that occurs during pregnancy, childbirth and within the first year postpartum (Muzik and Borovska, 2010). Perinatal depression occurs either during pregnancy as antennal depression in averagely 15-20% of women or after the birth of a baby as postnatal

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depression in averagely 10-20% of women. It constitutes a significant problem in households around the world as it often co-exists with other medical or mental illnesses such as pain related conditions or anxiety (Muzik and Borovska, 2010). Perinatal depression is more common among economically disadvantaged women with young children and is associated with poor outcomes for the mother, their children and the family (Moussavi *et al*., 2007).

A child is defined as a young individual who is under the legal age of maturity (18 years) (Duhaime *et al*., (1990). The United Nations' Convention on the right of a child also defined a child as a human being below the age of 18 years, unless the laws of a particular country set the legal age for adulthood younger (CRC 1959).

Adolescence as defined by the WHO is a transitional period of physical and psychological human development that generally occurs starting from puberty and ends in adulthood, ages 10-19 years (Thompson *et al*., 2013).

According to the United Nations definition across regions, 'youth' is defined as those persons between the ages of 15 and 24 years (UNESCO, 2015). The term teenager, adolescents, and young person are often used interchangeably. Youth can also be defined as the time of life when one is young, the time between childhood and adulthood (Macmillan Dictionary, 2012).

Youths are a vulnerable group of people with several risk factors for developing depression, especially during pregnancy and in the postnatal period (Thompson *et al*., 2013). This excess risk for depression may be attributed to the fact that adolescence is a period of marked physical and psychological changes and the acquisition of social values (Buchanan *et al*., 1992). Adolescence is a period of many challenges and stressful situations which includes; educational commitment, social activities, sexual development, conflicts with parental instructions, economical problems, and substance abuse and others. (Wichstrøm,

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1999). These challenges may affect personality development, emotions and individual behaviour of the adolescent (Salazar-Pousada *et al*., 2011).

Adolescents are at the stage of transition from childhood into adulthood and are often described as 'no longer a child, but not yet an adult' (Rizzo *et al*., 2006; Lewis *et al*., 2006). According to Eric Erikson and other psychosocial developmental theorists, adolescence is a stage of rapid growth and development, ending at either role identification or identity confusion and this is dependent on several factors (Marcia, 1980).

There are already several changes occurring during the period of adolescence that the addition of changes associated with pregnancy could have a significant impact on the life of the adolescent (Zeiders *et al*., 2015). The pregnant adolescent is more likely to experience some social setbacks, such as dropping out of school, loss of peer relationships, and total disruption in the adolescent's routine life activities. (Zeiders *et al*., 2015). These, together with the physiological changes that occur during pregnancy may predispose to the development of depression in pregnant and newly delivered adolescents (Lara *et al*., 2012; Zeiders *et al*., 2015).

Fourteen million adolescents aged 15–19 years give birth worldwide every year, accounting for more than 10% of all births (Lara *et al*., 2012). Studies have shown that adolescents living in economically disadvantaged environments are vulnerable to becoming pregnant earlier and are also more likely to develop mental disorders such as depression, substance abuse and anxiety (Fisher *et al*., 2012; Stein *et al*., 2014). A study from Mexico among pregnant immigrant adolescents reported a prevalence of 20.4% for perinatal depression (Alvarado-Esquivel *et al*., 2015). Another study reported 25-37% of depressive symptoms among pregnant adolescents and 25-49% in postnatal adolescents in developed countries (Buzi *et al*., 2015). Figures from developing countries revealed 5.2-13.6% perinatal depression among Dominican Republic immigrant adolescent mothers and nearly 3% in those from

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Colombia (Pico-Alfonso *et al*., 2006). Piyasi *et al*. (1998) reported a 23% rate of depression in Thailand teenage mothers aged 18 years and below and 11.9% in the older adult women (Piyasi *et al.*, 1998).

In Nigeria, pregnancy in adolescents is highly prevalent. The Nigeria Demographic and Health Survey (NDHS) revealed that adolescent fertility rates in Nigeria as at 2013 were the highest in Africa, at the rate of 122 live births per 1,000 births (Ajala, 2014). This is majorly due to the high prevalence of child marriages reported to be 28.2% in teenagers aged 15-19 years, premarital sex, poverty and lack of education (Wusu and Amoo, 2015). However, studies are still lacking in the prevalence of perinatal depression in the Nigerian adolescent population. It has been anecdotally observed that most pregnant adolescents do not present for antenatal care in hospitals. Majority seek care from traditional birth attendants and church owned maternity centres, where services are cheap and any form of physical or mental illnesses in mother may not be recorded. This may probably be due to the poor socioeconomic situations of the country and the fact that adolescent pregnancy is unwelcomed in most Nigerian settings (Konje *et al*., 1992).

Perinatal depression in adolescent mothers affects the infants' development, the health of the adolescent/youth herself, and the quality of mother– infant relationship (Muzik, 2010; Meltzer, 2011; (Field *et al*., 2009). The burden of perinatal depression on the mother includes poor nutrition, poor self-care, increased risk of substance use, poor social interaction and relationship and impaired interaction with the infant (Muzik and Borovska, 2010). The negative health impact of perinatal depression on the infant starts from the intrauterine period and could sometimes persist into adolescence. These problems include intrauterine growth retardation, low birth weight, cognitive and emotional developmental delay, poor attachment, delayed language and social skills acquisition, difficult temperament, emotional and behavioural problems in later years (Ramchandani *et al*., 2008). Perinatal depression also impacts on the affected individual's interaction with other members of the family and the burden of caring for the

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depressed member is also a challenge for all other members of the family (Letourneau *et al*., 2012;Walker *et al*., 2015).

1.2 Justification and Relevance of the Study

Nigeria has one of the largest youth populations in the world, with an average of 19.3% of its population as youth, (female 16,732,533) and (male 17,486,117) (Nigeria Demographic Profile 2014). Adolescent pregnancy is highly prevalent in Nigeria. Nigeria is also one of the developing countries of the world and many of its youth are living in socially disadvantaged environment (Okonofua, 1995). The World Bank report (2008) showed that 22.90% of Nigerian adolescents aged 15-19 years have had children or were pregnant (Fatusi and Blum, 2008).

A study on depression among secondary school adolescents in Ibadan revealed 21.2% prevalence of depression (Fatiregun and Kumapayi, 2014). However, no study focussing primarily on perinatal depression among Nigerian adolescents could be identified during literature search. Most Nigerian studies targeted perinatal depression among adult women population. For instance 10% prenatal and 15% postnatal depression was reported in women in Eastern part of Nigeria (Uwakwe and Okonkwo, 2003), while 14.6% was reported among postnatal women in the Western part of Nigeria (Adewuya *et al*., 2006).

Although little has been reported about the peculiarity of perinatal depression among adolescents in Nigeria, studies conducted in other settings have shown some factors such as; socio-environmental stressors, economic instability, early marriages, lack of social support, lack of education, disrupted family settings, unplanned/unwanted pregnancy, as correlates of perinatal depression in adolescents. (Kadiri, 2015).

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Findings from this study are expected to provide some empirical information about the prevalence and correlates of perinatal depression among Nigerian adolescents and population. Ultimately, this study hopes to emphasize the need for integration of mental health services into routine antenatal and postnatal services in our primary health settings where most of our pregnant and parenting adolescents patronise.

This study will also inform the need for training primary care physicians, nurses, midwives, and primary health care workers in the assessment and recognition of depression especially among pregnant adolescents.

1.3 Aim

The overall aim of this study is to determine the prevalence and correlates of perinatal depression among youths in Ibadan.

1.4 Specific Objectives

The specific objectives of this study are to determine the following:

1. The prevalence of perinatal depression among the youth in Ibadan.
2. The socio demographic and obstetrics correlates of perinatal depression among youth.
3. The association that exists between social support and perinatal depression in these youth.

1.5 Primary Outcome Measures

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Prevalence and correlates of perinatal depression, among pregnant youth, within Ibadan North and Egbeda Local Government areas as a representation of the general youth population in Ibadan, using the Edinburgh Postnatal Depression Scale (EPDS).

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CHAPTER TWO

LITRATURE REVIEW

2.1 Definition and Theories of Depression

Depression is a major mood disorder that presents with low mood, loss of interest, or pleasure, decreased energy, feeling of guilt, low self-worth, disturbed sleep, poor appetite and poor concentration which prevents individuals from leading a normal life (Marcus *et al*., 2003; WHO, 2012). It brings about alteration in the mood of the affected individual (Otsuki *et al*., 2008). It is a state of low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and sense of wellbeing (Otsuki *et al.*, 2008).

2.1.1 Theories of Depression

Sigmund Freud's psychoanalytic theory revealed that many cases of depression were due to biological factors, or linked to loss or rejection by parents. He theorised that depression is like grief that occurs as a reaction to the loss of an important relationship, or loss of affection from a significant person. He opined that depression occurs when the individuals super ego or conscience is dominant (Baldwin, 1992).

According to cognitive theorists, depression results from systemic negative bias in the thinking processes, that is, emotional and behavioural symptoms results from cognitive abnormality. Hence, the difference in the thinking of a depressed patient compared to that of a clinically normal individual. For instance, Beck *et al*., (2002) identified 3 major mechanisms he thought were responsible for depression.

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2.1.2 The cognitive triad of negative automatic thinking: These are the three forms of negative helpless and critical thinking typical of depressed individuals. These include; negative thoughts about self, the world and the future. These thoughts occur spontaneously in depressed people. They interfere with the normal cognitive processing of the individual, leading to impairment in perception, memory and problem solving making the person obsessed with negative thought (Beck *et al.,* 2002; De Raedt *et al*., 2006).

2.1.3 The negative self-schemas: Beck believed that depression predisposes the affected individual to develop a negative self-schema. These are set of beliefs and expectations about themselves that are negative and pessimistic. Beck believed that these schemas may be acquired in childhood as a result of traumatic events such as death of parent, or sibling, parental rejection, criticism, overprotection, neglect, abuse or bullying at school or exclusion from peer group (Beck *et al.,* 2002).

The errors in logic: This means faulty information processing; Beck also opined that people with negative schemas are prone to making logical errors in their thinking. They tend to focus selectively on certain aspects of a situation while ignoring equally relevant information. These illogical thought patterns are self -defeating and are capable of causing depression and anxiety. Examples of these illogical thought are arbitrary inference, selective abstraction, magnification and minimisation, personalisation, and dichotomous thinking which are seen in individuals with depression (Beck *et al.,* 2002).

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2.1.4 Learned helpless theory: According to Martin Seligman (1974), a cognitive explanation can be given to depression, called learned helplessness which means, depression occurs when a person learns that their attempts to escape situations makes no difference. As a result of this they become passive and will endure aversive stimuli or environments even when escape is possible. This explains some symptoms of depression such as lethargy, sluggishness, passiveness in the face of stress and loss of appetite (Seligman, 1974).

2.2 Perinatal Depression: Perinatal depression is depression that occurs during pregnancy, childbirth and within the first year postpartum (Muzik, 2010). When it occurs during pregnancy, it is known as antenatal depression and it is reported in 15-20% of women. Depression occurring after childbirth is known as postnatal or postpartum depression which occurs in up 10-20% of women after the delivery of their babies (Wisner *et al*., 2002). Signs and symptoms include; crying without a definite reason, sleeping problems, fatigue, disturbed appetite, loss of enjoyment in activities previously enjoyed, poor mother to child attachment, irritability, mood changes, feeling weepy, exhaustion, bizarre thoughts, headaches and lack of energy (Wisner et al., 2002; Rhodes and Segre, 2013).

2.2.1 Epidemiology of Perinatal Depression

According to the World Health Organisation, it was estimated that more than 150 million people were living with depressive disorders, with approximately 10% of these in Africa (Faisal-Cury *et al*., 2009). Depression accounts for up to 4.3% of the Disability-Adjusted Life Years (DALY). Depression is the 4th leading cause of burden of disease worldwide (WHO, 2008). It is predicted to be the second leading by 2020 and by the year 2030, will become the leading cause of the global burden of disease among

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women in the reproductive age group (Nasreen, 2011). The WHO prevalence of perinatal depression worldwide is 10% during pregnancy and 13% in the postnatal period, with higher figures reported in developing countries at 15.6% (during pregnancy) and 19.8% in the postnatal period (Wawire, 2015; Sikander *et al.*, 2015).

Previous research evidence revealed that at least 13% of women suffer major depressive disorder while pregnant, and about 11-20% in the postnatal period worldwide (O'hara and Swain, 1996). Barrera and Nichols in another study conducted among Spanish speaking immigrant perinatal women in the United states in 2015, found that the prevalence of depression vary from 8.5%–11% during pregnancy and 6.9%–12.9% during the year following childbirth (Barrera and Nicholas, 2015). A previous study among Spanish speaking African/American women also reported up to19.8% of postnatal depression among the women (Martinez-Schallmoser *et al.*, 2003). Other study among Latina immigrant women in the United States and Mexico, reported up to 37% postpartum depression (PPD) (Callister *et al.*, 2011).

In developing countries, a prevalence of 15-28% of perinatal depression has been documented in my frAfrica and Asia generally (Husain *et al.*, 2006), (Wachs *et al.*, 2009). According to other studies; 50% has been reported in Bangladesh (Orr *et al.*, 2002). 28-57% in Pakistan (Kazi *et al.*, 2006) and 35-47% reported in Latin America (Halbreich and Karkun, 2006). Kazi *et al.*, (2006) reported 5% among Nepal women.

Studies from sub-Sahara African countries reported a prevalence of 24.9% in Ethiopia, Tanzania had 39.5%, 39% in Cape Town and 56% in Jamaica (Fisher, Patel & Rochat *et al.*, 2011). A recent study by Manikkan & Burns in South Africa, reported a prevalence of 38.5% in the antenatal women studied. (Abuidhail and Abujilban, 2014).

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In Nigeria, a study conducted by Onwere *et al.* in 2005 where the Edinburgh Postnatal Depression Scale (EPDS) was used, to identify postpartum depression among eastern Nigeria women, it was reported that 23.5% of the women screened positive to depression (Collin *et al*., 2006). In another study, by Adewuya *et al*., a prevalence of 14.6% was found among postpartum women in the south-western part of this country (Adewuya *et al.*, 2005). Another study by Ukpong and Owolabi, (2006) reported a prevalence rate of 18.6% of postnatal depression in Nigeria (Ukpong and Owolabi, 2006). A recent study by Ukaegbe & Bakare reported that 30.6% prevalence among the postpartum Igbo women in the South Eastern Nigeria (Ukaegbe & Bakare 2010).

Numerous studies across the world have documented various prevalence rates of depression in the perinatal period among women. The difference in figures reported may be due to the use of different assessment tools and differences in the settings where the studies were conducted. These high figures reported in various studies across Africa is an evidence that perinatal depression is a serious health problem among women population in Africa (Fisher *et al.*, 2012; Goyal *et al*., 2010).

2.3 Adolescent Development

2.3.1 Adolescence: This is transitional period of physical and psychological human development that generally occurs starting from puberty and ends in adulthood (Thompson *et al*., 2013;McLean *et al*., 2010). Some studies described adolescence as the age of life ranging from13-19 years but according to the WHO, adolescence is the period in human growth and development that occurs after childhood and before adulthood, from age 10 to 19 years (WHO, 2015). The period of adolescence is traditionally divided into 3 stages; early adolescence ages 11-14 years, middle adolescence, ages 15-16 years and late adolescence stage ages 17-19 years (Reese *et al*., 2010). It is a period characterised by physical,

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psychological and socio-emotional changes which makes it unique and different from other stages of human life. (Salazar-Pousada *et al*., 2010; Reese *et al*., 2010).

Young people, youth and adolescents are terms that are often used interchangeably to mean the same thing. However, the most internationally acceptable definition by the United Nations and the World Bank defined youth as persons between the ages 15 and 24 years (UNESCO, 2016). This is also a period of transition from the dependence of childhood to adulthood independence and awareness of our interdependence as members of a community (UNESCO, 2016).

2.3.2 Physical development:

This begins with the onset of puberty, which comes with rapid physical growth of the body. This is triggered by increase in the production of 2 hormones testosterone in males and oestradiol in females, resulting in changes in the body structures, physical maturity and sexual development in both genders (Buchanan *et al.*, 1992).

2.3.3 Cognitive development:

The brain also undergoes a lot of structural and functional changes as the body grows. Certain areas of the brain grow and develop independent of one another during adolescence. The amygdala portion which is responsible for emotional regulation develop earlier at this stage while the cortex, believed to influence thinking and decision making develop later in adolescence. This brings about changes in the thinking capacity of the adolescent from abstract to formal thinking and predisposes them to risk taking

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behaviours which can result in problems such as drug use, teenage pregnancy and sexually transmitted diseases, school failure, school dropouts, depression and suicide. (Commons *et al*., 1984).

Jean Piaget, a developmental psychologist theorised that the hallmark of adolescent cognitive development is the ability to engage in formal operational thinking, this occurs between the ages of 11-16 years. (Kendra Cherry, 2016). This stage involves the ability to understand abstract concepts and the ability to make predictions about future events (Kendra Cherry, 2016). As for Piaget, the ability to perform functions requiring formal operational thinking, such as developing theories and solving abstract problems, marks the transition of a child into adolescence (Saul, 2015).

2.3.4 Socio-emotional development: The environment plays an important role in adolescent development (Oswalt, 2010). Adolescents are influenced by the social environment in which they grow, they model the adults in the environment, and are influenced by what they observe in the environment and the culture of the environment in which they grow. Lev Vigosky, Lorez and Eric Ericson are some of the psychosocial psychologist that theorised on this. As the adolescent develops a sense of identity at this stage they tend to spend more time with their peers and less time with their parents. This greatly affects their behaviours and responses to the issues of life (Jessor, 1993).

These developments in the adolescent bring along with it some identity disturbances and other strong emotions. Although these are developmentally normal and natural, but can be frustrating and confusing for the parents (a period of storm and stress). Some of these problems include; labile emotions, identity problems, peer relationships, independence, testing boundaries and self-centred attitudes (Jessor, 1993; Oswalt, 2010).

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2.3.6 Labile Emotions: Adolescents have rapid mood shifts, vacillating between happiness and distress, self-confidence and worry; they also have identity problems, the adolescent at this period are in search of self, identifying with peers and the society at large. They have unstable sense of self and try out new labels by associating with different peer groups (Jessor, 1993). The identity problems stabilises with time as the adolescent grows older.

2.3.7 Peer Relationships: They prefer their peers perceptions and values over the family's perceptions and values and are often influenced by their peers beliefs and behaviours (Chen et al., 1998)

2.3.8 Independence and Boundaries Testing: Adolescents tend to test parents and teachers boundaries (Gardner and Steinberg, 2005). They engage in some rebellious behaviour, this is believed to be driven by their need to develop autonomy, experience new activities and earn more independence. They also have some self-centred attitudes. This makes it difficult to look at circumstances from other peoples' perspectives. They are not bothered about the feelings of others but are only concerned about themselves. Although these feelings disappear as they grow older into adulthood (Gardner and Steinberg, 2005).

The individual at this stage of life is faced with challenges of making choices in social life, career, romantic relationship, and friendships.

2.4 Perinatal Depression in Adolescents

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Adolescence is a period of preparation for adulthood when several developmental experiences occurs. Besides physical and sexual maturation, these experiences also include movement towards social and economic independence, development of identity, acquisition of skills needed to carry out adult relationship and roles, and the capacity for abstract reasoning (Salazar-Pousada *et al*., 2010). It is a period that the adolescent engages in risky behaviours such the use of alcohol, cigarettes, and other drugs, early initiation of sexual activities, putting themselves at intentional and unintentional risks, unintended pregnancy, and infection from sexually transmitted infections, including HIV (Commons *et al*., 1984). Many also experience a wide range of adjustment and mental health problems (WHO, 2015). Adolescents are not fully capable of understanding complex concepts of the relationship between behaviour and consequences, they have no control over health decision making, including those related to sexual behaviour. This inability may make them vulnerable to sexual exploitation and high risk behaviours, which eventually may result in unplanned pregnancy and other physical and mental health problems (Barry *et al*., 2009).

Adolescent pregnancy is a known health risk factor for both the pregnant adolescent and her child. It has negative impacts on the adolescents' life, increasing the probability of them dropping out of school, school failure, loss of proposed life dreams and peer relationships (Patel *et al*., 2007).

Prevalence of adolescent pregnancy varies substantially among countries (Meltzer-Brody *et al*., 2013). From 2000-2009, worldwide 13 million children were born to adolescent mothers aged 20 years and below and 95% of these occur to adolescents in living in developing countries (Lara et al., 2012; WHO, 2015) Adolescent pregnancy is a public health issue in both developed and developing countries, for example; United States recorded a prevalence of 10% in adolescent girls under the age of 21 years. (Coyne and D'Onofrio, 2012). In 2008, there were 68 adolescent pregnancies per 1000 women. Adolescent pregnancy is more prevalent among black American (22.7%) and Native American Youth

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(20.0%), lower socioeconomic subgroups and those from more chaotic family environments (Rathus, 2001). A report by the World Bank in 2008 recorded 28.90% of Nigerian adolescents aged 15-19 years as either pregnant or have had children (Fatusi and Blum, 2008). The Nigeria Demographic and Health Survey (NDHS) 2013, also reported that adolescent birth rates in Nigeria was 122 per 1000 live births and about as 28.2% adolescents ages 15-19 were already married or living with men, while among those between the ages of 15-24 years, the birth rate was 33.03% (NDHS, 2013). The earlier NDHS, 2000 reported that the birth rates in women, rises with age as 1% was recorded among children ages 10-14years, 13% among ages 15-19 years and 18% of those between the ages of 20-24 years have already had a child (NDHS, 2000).

In addition to dealing with the physical symptoms and body changes associated with pregnancy, adolescent expectant mothers have not yet completed their own maturation in physical, cognitive-emotional, and social realms. They are also combating with identity consolidation, separation, autonomy from parental figures, and social role transitions toward a more organized, mature character configuration. The complex interplay of these factors, confounded by the state of pregnancy may make transition into adulthood particularly challenging and may be responsible for the higher prevalence of depression among adolescents in the perinatal period as reported in various studies (Mistri *et al*., 2000: Beck, 2006).

Depression is one of the emotional reactions to adolescent pregnancy as highlighted by the American Academy of Child and Adolescent Psychiatry (AACAP) (2004). This might be due to different risk factors ranging from unplanned or unwanted pregnancy, poverty and marital difficulties, domestic violence, life stress, age, and substance use. (Lara *et al*., 2015). Some other reasons for this may be

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because some pregnant adolescents have poor self-esteem; some become negative, pessimistic, and feel unloved. They have feelings of anger towards the pregnancy as its advent has brought a disruption into their normal life activities, education continuity and peer relationship (Alvarado-Esquivela *et al* 2010; Lara-Cinisomo *et al*., 2014).

Adolescents at this period while navigating the developmental tasks of adolescence must also adjust to the responsibilities and demands of pregnancy and parenting, often in the context of economic and social disadvantage. Such stressors may contribute to a range of mental health problems that can adversely affect the functioning and parenting behaviour of adolescent mothers and increase the risk of behavioural problems in their offspring (Thompson et al., 2013).

The frequency of depression in the prenatal period among pregnant adolescents is higher than that in the postpartum period, (Figueiredo *et al*., 2007). An earlier study reported 16-44% prevalence of perinatal depression among adolescents (O' Hara &swain 1996). However a study by Samantha and Bledsoe-Mansori (2008) among adolescents reported 10% prevalence in the prenatal and 20%in the postnatal period.

Research findings on pregnant adolescents across countries revealed that adolescents, by virtue of being pregnant, are at greater risk for depressive symptoms than adults or peers who delay pregnancy till a later age (Hudson *et al*., 2000; Samantha and Bledsoe-Mansori, 2007). A study conducted by Campbell-Grossman, (2000) to examine the relationship of depression, self-esteem, loneliness, educational attainment and social support in pregnant adolescents, reported 53% depression scores in the adolescents and that depression was associated with increased feelings of loneliness and decreased social support. (Hudson *et al*., 2000).

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In a study conducted by a group of authors in 2012, among pregnant and parenting immigrant adolescents from developing countries living in Mexico City, a prevalence of 13.6%, moderate and 5.2% severe, postnatal depression was reported (Lara *et al*, 2012). Depression in both prenatal and postnatal period among adolescent mothers is said to be generally higher in developing countries compared to developed countries (Fisher *et al.*, 2011). The reported prevalence of perinatal depression varied widely in the studies reviewed. Previous studies have attributed this disparity to the use of different instruments in the assessment and screening for depression as a reason. Instruments that have been most commonly used include: the Beck's depression scale, Zung self-rated depression scale and the Edinburgh postnatal depression scales. The harsh socioeconomic situation in most low and middle income countries may also account for this (Patel *et al.*, 2011).

Earlier studies have suggested that perinatal emotional distress is rare among women in sub-Saharan Africa, with the supposed intact family structure in the region acting as a protective factor (Adewuya, 2005). But urbanisation has eroded the seemingly intact family structure in Nigeria and the previously perceived low rates of perinatal emotional problems are actually due to the dearth of studies in the region (Adewuya and Afolabi, 2005).

Also, the instruments and scales used to diagnose emotional problems may not be appropriate in sub-Saharan African people, who are known to somatise their emotional problems (Adewuya and Afolabi, 2005). Studies in Nigeria revealed 13% prevalence of prenatal depression in the general women population, another study shows that 11-20% suffers from post- partum depressive symptoms

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(Adewuya *et al.*, 2006). In another study, a prevalence of 14.6% was reported in postnatal women in Nigeria (Adewuya &Aloba, 2009).

The prevalence of perinatal depression is said to be higher in vulnerable groups with certain risk factors, such as being young, single mother, previous history of complication or stress, loss or trauma and substance use, though studies are lacking in the prevalence and peculiarity of perinatal depression in adolescents as a vulnerable group of people in Nigeria. However, it has also been observed that pregnant and parenting adolescents do not seek help even when they are depressed. This may be due to fear of stigmatisation, or denial of their new status as reported in previous studies by Muzik *et al.*, 2010 (Muzik, 2010).

2.5 Perinatal Depression In Adolescents Compared To Older Women Population.

Prevalence of postpartum depression is higher in adolescent population compared to adult women (Rogers *et al.*, 2009). On the average, perinatal depression has prevalence ≤ 20% in adolescents and 10% in older women population according to literature. A study conducted among adolescents and adult Portuguese women in pregnancy (24-36 weeks) and postnatal period (2-3month postpartum). Figueiredo *et al*., 2007 reported a prevalence of 25.9% depression in pregnant adolescents as against 11.1% in pregnant adult women (Figueiredo *et al*., 2007). Also 25.9% in postpartum adolescents and 9.3% in postpartum adult women, using the Edinburgh prenatal depression scale to assess for depression (Figueiredo *et al*., 2007). Hence it was concluded that pregnant and parenting adolescents are at higher risk of becoming depressed. Therefore they need to be targeted for both preventive and intervention measures even more than the adult women.

2.6 Socio-Demographic and other Correlates of Perinatal Depression

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The factors independently associated with depression included being single, divorced/separated, polygamous, having a history of stillbirth and perceived lack of social support, and most especially; hospital admission during pregnancy, female sex of the baby or infant characteristics, preterm delivery, instrumental delivery, Caesarean section and single motherhood (Adewuya *et al.*, 2005). Socio-demographic factors, such as age, socioeconomic status, family structure, family type and functions and relationship, education, marital status, immaturity, lack of family and spousal support, reproductive and general health and history of other mental disorders are some of the identified correlates of depression in pre and postnatal periods among adolescent mothers, according to literature (Adewuya and Aloba 2005).

2.7 Impact of Maternal Perinatal Depression on the Infant

Depression during pregnancy results in a lot of adverse health outcomes in the infants. The WHO in 2008 established the fact that a relationship exist between depression in resource-constrained settings lower infant birth weight, higher rates of malnutrition, stunted growth, higher rates of diarrhoeal disease, other infectious illness, hospital admissions and non-completion of recommended immunization schedules for children (WHO, 2008; Muzik, 2010). Perinatal depression also has some adverse effects on the cognitive, social, behavioural and emotional development of children as supported in a study conducted by Norbeck *et al.,* (1996). Another study by Field *et al*., (2006) also confirms this. Flynn et *al*., (2003) also added that adolescents who engage in adverse health behaviours such as smoking and alcohol use, during pregnancy expose their babies more to negative health outcomes (Flynn *et al*.,2003). Other research findings have linked maternal depression to impaired development in infancy and behavioural problems in the childhood and adolescence for children, whose mother has a history of depression (Chaudron, 2003; Beck 2006; Earls. 2010).

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Infants of depressed women are said to have higher rates of growth retardation compared to those whose mothers have no mental health conditions (Field *et al*., 2006). Infants of depressed mother also have 5 or more diarrhoea episodes per year. The possible mechanisms of how maternal depression affects infant growth and illness include a less healthy life- style and reduced care-seeking behaviours by the depressed women in the prenatal period (Field *et al*., 2006).

Depression in the postnatal period may also result in deficient physical care, emotional care and psychological stimulation of the infant by the mother (Field *et al*., 2006). Infants of depressed mothers were less likely to be fully immunized at 12 months compared with infants of non-depressed mothers; this indicates a lack of appropriate health-seeking behaviour in depressed mothers. Maternal childcare behaviours such as hand-washing before feeding the baby, safe food preparation and storage, and the use of clean drinking water for the baby which could be compromised in depressed mothers, due to lack of energy, lethargy and loss of interest are more likely to increase the risk for diarrhoea episodes in these children (Rahman *et al*., 2004) .

The situation is not different in Nigeria, as it was also found that children of depressed mothers are likely to have stunted growth, as a result of abrupt stoppage of breastfeeding in accordance with a Yoruba belief, that mental illness is transmissible through the breast milk, this could result in infant malnutrition. Poor cognitive development is also a problem as depressed mothers are not emotionally available and they also psychologically deprive their babies (Adewuya *et al*.,2008).

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Infants of depressed mothers are more likely to have a difficult temperament as well as cognitive and emotional delay because depression in postpartum is linked to increased risk of poor mother-infant attachment, hence delay in cognitive, emotional and linguistic skills in the infants, and subsequent risk for behavioural problems in later life of the child (Muzik, 2010). This can be explained by the attachment theory, which predicts that infants development is influenced by the availability and responsiveness of their caregivers based on repeated experiences with them (Muzik *et al.*, 2010). Numerous studies have found an association between maternal depression and insecure attachment in young children (Pearson *et al.*, 2013; JAMA, 2013).

2.8 Impact /Burden of Pregnancy on the Adolescent Mother

Most pregnant adolescents may not seek proper medical care throughout the pregnancy period, and this may lead to increased risk of medical complication such as increased risk of preeclampsia, prolonged obstructed labour and other birth complications (Swierzewski, 2000; Muzik *et al*., 2010). The risk of death is also present, as the adolescent is not physiologically ready for pregnancy owing to physical immaturity of the body systems (Swierzewski, 2000). There is also an increase (25%) risk of neonatal and post-neonatal infant death, and this may further predispose adolescents to increase risk of post-partum depression (World Health Statistics, 2009; Baltag, 2009).

Pregnancy is generally a crisis period for the pregnant adolescent. She lacks knowledge about this new occurrence and may react to the changes in her body in numerous ways including anger, guilt and denial. Some, may not want the babies, while some may view the pregnancy as an achievement and will not recognised the impending responsibility of caring for the baby, some of them may wish to keep

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the baby to satisfy or please their parents, some may initially love to keep the baby for love, but the unending demands and cues of the baby may become so overwhelming and can destabilise the adolescent (Aruda *et al*., 2010). Furthermore, some adolescents may develop anxiety, and fears about the future. Others may become irritable and start to show symptoms of depression (Aruda *et al*., 2010; American Academy of Child and Adolescent Psychiatry (AACAP), 2012).

Other problems faced by pregnant adolescents include humiliation from friends and family (which could prevent them from seeking antenatal care on time or at all during pregnancy), poor antenatal care, risky behaviours, fatigue, loss of functioning, disturbed sleep, and use of drugs including cigarette and illicit drugs (Finlayson, 2013).

2.9 Management and Care of Perinatal Depression in Pregnant and Parenting Adolescents.

Management of perinatal depression involves initial screening of women (adolescents and adult) in perinatal period for depression in primary care and antenatal care settings. This can help to identify depression earlier in both pregnant and parenting women. Studies have identified proper screening as a beneficial impact on the management of depression. There is also a need for collaborative relationships between primary care and mental health providers and longitudinal case management of cases (Gjerdingen *et al*.,2007) .The bio psychosocial model or approach of management which include the use of some evidenced based psychosocial interventions such as, psychoeducation, counselling, interpersonal psychotherapy, cognitive behavioural therapy (CBT), family therapies, and psychodynamic psychotherapy have proven to be highly effective in up to about 80-90%, worldwide (Meltzer-Brody, 2011; Dennis & Hodnett, 2007).

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Pharmacotherapy: In cases of severe depression, previous history of other mental illness or in patient with positive suicidal tendency, antidepressant is advocated with co-monitoring between the obstetricians and the psychiatrists (Bennett et al 2004). The current and common medication of choice for the treatment of perinatal depression is the use of selective Serotonin Re-uptake Inhibitors (SSRI). This is because (SSRIs) have been proved to be effective and safe for both pregnant and newly delivered mothers with depression, except for mild withdrawal symptoms and possible breathing difficulty that may be observed in new-borns. Examples of these SSRIs include Fluoxetine and Sertraline. The risks and benefits of the medication should be discussed between the pregnant women and the physician (Bennett *et a*l., 2004; Meltzer-Brody, 2011).

Nurses have been identified as frontline practitioners that should be trained to identify, diagnose and offer psychological interventions for depression and other common mental health disorders especially in adolescents and youth. They have the opportunity to assess depression in this vulnerable population by the nature of contact have with young mothers during antenatal and postnatal care (Conneelly *et al*., 2007).

WHO and UNFPA also recommend education and training for healthcare providers and the development of a policy framework as some important strategies that should be adopted to address maternal mental health problems in low and middle income countries (O'Hara and McCabe, 2013).

2.10 Relevance of the study

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The study will add to the body of knowledge in Child and adolescent mental Health services in Nigeria. It will inform decision on the need for training of more CAMH professionals and incorporation of CAMH services into our health care delivery system at all levels in Nigeria.

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CHAPTER THREE

METHODOLOGY

3.1 Study Site Description

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Nigeria is a developing country in the sub-Saharan region of Africa with one of the largest youth populations in the world. Approximately one in every five persons (19.3%) in Nigeria is a youth aged 15-24 years with 16,732,533 females and 17,486,117 males (Nigeria Demographic Profile 2014). Oyo state is one of the 36 states in Nigeria and it is located in the Southwest region. The capital of Oyo state is Ibadan.

Ibadan is the third largest city in Nigeria, with a population of about 2,949 million people (NDP, 2014). It has a geographical area of (3,080km^2), with 11 local government areas (LGAs) out of the 33 LGAs in the state.

Table 3.1: List of LGAs in Ibadan

S/N	Urban LGA	S/N	Rural/Semi urban LGA
1	Ibadan North East	7	Iddo
2	Ibadan North West	8	Lagelu
3	Ibadan North	9	Egbeda
4	Ibadan South East	10	Akinyele
5	Ibadan South West	11	Ona-Ara
6	Oluyole		

Two LGAs were used for this study, one urban, Ibadan North LGA and one rural/semi urban, Egbeda LGA. These two LGAs were purposively selected because the health facilities within them were well known to the principal investigator. Also because a hard- to- reach group of individuals were being sought for, in the study and prior information given to the investigator was that pregnant youth could be found in these centres.

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Ibadan North LGA is one of the urban LGAs in Ibadan. It comprises 12 wards and has its headquarters in the Agodi area of Ibadan. It has a population of 306,795 (NPC 2006). The male population is given as 153,039 and female population as 153,756 (National Bureau of Statistics 2006). This LGA consists of multi-ethnic nationalities predominantly the Yoruba, with smaller numbers of Igbo, Edos, Urhobos, Itsekiris, Ijaws, Hausas and Fulanis. The health centres in Ibadan North LGA include:

1. Adeoyo Maternity Hospital,
2. Ibadan North Health Centre Idi - Ogungun Agodi-gate,
3. Oluwo-nla Maternity Centre,
4. Sango - Akorede Maternity Centre,
5. Sabo Maternity Centre,
6. Agbowo Maternity Centre,
7. Samonda Maternity Centre,
8. Yemetu Maternity Centre,
9. Kola Daisi Foundation for Primary and Community Health, Primary Health Centre
10. Barika Maternity Centre.

Egbeda local government area is a rural/semi urban sector in Ibadan. The headquarters is located in Egbeda town, a rural town in Ibadan along the Ife-Ibadan express way. It has an area of 191km^2 and a

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population of 319, 388 according to the 2006 census report. It is subdivided into 11 wards, (4) four urban and (7) seven rural (NPC, 2006). The LGA majorly consists of the Yoruba ethnic group who are farmers, traders, primary and secondary school teachers. The PHCs in Egbeda LGA include:

1. Alakia-Olode model PHC
2. Kajorepo PHC,Kukumada, Egbeda
3. Egbeda Akintayo PHC, Egbeda village
4. Oseegere PHC, Egbeda
5. Olodo community PHC, Kumapayi

3.2 Study Location

Some health facilities were purposefully selected from Ibadan North and Egbeda LGAs. These were chosen based on information that adolescents may be found in these centres. Three government owned maternal and child health (MCH) centres were used as study location in Ibadan North. Four facilities were used in Egbeda LGA and they included two government owned MCH centres and two church-run maternity centres.

3.2.1 Ibadan North LGA

The three facilities used in Ibadan North LGA were; Adeoyo Maternity Hospital, Ibadan North PHC Idi Ogugun and Kola Daisi Foundation Centre for Primary and Community Health (KDFCPCH).

1. Adeoyo Maternity Hospital is the oldest maternity hospital in Nigeria, established in the year 1927 (Ozuola, 2015). It provides primary and secondary medical care with over 4000 deliveries each year. It is located in the Yemetu area of Ibadan North LGA of Oyo state. There are

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antenatal booking clinics on Wednesday and Friday every week and routine antenatal clinics run on Monday, Tuesday and Thursday of every week. An average of 50-60 new women register for antenatal care (ANC). The thrice weekly antenatal clinic attendance is about 100 patients per clinic.

2. Ibadan North Primary Health Centre, Idi-Ogungun Gate Ibadan is one of the functioning PHC within Ibadan North LGA. There are ANC booking clinics every day and the routine ANC runs every Tuesday and Thursday. An average of 10-15 women register for ANC each week and about 20 women attend the ANC on each antenatal clinic day. Apart from the ANC that run every Tuesday. Mental health professionals from the University College Hospital also come to this PHC to conduct outpatient clinic for previously diagnosed mental health patients in the centre.
3. Kola-Daisi Foundation Centre for Primary and Community Health is a PHC founded by Chief Kola-Daisi, a philanthropist in Ibadan. It is being managed in partnership of the University College Hospital, Chief Kola-Daisi and the Ibadan North LG. It was built to provide PHC for the people in the Yemetu Community and its environs. The facility has a booking clinic on Monday with an average of 5 women registering for ANC each week. The ANC runs on Tuesdays and about 15-20 pregnant women attend ANC clinic every week.s

3.2.2 Egbeda LGA

1. Alakia-Olode Primary Health Centre is the most patronised PHC in Egbeda LGA, according to records. A booking clinic runs every day and ANC follow up holds on Tuesday every week. About 15- 20 new pregnant women are seen on weekly basis while up to 50 women attend the follow- up ANC each week.

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2. Kajorepo PHC, Kukumada Egbeda is a functioning PHC in Egbeda LGA. There are booking clinics every day and ANCs conducted every Thursday from 8 am. About 15-20 pregnant women are seen averagely every Thursday.

Typically, a maternity centre within the study location has a waiting area where all patients are received and where they listen to health talk and other instructions from the health workers, a record room where all case notes and records of patients are kept, nurses- station where the nurses, midwives and community health workers sit to attend to the patients, a room with at least a couch for physical examinations, treatment room where the pregnant women receive tetanus toxoid injections and other treatments, consulting room where the doctor attend to patients, laboratory for blood and urine tests.

Most maternity centres within Ibadan North and Egbeda LGA run a 24 hour services, but the booking and routine antenatal clinics are scheduled for specific days in the week. Regular clinic starts at 8 am and closes at 4pm while deliveries and emergencies are attended to around the clock.

Professionals that work within the maternity centres include Doctors, Nurses/midwives, Community Health Officers (CHOs), Community Health Extension Workers (CHEWs), Health assistants, Health attendants and other ad hoc staff.

Various kinds of illnesses are treated in the health centres such as Malaria, Hypertension, Diabetes, Gastroenteritis and others. The pregnant women are attended to in the maternity section of the centres. Some of the pregnant women seen in the antenatal clinics are adolescents. Some of them are accompanied to the clinics by their mothers, guardian/aunts or other relatives and some come alone to the clinics.

Church owned Maternity Centres

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1. Christ Apostolic Church (CAC), Oke Ibukun maternity centre is owned by a CAC church at Alakia Isebo area. The maternity programme is coordinated by the wife of the owner of the church. Prayer programmes are conducted for pregnant women every Tuesdays and thereafter the programme coordinator conducts ANC clinics for the pregnant women. Women return to the centre when in labour and were attended to by the coordinator. The centre runs for free except that women bring the items needed for delivery when in labour.
2. Christ Apostolic Church maternity centre, Baba mogo, Asejire Olukeye area of Egbeda LGA. A prayer programme for pregnant women runs in this centre, once weekly, and the women come for delivery when in labour and were being attended to by the owner of the church and his wife. The maternity/mission home runs free of charge, women are only asked to bring their delivery items when in labour.

3.3 Study Design

This study was a facility based cross- sectional survey of pregnant youth attending the selected facilities for ANC.

3.4 Study Population

All Pregnant youth presenting to the selected Maternity Centres and Mission Homes in Ibadan North and Egbeda LGAs, for booking and antenatal follow up visits.

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3.5 Inclusion criteria

- Pregnant youth between 15 and 24 years
- Pregnant youth who provided written informed consent

3.6 Exclusion criteria

Pregnant youth with severe medical or gynaecological illnesses who were too ill to participate

3.7 Sample Size Calculation

Sample size for this study was calculated using the formula:

$$N = \frac{Z\alpha^2 pq}{d^2}$$ by Kish L (1965), formula for estimating single proportions

Where:

N = the estimated minimum sample size

Zα = the standard normal deviate or corresponding confidence interval

p = an estimate of the proportion being measured, based on prevalence obtained in similar studies

q = 1-p

d = level of precision or margin of error acceptable for the proportion being estimated

The confidence interval was set at 95% which corresponds to 1.96 standard normal deviate while the level of precision was set 5% (0.05). Using 20.4% prevalence of perinatal depression based on reported prevalence among Mexican immigrant adolescents and 10-20% among a general women population that included adolescents in Nigeria, a prevalence of 20% (0.02) was estimated for this study (Alvarado *et al.,* 2005; Adewuya *et al*., 2005).

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Thus, sample size was calculated as follows:

$$N = \frac{(1.96)^2 \times 0.2 \times (1-0.2)}{(0.0.5)^2}$$

$$= 245.88$$

Provision was made for a 10% (0.01) non-response rate. Hence:

$$N = (0.01 \times 245.88) + 245.88$$

$$= 270.468$$

This was approximated to a minimum sample size of 270

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3.8 Sampling Technique

This study utilized a multi-stage sampling technique:

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Stage 1: One urban and one rural LGA respectively were purposively selected. This was to make provision for the socioeconomic diversity of the two settings and also to make the findings from the study more generalizable.

Stage 2: Three Maternity centres from Ibadan North LGA (Urban), two Maternity centres from Egbeda LGA (semi urban/rural) and the two Church owned Maternity centres, where access and permission were voluntarily given by the coordinators for collection of data from Egbeda local government area. These facilities were purposively selected based on information that pregnant adolescents could be found in the centres.

Stage 3: A purposive sampling method was utilised to recruit all pregnant youths aged 15-24 years encountered in the selected Maternity Centres and the Church owned Maternity Centres who met the inclusion criteria of the study. At recruitment of participants, only 118 pregnant youths aged 15-19 years were encountered and recruited into the study as against 152 older pregnant youths aged 20-24 years, recruited into the study. This amount to a total of 270 pregnant youths recruited into the study.

3.9 Study Instruments

The following instruments were translated into Yoruba language, the predominant language in the study area and were used to collect information from the respondents (See Appendix B).

a) Global School Health Questionnaire (GSHQ), a semi-structured questionnaire utilised and validated for use in Nigeria by Omigbodun *et al*., 2008, was adapted to suit the study and utilised to collect the socio-demographic data, personal, family, and other social and antenatal related data. Specific data collected include respondent's age at last birthday, age at marriage, address, marital status, who the respondent lived with when they were younger and who they

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were living with as at the time of the study, level of education, occupation, occupation of spouse and age at first pregnancy. It was a 23-item questionnaire consisting of both close ended and open ended question. Antenatal related questions such as age of pregnancy at booking, ANC follow up attendance, Tetanus Toxoid vaccination status and health challenges in the pregnancy period, were also included in this section of the questionnaire.

b) The Edinburgh Postnatal Depression Scale (EPDS). This instrument has been previously validated for use in Nigeria by Uwakwe and Okonkwo, (2003) and later by Adewuya *et al*., (2006). It is a 10- item questionnaire used to screen for depression in both pregnant and delivered women. The EPDS was utilised to assess for depression in the pregnant youths. A cut-off score of ≥12 was selected, as this reportedly correlates with the presence of moderate to severe depression (Adewuya, 2007; Nwakwe, 2003). The EPDS when validated in Nigeria as a screening instrument for perinatal depression by Adewuya *et al*., (2006) was reported as a valid and useful instrument to assess depression in pregnancy among Nigerian women. The study reported a sensitivity of 1.000, specificity of 0.961 (Adewuya *et al*., 2006).

c) Multidimensional Scale of Perceived Social Support Assessment by Zimet *et al* (1998). This is a 12- item assessment tool which measures respondent's perception of support received from family, friends and other members of the society. It is rated on a 7-point likert scale of: "very strongly disagree", "strongly disagree", "mildly disagree", "neutral, mildly agree", "strongly agree", "very strongly agree" and scored 1-7 in that order. Hence, the total obtainable score is 84 and graded as follows:

- 69 – 84 high perceived social support
- 49 – 68 moderate perceived social support
- 12 – 48 low perceived social support

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For the purpose of this study, the 7 point scale was modified and collapsed to a 5 point scale as: "strongly disagree", "disagree, neutral", "agree" and "strongly agree" and scored 1-5 in that order. Hence, total obtainable score was 60 (Zimet,*et al*.,1998). This instrument was validated for use in Africa by Robert *et al*., (2014) as an instrument to study the relationship between perceived social support, intimate partner violence and antenatal depression. The study was conducted among women in Malawi (Robert *et al*., 2014).

Using the lower class boundary of each category and the total obtainable score in the original scale to obtain a proportion, the lower class boundary of the modified scale was calculated as follows:

$\frac{69}{84} \times 60 = 49$

$\frac{49}{84} \times 60 = 35$

$\frac{12}{84} \times 60 = 9$

Hence, respondents' perception of social support was categorized as follows:

- 49 – 60 high perception of social support
- 35 – 48 moderate perception of social support
- 9 – 34 low perception of social support

3.10 Pre-test

Prior the commencement of the study, a pre-test was conducted to test the instrument. This was conducted among 20 pregnant youths aged 15-24 years which is (5.5%) of the estimated sample size. The participants for this were selected from a maternity centre outside the study location.

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Respondents were able to answer the questions in the instrument, clearly and they expressed no difficulties. Participants in the pilot study were not included in the final study. The socio-demographic characteristics of the respondents in the pilot study are presented in the table below.

Table 3.1: Socio-demographic characteristics of the respondents

N=15

Variable	Frequency	%
Age		
≥ 19 years	2	13.3
20-24 years	13	86.7
Level of education		
Primary and below	1	6.7
Secondary and above	14	93.3
Marital status		
Single	1	6.7
Married	14	93.3
Employment status		
Earning income	12	80
Not earning income	3	20

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3.11 Ethical Considerations

Ethical approval was obtained from the Oyo State Research and Ethics Review Committee, Ministry of Health Secretariat, Ibadan.

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Confidentiality of Data

Each respondent was interviewed separately and in a secluded area within the antenatal clinic sections of the Maternity Centres. Participant's data were kept confidential. Participants' names were not included at any point on the questionnaires, but each of them was identified by a number code. The participants' identity and the codes were also kept secure by the investigator.

No forms of identification will be used in subsequent publications arising from study.

Informed Consent

The research protocol was explained to participants (and their caregivers) in either Yoruba or English language depending on their preference at each study site. The consent forms and questionnaires were also translated into Yoruba language which is the predominant language in the study population area. This was to ensure that participants who could not communicate in English were privy to information sufficient to make an informed decision of whether or not to participate in the study.

Efforts were made to ensure that participants were not coerced to participate in the study.

Verbal assent was gotten from participants below 18 years, who had no legal competence to give informed consent while a written consent or Thumbprint was obtained from their caregivers and from participants above 18 years.

Beneficence to the Participants

Respondents, who screened positive to depression with scores ≥ 12, benefited from free, psychological interventions (counselling and psycho-education) initially at the point of data collection. Their data was later handed over to the medical officers of health in the centres, for further screening and follow up

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and for other required psychological and pharmacological interventions (depressed participants were identified by their phone numbers and maternity centres). Others were referred to the mental health professionals from the University College Hospital Ibadan that visit some of the centres periodically. Those seen in the mission homes were handed over to the coordinators of the prayer programmes, who have been briefly educated on counselling and to refer such members to health facilities nearby.

Non-maleficence to participants

The participants were not exposed to any harm throughout the study period. No invasive procedure was carried out on them and the interview sections were as precise as possible.

Voluntariness

Participation in the study was completely voluntary and participants were given the option to withdraw their participation at any time during the course of the study.

Due inducement such as detergents, soft drinks and snacks were offered to the participants as incentives for participation.

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3.12 Data Analysis.

All data were coded and entered into the Statistical Package for Social Sciences (SPSS) version 22 for analysis. Data were cleaned and descriptive statistics such as percentages means and range were used to summarise the data. Results were presented in tables and charts. Associations between

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depression and socio-demographic characteristics were explored using Chi square test. Quantitative scores of EPDS and perceived social support were correlated using Pearson correlation to determine the relationship between social support and perinatal depression in the respondents. A multivariate analysis of binary logistic regression was utilised to identify the independent predictors of perinatal depression in the respondents at 5% (0.05) level of significance.

3.13 Study Procedure

Ethical approval to conduct research was collected from the Oyo State Research and Ethics Review Committee. A letter of introduction was obtained from the Centre for Child and Adolescent Mental Health Ibadan. These were used to seek permission from all the maternity centres used in the study.

Each centre was visited twice; first visit was for familiarisation with the procedures and service deliveries in the centre.

The second visit was to address and intimate the pregnant women, with the protocols and purpose of research, obtain informed consent and collection of data.

Questionnaires were administered by trained interviewers (Research assistants and the principal investigator) on individual basis.

The course of data collection was structured in a way not to disturb or disrupt the routines of the centres.

Inducement in form of snacks, detergents and soft drinks were offered to the pregnant youths for participating in the study.

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CHAPTER FOUR

RESULTS

4.0 Results

4.1 Socio-demographic Characteristics of the respondents

A total of 270 pregnant youths were recruited into the study. Their ages ranged from 15 to 24 years with a mean of 19.1 ± 2.2 years. The youngest youth encountered/found in the course of recruitment was 15 years old. This section presents the prevalence and correlates of perinatal depression. Results are compared between two different age ranges of the study sample to reflect the specific groups of adolescents and young adults.

Age group one: Findings are compared between adolescents aged 15-19 years and young adults aged 20-24 years,

Age group two: Findings are compared between participants in the child age range of 15-17 years and older participants aged 18-24 years.

A higher proportion 152 (56.3%) of the respondents were aged between 20-24 years and only 27 (10%) were within child age range of 15-17 years. Two thirds of the total respondents 178 (65.9%) were Muslims. Concerning education, 228 (84.5%) had secondary school education and above while 42 (15.5%) primary education and below. About three quarters 206 (76.3%) of the respondents indicated they were married and majority 258 (95.6%) were from the Yoruba ethnic group. Almost three quarters of the respondents 202 (74.8%) were artisans and traders, 15 (5.6%) were students and 27 (10%) were civil servants. (See Table 4.1)

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Table 4.1: Socio - demographic Characteristics of the Respondents N = 270

Variables	Frequency N	Percentage %
Age (years)		
15-19	118	43.7
20-24	152	56.3
Total	270	100
Age group 2		
15-17	27	10
18-24	243	90
Total	270	100
Religion		
Islam	178	65.9
Christianity	92	34.1
Total	270	100
Level of education		
None	4	1.5
Primary	38	14.1
Secondary	192	71.1
Tertiary	36	13.4
Total	270	100
Marital status		
Single	64	23.7
Married	206	76.3
Total	270	100
Ethnic group		
Yoruba	258	95.6
Igbo	4	1.5
Hausa	6	2.2
Others	2	0.7
Total	270	100
Employment status		
Students	15	5.6
Home makers/unemployed	11	4.1
Apprentices	15	5.6
Artisans/Traders	202	74.8
Civil servants	27	10.0
Total	270	100

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4.2 Obstetrics history/characteristics of the Respondents

Table 4.2 shows the obstetric history and characteristics of the respondents. Half 137 (50.7%) of the respondents had their first pregnancy before the age of 20 years. Majority 216 (80%) registered for antenatal care (ANC) in Maternity Centres, about half 147 (54.0%) had been accompanied to the hospital to register for ANC while 123 (46.0%) were unaccompanied at the first registration for ANC visit. Less than two-thirds 164 (60.7%) of the respondents reported they had taken the two (2) required doses of Tetanus Toxoid injection during this pregnancy. A quarter 69 (25.5%) reported that they had experienced some form of physical health challenges such as vomiting, vaginal discharges and loss of appetite or psychological challenges like fatigue, lack of sleep and low mood, in this pregnancy. Majority of the respondents were in the second 185 (68.5%) were in theirs second trimester. (See Table 4.2)

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Table 4.2: Obstetrics Characteristics of the Respondents N = 270

Variables	Frequency N	Percentage %
Age at first pregnancy (years)		
15-19	137	50.7
20-24	133	49.3
Where registered for Antenatal care		
Maternity Centre	216	80.0
Mission home	54	20.0
Accompanied by relative at first registration for ANC		
Yes	147	54.0
No	123	46.0
Completed 2 doses of tetanus toxoid injection in this pregnancy		
Yes	164	60.7
No	106	39.3
Self-report of health challenges in current pregnancy		
Yes	69	25.5
No	201	74.5
Age of pregnancy at interview		
First trimester (1-3 months)	48	17.8
Second trimester (4-6 months	185	68.5
Third trimester (7-9 months)	37	13.7
Total	270	100

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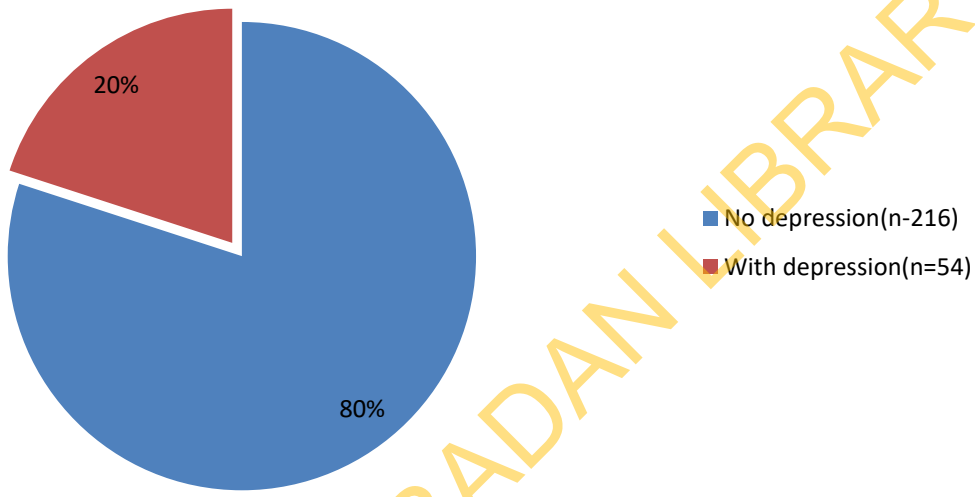
Figure 4.1 Prevalence of depression in the sample of pregnant respondents



4.3.1 Prevalence of Depression in the Respondents.

The results shows that 54 (20%) out of 270 pregnant youth aged 15-24 years recruited into the study screened positive to depression on the EPDS. (See figure 4.1)

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4.3.2 Prevalence of perinatal depression by trimester of pregnancy

The study further revealed that perinatal depression was higher among respondents who were in their first trimester at the time of interview. Out of the 48 respondents who were in the first trimester, a higher proportion (22.9%) screened positive to depression compared to (20.5%) in the second and (13.5%) in the third trimester (13.5%). (See Table 4.3)

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Table 4.3: Prevalence of Depression in the Respondents by trimester of pregnancy N=270

Variables	Depression		Total
Age of pregnancy at interview	No n (%)	Yes n (%)	
1-3 months	37 (81.2)	11 (22.9)	48 (100)
4-6 months	147 (79.5)	38 (20.5)	185 (100)
7-9 months	32 (86.4)	5 (13.5)	37 (100)
Total	216 (100)	54 (100)	270 (100)

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4.3.2 Prevalence of Suicidal thoughts in the respondents

Analyzing the tenth (10^{th}) item on the EPDS which is, "The thought of harming myself has occurred to me" with the Options: 3 = Yes, quite often; 2 = Sometimes; 1 = Hardly ever; and 0 = Never, about 39 (14.4%) of the total 270 respondents recruited into the study, reported they had thought of harming themselves (suicidal thoughts) in the last two weeks preceding the interview date. This is 72.2% of the 54 respondents who screened positive to depression on the EPDS.

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4.4 Association between Depression and Socio-demographic Variables of the Respondents

Table 4.4 shows the association between perinatal depression and socio-demographic variables. The prevalence of depression in respondents aged 15-19 years was higher than those aged 20-24 years. (22.1%) vs.(18.4%). This difference was not statistically significant (p= 0.462). Depression was higher among respondents who reported they were not earning income (students, home makers, or unemployed) compared to those who were earning income (artisans/traders and civil servants. Above half 15 (57.7%) out of 26 respondents who were not earning income screened positive to depression, compared to the group of those earning income where only 39 (16.0%) out of 244 respondents screened positive to depression. This difference was statistically significant (p <0.001).

A higher prevalence of depression was reported among respondents who reported being single. More than half 34 (53.1%) out of 66 single respondents had depression compared to those who were married where only 20 (9.7%) respondents out of 206 screened positive to depression. This was statistically significant (p< 0.001) (See Table 4.4).

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Table 4.4: Association between Perinatal Depression and Socio - demographic Variables N=270

Variables	Depression		x^2-value	p-value
	No n (%)	Yes n (%)		
Age (Years)				
Group 1				
15-19	92 (78.0)	26 (22.0)	0.542	0.462
20-24	124 (81.6)	28 (18.4)		
Age group 2(years)				
15-17	8 (29.6)	46 (18.9)	1.74	0.144
18-24	19 (70.4)	197 (18.1)		
Religion				
Islam	139 (78.1.)	39 (21.9)	1.191	0.275
Christianity	77 (83.7)	15 (16.3)		
Level of Education				
Primary and below	37 81.1)	5 (11.9)		
Secondary	179 (78.5)	49 (21.5)	2.037	0.108
Employment Status				
Not earning income (students, home makers, apprentices)	11 (43.3)	15 (57.7)	25.547	. **<0.001**
Earning income (artisans/traders civil servants)	205 (84.0)	39 (16.0)		
Marital status				
Single	30 (47.0)	34 (53.0)		
Married	186 (90.3)	20 (9.7)	57.52	**<0.001**

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4.4.2 Association between Obstetric Characteristics and Depression

Table 4.5 shows the association between the Obstetrics history of index pregnancy of the respondents and depression. There were no significant differences between the age of the respondents at first pregnancy, place of registration of pregnancy, Tetanus toxoid vaccination status or self-report of health challenge in pregnancy and depression in the respondents (p-value > 0.05). The prevalence of depression was higher in the respondents who reported having an accompanying relative to the maternity centres (30.0%), compared those who came alone (8.1%). This was statistically significant (p=<0.001) (See Table 4.5)

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Table 4.5: Association between Obstetrics Characteristics and Depression N = 270

Variable	Depression		x^2-value	p-value
	No n (%)	Yes n (%)		
Age at first pregnancy (years)				
≤19	107 (78.1)	30 (21.9)	0.628	0.429
20-24	109 (82.0)	24 (18.0)		
Where registered for Antenatal care				
Maternity Centre	171 (79.2)	45 (20.8)		
Mission home	45 (83.3)	9 (16.7)	0.469	0.494
Accompanied by relative during first registration for ANC				
Yes	103 (70.1)	44 (30.0)	19.890	**<0.001**
No	113 (91.9)	10 (8.1)		
Completed 2 doses of Tetanus toxoid injection in current pregnancy				
Yes	128 (78.0)	36 (22.0)	0.853	0.356
No	86 (82.7)	18 (17.3)		
Self-report of health challenges in current pregnancy.				
Yes	51 (73.9)	18 (26.1)	2.146	0.143
No	165 (82.1)	36 (17.9)		

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4.4.3: Pearson correlation of Age and depression

Table 4.6 shows correlation between age of respondents and depression scores. The result reported no significant correlation between and depression scores in this sample of pregnant youth (r = -0.042, p = 0.495). (See Table 4.6)

Table 4.6 Pearson correlation of Age and depression N = 270

Variables	Mean	Standard deviation	Correlation coefficient (r)	p-value
Age	20.17	2.23	- 0.042	0.495
Depression scores	5.58	5.85		

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4.4.4: Binary logistic regression showing the independent predictors of perinatal depression

Table 4.7 shows the analysis of binary regression which shows the independent predictors of perinatal depression in the respondents.

There is a significant relationship between perinatal depression and economic status especially those that are not earning income (OR= 7.168, df= 1 and p-value <0.001).This shows that not earning income contributes 7.168 units to perinatal depression in the respondents.

The result reveals a relationship between perinatal depression and being single in the respondents (OR= 10.540, df =1, p-value <0.001). This means being single contributes 10.540 units to perinatal depression in the respondents.

There is also a significant relationship between perinatal depression and low of social support in the respondents (OR =3.875, df =2, p-value = 0.041). This means low level of social support perceived by the respondents contributes 3.875 units to perinatal depression in the respondents. (See Table 4.7)

Table 4.7 Binary logistic regression table showing the significant correlates of perinatal depression N = 270

Variables	OR	CI	Df	p-value
Economic status (Not earning income)	7.168	3.064-16.771	1	<0.001
Marital status (Being single)	10.540	5.374-20.672	1	<0.001
Social support (low social support)	3.875	1.054-14.244	2	0.041

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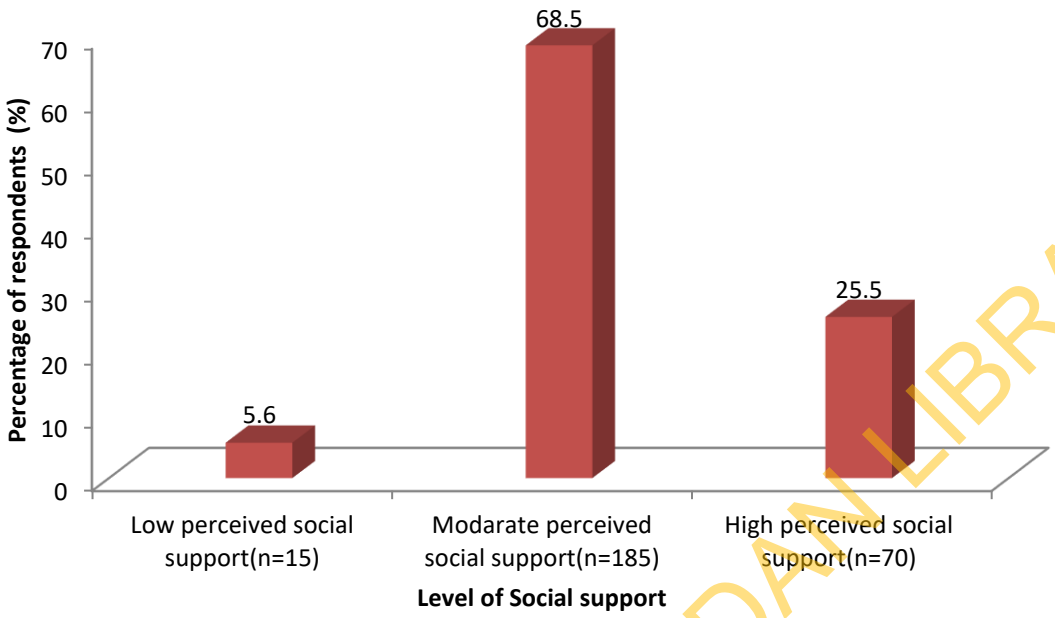
Figure 4.2 Bar chart showing respondents' perception of social support



4.5 Respondents' perception of social support

Utilising the Multidimensional Scale of Perceived Social Support Assessment by Zimet et al., (1998), where the marks obtainable were graded on a range of scores and categorised into 3 levels of social support as perceived by the respondents. These levels are; high social support, moderate social support and low social support.

Figure 4.2 shows the perceived social support received by this pregnant youth from friends, family and significant others, such as husband. Fifteen (5.6%) respondents perceived low social support, more than two-thirds 185 (68.5%) perceived moderate social support and a quarter 70 (25.5%) perceived that they received high social support (See Figure 4.2).

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4.5.2. Association between age of respondents and perceived social support.

Table 4.8 shows the association between age of the respondents and perceived social support. There was no statistically significant association between the age of the pregnant youth and their perception of social support. However, a higher proportion of respondents aged 15-19 years reported high level of social support. 32 (27.1%) out of 118 compared to respondents aged 20-24 years where 38 (25.0%) out of 152 reported they had perceived high social support (p = 0.885). (See Table 4.8)

Table 4.8: Association between age of respondents and perceived social support N = 270

Variables	**Social support**				**x^2-value**	**p-value**
	Low n (%)	**Moderate n (%)**	**High n (%)**	**Total n (%)**		
Age group1(years)						
15-19	7 (5.9)	79 (66.9)	32 (27.1)	118 (43.7)	0.244	0.885
20-24	8 (5.3)	106 (69.7)	38 (25.0)	152 (56.3)		
Total	15 (5.5)	185 (68.5)	70 (25.9)	270 (100)		
Age group2(years)						
15-17	2 (7.4)	17 (63.0)	8 (29.6)	27 (10)	0.479	0.498*
18-24	13 (5.3)	168 (69.1)	62 (25.5)	243 (90.0)		
Total	15 (5.5)	185 (68.5)	70 (25.9)	270 (100)		

* Fishers exact

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4.6 Association between depression and perceived social support

Table 4.9 shows the association between depression and social support among the respondents. A higher proportion of respondents who did not have depression 62 (28.7%) reported high level of social support compared to those who had depression 8 (14.8%). However, the difference was not statistically significant (p=0.066). (See Table 4.9)

Table 4.9: Association between depression and perceived social support N = 270

Variables	**Social support**			**Total**	**x^2-value**	**p-value**
	Low **n (%)**	Moderate **n (%)**	High **n (%)**	**n(%)**		
Depression						
No	10 (4.6)	144 (66.7)	62 (28.7)	216(80.0)		
Yes	5 (9.5)	41 (75.9)	8 (14.8)	54(20.0)	5.421	0.066
Total	15 (5.5)	185 (68.5)	70 (25.9	270(100)		

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4.6.2. Association between Suicidal thought and Perceived Social Support.

Table 4.10 shows association between suicidal thought and perceived social support of the respondents. A higher proportion of respondents 26.7%, who reported they had suicidal thoughts within the last two weeks before the interview, also reported they had perceived low social support from their family, husband or friends. This is high, compared to 17.3% and 4.3% of the respondents who reported they had perceived moderate and high social support respectively.

A higher proportion of participants who reported high social support 29.0% had no suicidal thoughts. This differences were statistically significant (p= 0.012). (See Table 4.10)

Table 4.10: Association between Suicidal thought and Perceived Social Support N = 270

Variable	**Percieved Social support** n (%)			**Total n(%)**	**x^2-value**	**p-value**
	Low	Moderate	High			
Suicidal thought						
No	11 (73.3)	153 (86.7)	67 (95.7)	231(85.5)	8.877	0.012
Yes	4 (26.7)	32 (17.3)	3 (4.3)	39 (14.4)		
Total	15 (100.0)	185 (100.0)	70 (100.0)	270 (100)		

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4.6.3 Association between age, perceived social support, suicidal thoughts and depression

Table 4.11 shows association between age of the respondents grouped as ≤ 17 years and ≥ 18years, perceived social supports, suicidal thoughts and depression. The result shows no significant association between social support and age of the respondent p=0.787. The results reported a higher prevalence of depression among younger respondents aged ≤ 17 years (29.9%) compared to 18.9% in older respondents. This difference was not statistically significant (p =0.144). The result also shows that a higher proportion of younger respondents reported suicidal thoughts (22.0%) compared to 13.5% of the pregnant youth aged 18 years and above. The result was not statistically significant (p =0.175) (See Table 4.11).

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Table 4.11: Association between perceived social support, suicidal thoughts depression and age

N=270

Variables	Age (years) ≥17 n=27 (n(%)	≥18 n=243	Total	x^2-value	p-value
Social support					
low perception	2 (7.4)	13 (5.3)	15(5.5)		
moderate perception	17 (63.0)	168 (69.1)	185(68.5)	0.479	0.498*
high perception	8 (29.6)	62 (25.5)	70 (25.9)		
Total			270 (100)		
Depression					
Yes	8 (29.6)	46 (18.9)	54 (20)	1.739	0.144
No	19 (70.4)	197 (81.1)	216 (80)		
Total			270 (100)		
Suicidal thought					
Yes	6 (22.2)	33 (13.5)	39 (14.4)	1.469	0.175
No	21 (77.7)	210 (86.4)	231(85.6)		
Total			270(100)		

*Fishers Exact

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4.6.4. Pearson correlation showing association depression scores and perceived social support scores

Table 4.12 shows the correlation between the depression scores of the respondents and scores of perceived social support. The mean score for depression was 5.58 and mean score for perceived social support was 45.63. The result shows that there was a negative correlation (r = -0.306**) between perinatal depression and perceived social support received by the respondents. This is significant at p< 0.05 (p=<0.001). (See Table 4.12)

Table 4.12: Pearson correlation of depression and perceived social support N = 270

Variables	Mean	Standard deviation	Correlation coefficient (r)	p-value
Depression scores	5.58	5.86	- 0.306**	**<0.001**
Perceived social support scores	45.63	7.47		

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4.6.5. Pearson Correlation of Age of Respondents and Perceived Social Support Scores

Table 4.13 shows the correlation between age of respondents and perceived social support. The result shows no significant correlation between the age of respondent and the perceived social supports received by the respondents (r = - 0.042, p = 0.463). (See Table 4.13)

4.13: Pearson correlation scores of Age and social support scores N = 270

Variables	Mean	Standard deviation	Correlation coefficient (r)	p-value
Age in years	20.17	2.23	- 0.042	0.463
Perceived social support scores	45.63	7.47		

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CHAPTER FIVE
DISCUSSSION

5.1 This study explored the correlates of perinatal depression among a sample of pregnant youth in Ibadan North and Egbeda LGAs of Oyo state, Nigeria. Two hundred and seventy (270) pregnant youth aged 15-24 years were recruited into the study. The results were compared within these two major age groups of the study sample which are:

a. Adolescents (15-19 years) and young adults (20-24 years)
b. Children (15-17 years) and older persons (18-24 years)

5.1.1 Socio-demographics and obstetrics characteristics

The overall mean age of the respondents was 19± 2.23 years. This is a reflection of the fact that majority of the participants recruited into this study were in the young adult group (20-24years) compared to those in the adolescent group aged 15-19 years. The mean age of the respondents in the adolescent group aged 15-19 years was 18.1 years which also reveals that, even in the adolescent group, respondents were more likely to fall within the older age range. In a similar comparative study of pregnant adolescents and young adults in the USA, a higher proportion of adolescent respondents were recruited into the study and a mean age of 17.1 was obtained (Gaines *et al*.,2009). One reason for the disparity in the proportion of adolescents between these studies may be the fact that pregnant adolescents are more of a hard- to- reach group in Southwest Nigeria where the study was done. Better developed ANC services for youth in the US may have enabled the researchers to recruit and study the adolescents. In the Nigerian setting, health services for youth are still emerging and due to shame and

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poverty, pregnant adolescents may not seek proper medical care in the pregnancy period (World Health Statistics, 2009; Baltag, 2009). Another reason for the fewer adolescents recruited in this study, when compared to the study in the US may be the cultural differences between the two settings. The study revealed that several of the adolescents were still single. Getting pregnant out of wedlock is disapproved in most parts of Nigeria, becoming pregnant while still single may predispose the adolescent and her family to stigma and humiliation and may pose the risk for depression (Hamisu, 2012). Most adolescents who become pregnant would hide the fact that they are pregnant until it becomes obvious, hence the few numbers of younger adolescents found in the maternity centres. Others may not register for ANC and deliver at home or in other circumstances, without a skilled attendant. Paradoxically the same culture that disapproves of 'out of wedlock' pregnancy, encourages child marriage in some instances (UNICEF, 2015). Child marriage is often given as the preventive measure for 'out of wedlock' pregnancies in children and adolescents.

The findings of this study revealed that a higher proportion of the respondents aged 15-17 years, were out of school, single and were living with relatives other than the father of their unborn child compared to those in the age range of 18-24 years who were more likely to be married and live with a husband. Respondents in the child age range (15-17 years) may have had to drop out of school and those acquiring particular skills through apprenticeship may have also stopped work when they became pregnant. It is also possible that most of the pregnancies in the adolescent age range were unplanned, as most of them were unmarried. This may explain why they had to live with their relatives who provided financial and social support. The opinion of Barry *et al* (2009) that adolescents are not fully capable of understanding the concepts of the relationship between behaviour and consequences and that they have no control over decision making including sexual behaviours that could lead to unplanned/unwanted pregnancies (Barry

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et al., 2009) is evident. Majority of the younger respondents were out of school/apprenticeship and unemployed as a result of possible unplanned pregnancies that caused a disruption in their routine life activities. On the other hand, majority of the respondents in the older age range of 18-24 years were already earning income, married and living with their husbands. This corresponds with the fact that the older respondents were in the maturity age range. This confirms the findings of a previous study, that as the adolescents grow older, they move towards social and economic independence, they acquire the skills they need to carry out the relationship and roles of adulthood (Salazar et al., 2010).

One fifth of the respondents had registered for ANC in Church owned maternity centres. The reason for this may be that the respondents were of a low socioeconomic status, and may not be able to afford the cost of ANC in government owned facilities. Government owned facilities, cost about ten thousand Naira N10,000 which is equivalent to fifty dollars($50) at N200 to $1, for ANC while most Church owned facilities are free, although women are asked to bring the items they need for delivery. This finding corresponds with that of a previous study which revealed that most pregnant and parenting Nigerian women live in economically disadvantaged environments and have problems of poverty and lack of access to care compared their counterparts in the developed countries (Adewuya, 2005; Hamisu, 2012). Another reason why a sizeable proportion of pregnant youths in this study registered in the Church owned mission homes may be for religious/spiritual purposes, as Nigeria happens to be a religious society where people seek refuge in God for any major step in their lives and pregnancy and child delivery is a major event in a woman's life (Adenikin et al, (2014). This is consistent with the findings of a previous Nigerian study by Adenikin *et al*, (2014), which says that in Africa, pregnancy is viewed as a vulnerable time where there is increased risk of being attacked by witchcraft, and that this

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mentality makes women seek protection in prayer/Mission homes when they are pregnant (Adenikin *et al.*, 2014).

5.1.2 Prevalence of perinatal depression and correlates

In this study, depression was measured with the use of EPDS and a score of equal to or greater than 12 was used as the cut off (Adewuya and Aloba, 2007). The study revealed a prevalence of 20% of perinatal depression in the sample of pregnant youth studied. The prevalence reported in this study is consistent with a report of a study in Nigeria which reported a range of 10-20% rate of perinatal depression in the general Nigerian Women population, which was used for sample size calculation (Adewuya *et al.*, 2005). The findings also correspond with a rate of 20.4% reported among immigrant pregnant teenagers aged 13-17 years in Mexico, where the same instrument (EPDS) was used to screen for depression (Alvarado-Esquivel *et al.*,2015). The findings of this study are in agreement with the report of a previous study by Whitman &Borkowski, (2001) that the rate of depression is higher in adolescent mothers aged 15-18 years compared to adult mother counterparts aged 22-35 years (Whitman & Borkowski, 2000).

Other studies have also reported a higher prevalence 14.0% of perinatal depression in adolescent mothers aged 15-19 years compared to 7.2% in the young adult women population aged 20 years and older (Figueiredo et al.,2007; Rogers et al, 2009). A reason for the higher prevalence of perinatal depression in adolescents as reported by previous studies and this study may be because adolescents are not fully matured and are still trying to cope with the physiological and psychological changes of adolescence (Mistri et al., 2000). Therefore, the occurrence of a pregnancy at this period may bring

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additional problems for the adolescents, as pregnancy also comes with its own physiological and psychological changes (Mistri *et al*., 2000).

The study also revealed a higher proportion of the younger respondents aged 15-17 years screened positive to depression compared to their older counterparts aged 18-24 years (29.6% vs. 18.9%). An explanation for this may be because the older respondents are able to manage the physiological and psychological changes in pregnancy better than the younger ones and as such less likely to becoming depressed. This finding supports the report of a previous study that younger aged pregnant and parenting adolescents were more likely to be depressed than the older adolescents and adult women (Rogers *et al*., 2009; Figueiredo *et al*., 2007). The prevalence of perinatal depression reported among these pregnant youths supports the growing body of literature that women living in economically disadvantaged environments (LAMIC) are more vulnerable to depression than their counterparts living in high income countries (Wawire, 2015; Sikander *et al*., 2015).

5.1.3 Other Socio-demographic correlates of perinatal depression

This study identified some socio-demographic variables as correlates of perinatal depression. For example, a higher proportion of respondents who screened positive to depression reported that they were not earning income. They were students, apprentices or home makers who may be dependent on other people for their financial up keep and the needs of their unborn babies. This finding confirms that of previous studies that identified economic instability as a correlate of perinatal depression in women (Adewuya & Aloba, 2005; Goyal *et al*.,2010 ; Kadri, 2015).

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This study revealed that marital status was another correlate of perinatal depression. Respondents who reported they were unmarried were more likely to be depressed compared to the respondents who reported they were married. This may be explained by the fact that respondents who were married may enjoy spousal support during the period of pregnancy, which may not be available for the unmarried respondents. This finding corresponds with the literature, which revealed that lack of spousal support is a factor associated with depression in pregnant and parenting adolescents (Zeanah, 2011; Kripke, 2010). Other studies have also reported that marital status, family structure and family type are some socio-demographic correlates of perinatal depression (Adewuya& Aloba, 2005).

The study further revealed that respondents who reported having an accompanying relative at first registration for ANC had higher rates of depression compared to those who came alone. Explanations for this may be that the pregnant youth was accompanied by their relative to the first registration because family had perceived some difficulty and need to be available (Lara-Cinisomo *et al*., 2014).

5.1.4 Social support and perinatal depression

The study revealed a significant association between perinatal depression and social support, showing a negative correlation between perinatal depression in this sample of pregnant youth and the social support they received from friends, family and significant others such as their husbands. This association shows that depression and social support in this sample of pregnant youth was inversely related. The study revealed that, those who perceived they had social support were less likely to be depressed. The study supports evidence from previous studies that social support received from family, friends and spouses, is a significant correlate of depression in both pregnant and parenting adolescents the study (Hudson et al., 2000; Adewuya and Aloba, 2007; Huang and Kaufman *et al*.,2014). This is also in agreement with a study on the effects of social support around pregnancy and postpartum in

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Canadian teenagers, where it was reported that high social support decreases the risk of depression during pregnancy for women and that pregnant and delivered teenagers mothers were five times more likely to be depressed if they received no social support (Kim, Connoly &Tamim, 2014)

Another previous study also identified social support as a significant correlate of perinatal depression in adolescents (Dianna- Rose, 2014). This was confirmed by the testimony of a 24 year old mother in the USA, who had been treated for depression at the age of 16 years when she had her first child. She felt that she had screened positive to depression at that time because, she had no one to support her or ask her how she was feeling and coping. *"I was so busy taking care of my baby, packing her diaper bag and my backpack in the morning, so she could go to day care and I could go to school*" (Dianna- Rose, 2014). This confirms that lack of social support may increase the risk of perinatal depression in both pregnant and parenting adolescents worldwide.

The study revealed further that there is an association between suicidal thoughts and social support in the sample of youths recruited in this study. A higher proportion of the respondents who had never thought of harming themselves also reported they had perceived a high social support from family friends and significant others.

Out of the total 270 respondents in the study, about 39 (14.4%) respondents who screened positive to depression also had suicidal thoughts in the last two weeks prior to the interview session, and this is about 72.2% of the whole 54 respondents who screened positive to depression on the EPDS. This is higher than the findings of Wisner *et al*. (2013) that reported a suicidal ideation of 19.3% in perinatal

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women in the USA with depression using the same number 10 item question on the EPDS. A possible reason for this increase may be the fact that there is a developed ANC services for pregnant youth in the USA, where both physical and psychological needs of the pregnant youths could be taken care of, compared to Nigeria where Youth services is just emerging.

5.1.5 LIMITATIONS

Limitations encountered in this study include the fact that the time available for the study was short and the study sample was a hard- to- reach group of individuals. The sample of pregnant youth was therefore, much smaller than was desired. This limits the conclusions of this study. In addition, purposive selection was done in order to recruit pregnant children and adolescents as opposed to a probability sampling methodology.

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5.2 CONCLUSION

This cross sectional survey of perinatal depression among youths in Ibadan North and Egbeda LGAs of Oyo state revealed that perinatal depression is a significant mental disorder among the Nigerian youth population. A prevalence of 20.0% was reported in this study. Lack of social support, being single and low socioeconomic status, were the major correlates of perinatal depression found in this study. It also supports the findings of Campbell-Grossman (2000) that loneliness and lack of social support are significant correlates of depression in pregnant and parenting adolescents.

The study identified a CAMH training needs for health care providers, awareness and advocacy programmes by the government and provision of resources in our PHC settings to ensure that PHC care providers are able to detect and respond promptly to pregnant youth with depression. This will enhance the knowledge of PHC workers as regards appropriate assessment, management and referral of patients to mental health experts.

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5.3 RECOMMENDATIONS

The following recommendations were made based on the findings from this study;

1. There is a need to incorporate mental health screening and education, on recognition of signs and symptoms of depression in pregnancy and postnatal period, into the routine ANC in Nigeria.
2. Pregnant children and adolescents are a vulnerable and hard- to- reach group and require selective targeting.
3. Relatives of pregnant youths and health care providers should ensure provision of adequate to Social support for pregnant and parenting youths.

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APPENDIX A

INFORMED CONSENT

TITLE OF RESEARCH: PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG YOUTHS IN IBADAN NORTH AND EGBEDA LOCAL GOVERNMENT AREAS OF OYO STATE

My names are Bukola Felicia Adeoye. I am a postgraduate student of the Centre for Child and Adolescent Mental Health, University of Ibadan. I am interviewing youths who are pregnant or newly delivered, in order to assess some factors that may be associated with or contribute to the development of depression and to know exactly how common this disorder is, in our settings and possible ways to help.

I will need to ask some questions which might involve personal issues or how you feel. Please note that confidentiality will be maintained as your name will not be mentioned at any point in the questionnaire and any information you give will be kept in confidence. Information gathered from you will be used to make recommendation to policy makers, government and other stakeholders to pay more attention to depression and other common mental health disorders especially at our primary health or grass root level.

A questionnaire will be allocated to you and the research assistants will help and guide you on how you will supply your answers. Your honest answers will help to make accurate recommendations to the government and other stakeholders about this mental health problem and it will also inform policies that promote our mental health as a nation.

Note also that you have a right to withdraw your participation at any point in the study, if you choose to.

I will appreciate your help for responding to the questions and for participating in the study.

Thanks

Consent: The process of the study has been explained to me and I fully understand the content and the process, I will be willing to take part/allow my ward to take part in the study.

…….. ……..

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Participant's signature | Participant's Phone Number

…… | ……

Interviewer's signature | Interview date

IWE IFOWOSI

AKORI ISE IWADI: AWON KOKO TI O N SOKUN FA AISAN IREWESI OKAN NI AKOKO ILOYUN ATI NI KETE LEYIN IBIMO LAARIN AWON ODO LANGBA NI AGBEGBE IJOBA IBILE ARIWA ATI EGBEDA NI ILU IBADAN

Oruko mi ni Bukola Filisia Adeoye. Mo je akeko agba ni ibi itoju awon omode ati odo langba nipa ilera opolo,ni ile eko giga yunifasiti ilu Ibadan. Mo n fi oro wa odo langba ti o loyun,tabi ti o sese bimo lenu wo, lati se ayewo awon koko kan, ti o le se okunfa nini aisan irewsi-okan ati lati mo ni pato bi aisan yii se po to ni agbegbe wa,ati awon ona abayo ti o je iranwo. Mo ni lati bere awon ibeere ti o niise pelu ohun ti o sele ni ago ara re tabi ero okan re.

Jowo mo fe ki o mo wipe aabo daju, nitori a ko nii da oruko re ni ibi kankan ninu iwe ibeere yii, ati pe gbogbo idahun re ni a o pamo daradara, Awon idahun re ni a o lo lati kowe si awon alase, ijoba ati awon ti oro ilu kan ni awujo lati mu itoju irewesi-okan ati awon aisan opolo miran ni okunkundun ni pataki julo, awon ile iwosan ese kuku wa.

A o fun o ni iwe ibeere kan, a oo si too sona lati dahun awon ibeere naa. Idahun pelu otito yoo ran wa lowo lati ko erongba wa ni koko, sowo si awon ijoba ati awon ti oro ilu kan ni awujo nipa wahala aisan opolo, ati ofin ti o gbe itoju opolo ro, ni orile ede wa.

Mo wipe, o ni eto, lati yowo kuro ninu iwadi yii ni igbakuugba ti o ba wu o lati se bee.

N oo gboriyin fun o fun kikopa ninu ati didahun ibeere ninu ise iwadi yii

Ose modupe

Ifowosi-: A ti se alaye igbese iwadi yii fun mi, o si ye mi daradara, mo fe lati je okan ninu awon akopa/ tabi ki omo mi kopa ninu ise iwadi yii.

_____ _____

Aaye ifowosi olukopa | Nomba Ero Ibanisoro Re

_____ _____

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APPENDIX B

PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG YOUTHS IN IBADAN NORTH AND EGBEDA LOCAL GOVERNMENT AREAS OF OYO STATE

SOCIODEMOGRAPHIC QUESTIONNAIRE
ADAPTED FROM
SCHOOL HEALTH QUESTIONNAIRE

(Section one)

Serial Number: __ __ __ __ __ __

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

INSTRUCTION

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.

Serial Number: __ __ __ __ __ __

Date of Interview: __ __/__ __/__ __

SECTION A

SOCIO-DEMOGRAPHIC CHARACTERISTICS (ENGLISH)

1.Name of maternity centre	
2. Where do you live? (Address of present abode):	
3. What is your date of birth?	_____/ _____/ _____ (Age in Years) …….
4. What type of religion do you practice?	(1) Islam (2) Orthodox Christian (3) Pentecostal Christian (4) Traditional religion (5) Others (Specify) …….

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Family Information	
5. Family Type:	(1) Monogamous (2) Polygamous
6. What position are you in your family?	
7. Who do you live with presently?	(1) Parents (2) Mother Alone (3) Father Alone (4) Grandparents (5) Husband (6) Husbands relative (7) Other [please specify]_____
8. Who brought you up from your childhood?	(1) Parents (2) Mother Alone (3) Father Alone (4) Grandparents (5) Grandmother (6) Grand father (7)Others (specify) ……
9. What is your level of education?	(1) No Formal Education (2) Primary (3) Secondary (4) Tertiary institution(specify)
10. What is your occupation?	(1) Unemployed (2) Apprenticeship (3) Civil Servant (4) Artisan (5) Trading (6) Student (7) Others (Specify) ……..
11. What is your marital status?	(1) Single (2) Married (3) Separated (4) Widowed (5) Others (Specify) ……..
12 Duration of marriage?	……
13. Occupation of husband: [Write the exact occupation, if applicable]	(1) Unemployed (2) Apprenticeship (3) Civil Servant (4) Artisan (5) Trading (6) Student (7) Others (Specify) ……..
14. How many wives does your husband have?	……
Antenatal-Related Questions	
15. How old were you at your first pregnancy?	**…… (in years)**

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16. Age of current pregnancy at ANC Booking	…….. (in months)
17. Who accompanied you to the hospital the first time?	(1)Husband/boyfriend (2)Mother (3)Grandmother (4)Aunt (5)Other
18. How many times have you attended the antenatal clinic?	……
19. Did you complete 2 doses of injection in this pregnancy?	(1) Yes (2) No
20. If no why?	
21. Do you have any difficulties or challenges in this pregnancy?	(1) Yes (2) No
22. If yes, what sort of difficulties?	(1) Bleeding (2) Difficulty with breathing (3) Vaginal discharge (4) Vomiting (5) low mood (6) Lack of appetite (7) Fatigue (8) Sleep difficulties (9) Others (please specify) …….
23. Have you spoken to anyone about the challenges?	*(1)* Yes (2) No

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(Section two)

Edinburgh Postnatal Depression Scale 1 (EPDS)
Name: _____ Address:_____
Date of Birth: _____ _____
Baby's Date of Birth/EDD: _____ Phone:
_____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.
Here is an example, already completed.
I have felt happy:
Yes, all the time
Yes, most of the time
No, not very often
No, not at all
This would mean: "I have felt happy most of the time" during the past week.
Please complete the other questions in the same way.
In the past 7 days:

S/N	QUESTIONS	OPTIONS
1.	I have been able to laugh and see the funny side of things.	0. As much as I always could. 1. Not quite so much now. 2. Definitely not so much now. 3. Not at all.
2.	I have looked forward with enjoyment to things.	0. As much as I ever did 1. Rather less than I used to 2. Definitely less than I used to 3. Hardly at all
*3.	I have blamed myself unnecessarily when things went wrong	3. Yes, most of the time. 2. Yes, some of the time. 1. Not very often. 0. No, never
4.	I have been anxious or worried for no good reason.	0. No, not at all. 1. Hardly ever.

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		2. Yes, sometimes. 3. Yes, very often.
*5.	I have felt scared or panicky for no very good reason.	3. Yes, quite a lot. 2. Yes, sometimes. 1. No, not much. 0. No, not at all.
*6.	Things have been getting on top of me.	3. Yes, most of the time I haven't been able to cope at all. 2. Yes, sometimes I haven't been coping as well as usual. 1. No, most of the time I have coped quite well. 0. No, I have been coping as well as ever.
*7.	I have been so unhappy that I have had difficulty sleeping.	3. Yes, most of the time. 2. Yes, sometimes. 1. Not very often. 0. No, not at all.
*8.	I have felt sad or miserable.	3. Yes, most of the time. 2. Yes, quite often. 1. Not very often. 0. No, not at all.
*9.	I have been so unhappy that I have been crying.	3. Yes, most of the time. 2. Yes, quite often. 1. Only occasionally. 0. No, never.
*10.	The thought of harming myself has occurred to me.	3. Yes, quite often. 2. Sometimes. 1. Hardly ever. 0. Never.

Administered / Reviewed by _____

Date: _____

EPDS SCORING

Total Score: ……..

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(Section three)

Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1998)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Tick "1" if you strongly Disagree (SD)
Tick "2" if you Disagree (D)
Tick "3" if you are Neutral (N)
Tick "4" if you agree (A)
Tick "5" if you strongly agree (SA)

Codes		1	2	3	4	5
S/N	Statements	SD	D	N	A	SA
1.	There is a special person who is around when I am in need.					
2.	There is a special person with whom I can share my joys and sorrows.					
3.	My family really tries to help me.					
4.	I get the emotional help and support I need from my family.					
5.	I have a special person who is a real source of comfort to me.					
6.	My friends really try to help me.					
7.	I can count on my friends when things go wrong.					
8.	I can talk about my problems with my family.					
9.	I have friends with whom I can share my joys and sorrows.					
10.	There is a special person in my life that cares about my feelings.					
11.	My family is willing to help me make decisions.					
12.	I can talk about my problems with my friends					

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YORUBA VERSION OF QUESTIONNAIRE
IWE IBEERE
SOCIODEMOGRAPHIC QUESTIONNAIRE
ADAPTED FROM
SCHOOL HEALTH QUESTIONNAIRE
(YORUBA)

ABALA KINNI

Serial Number: __ __ __ __ __ __

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

ILANA:- 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.

SOCIO-DEMOGRAPHIC CHARACTERISTICS (YORUBA)

1.Oruko ile igbebi yii	
2. Nibo ni o n gbe? (Adiresi ibugbe re)	
3. Kini ọjọ ibi rẹ?	*ọjọ oṣu ọdun* *(Iye Ojo Ori) ……..*
4. Iru esin wo lo n se?	(1) musulumi (2) Onigbagbo(ijo lailai) (3) Onigbagbo ode oni (4) Esin abalaye (5) Esin miran(,so nipato) ……
Ibeere nipa Ebi	
5. Iru ẹbi:	(1) Oniyawo kan (2) Oniyawo meji tabi ju bẹẹlọ
6. Ipo wo lo wa ninu ebi?	
7. Tani o n gbe pẹlu lọwọlọwọ?	(1) Awọn obi re (2) Iya nikan (3) Baba nikan (4) Iya ati Baba Agba (5) Oko mi (6) Ebi oko mi (7) Awọn Iyoku [Jọwọ sọ nipato]_____
8. Talo tọ ẹ dagba lati kekere?	(1) Awọn obi re

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	(2) Iya nikan (3) Baba nikan (4) Iya ati Baba Agba (5) Iya Agba nikan (6) Baba Agba nikan (7) Awọn Iyoku [Jọwọ sọ nipato]_____
9 Iwe melo lo ka	*(1) N ko kawe rara* *(2) Iwe mefa* *(3) Iwe mewa* *(4) Ile iwe giga (salaye ni pato)*
10. Iru ise wo lonse?	*(1) Mo n wa se* *(2) Mo n ko se* *(3) Osise ijoba* *(4) Ise Owo* *(5) Mo n taja* *(6) Mo wa ni ile iwe* *(7) Omiran (Salaye) ……..*
11. Nje o ti se igbeyawo?	*(1) Mi o tii loko* *(2) Mo ti loko* *(3) Mo ti kuro lodo Oko* *(4) Oko ti ku* *(5) Omiran (Salaye) ……..*
12.Odun melo seyin ni ose igbeyawo	……
13. Işẹ wo ni oko rẹ n şe: [Kọ işẹ ti wọn nşe pato lẹkunrẹrẹ,ti o b aba o mu]	*(1) Won n wa se* *(2) Won n ko se* *(3) Osise Ijoba* *(4) Onise Owo* *(5) Oni Sowo* *(6) Omo Ile-Iwe* *(7) Omiran (Salaye) ……*
14. Iyawo melo ni oko re fe?	*……..*
Ibeere nipa oyun	
15. Kini ojo ori re ni igba oyun akoko?	**…….. (ni odun)**
16. Osu melo ni oyun yi nigba ti o koko wa si Ile-iwosan tabi Ile-agbebi?	*……(Osu)*
17. Tani o ba o wa sile owosan fun igba akoko?	*(1)Okomi/afesona mi* *(2) Iya mi* *(3) Iyaagba* *(4) Egbon/aburo iya mi)* *(5) Awọn Iyoku [Jọwọ sọ nipato]_____*
18. Igba melo loti wa si ipade oloyun?	
19. se o gbe abere aje sara meji pe ninu oyun yii	*(1)Beeni* *(2)Beeko*

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20. Bi beeko kilofaa?	
21. Se o ni idojuko Kankan ni asiko ti o loyun yii?	(1) Beeni (2) Beeko
22. Ti o ba jẹ bẹẹni, iru işoro wo ni?	*(1) Eje nda* *(2) Ailemi daa daa* *(3) Nnkan njade loju ara* *(4) Eebi* *(5) Irewesi okan* *(6)Onje ko lo deedee* *(7)Ara ko gbe kankan* *(8) Idamu nipa orun sisun* *(9) Isoro miran (so ni pato)*
23. *Nje o ti ba enikeni so nipa isoro yii*?	*(1) Bẹẹni* *(2) Bẹẹkọ*

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ABALA KEJI
Edinburgh Postnatal Depression Scale 1 (EPDS)
Oruko: _____ Adiresi: _____
Ojo ibi: _____ _____
Ojo ibi omo/ojo ti dokita da: _____ Phone:
_____

Bi o se wa ninu oyun bayi, tabi o sese bimo lojo melo sehin bayii, a femo bi ero re ti ri. JOWO FUN WA NI IDAHUN TI O SALAYE BI ERO RE TIRI NI NNKAN BI OJO MEJE SEYIN, titi di asiko yi, kii se bi o ti ri loni nikan.

Apere leyi:
"INU MI NDUN", AWON IDAHUN TI E LE MU NI
0. Beeni, ni gbogbo igba
1. Beeni,loplopo igba
2. Rara,kii se lopo igba
3. Rara ko ri bee.

"TI EBAMU "BEENI,NI OPOLOPO IGBA; EYI TUMO SIPE INU YIN DUN NI GBOGBO IGBA NI OSE TI O KOJA.

1. Mo maa nrerin si awon ohun apanilerin ti on sele ni ayika mi
   0. Gege bi mo ti maa n se tele
   1. Kowopo.
   2. Odaju,ko wopo.
   3. Ko ri bee rara.

2. Mo ti n fi oju sona fun igbadun ojo iwaju?
   0. Gege bi mo ti maa nse .
   1. Ko po to bi mo se maa nse.
   2. Dajudaju o dinku bayii.
   3. Kori bi mo se maa nse rara.

*3.Mo n da ara mi lebi ni on aito nigba ti nkan ba dojuru?
   3. Beeni ni lopolpo igba.
   2. Beeni lawon igba die.
   1. Lee kookan.
   0. Rara ko ri bee.

4. Mo npaya, mo si nronu tabi ni aifokanbale lainidi pataki?
   0. Rara ko ri bee.
   1. O sowon.
   2. Beeni leekokan.
   3. Beeni lopolopo igba.

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*5. Eru n ba mi, mo njaya lolo, laini idi kan pato ?

3 .Beeni lopolopo igba
2. Beeni leekokan.
1. Rara,kowopo.
0. Rara,ko ri bee.

*6. Orisirisi nkan ni o pin yin laya?
rara.

tiye.

bii ti atehinwa.

3. Beeni lopolopo igba n kole sakoso

2. Beeni leekokan ,mo nse akoso bi o

1. Rara lopolopo igba,mo nse daradara

0. Rara, mo nse daradara bi ti atehinwa.

*7. Inu ni ko dun rara nitoripe mo ni isoro orun sisun?

3. Beeni lopolopo igba.
2. Beeni leekokan.
1. Kowopo.
0. Rara,ko ri bee.

*8. Mo ni ibanuje, tabi irewesi okan?

3. Beeni, lopolopo igba
2. Beeni leekookan.
1. Kowopo.
0. Rara, beeko.

*9. Inu mi baje gidigidi to bee ti mo nsokun?

3. Beeni lopolpo igba.
2. Beeni, o wopo.
1. Leekookan.
0. Rara,beeko.

*10. Ero ati se ara mi ni ijamba ti wa si okan mi ri?

3. Beeni lopolopo igba.
2. Leekookan
1. ko fere waye ri.
0. Rara,ko ri bee.

MAAKI (ABALA B)
Aropo maaki _____

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ABALA KETA

Idiwon oniruuru fun bi a tin se atilehin

Idari: A fee mo iha ti e ko si awon oro wonyi. E ka igbekale oro naa pelu akiyesi. E toka si iha ti e ko sii gan an.

Maaki ookan (1), ti o ko ba fi ara moo rara (SD).

Maaki eeji (2), ti o ko ba fi ara moo (D).

Maaki eeta (3), ti o ba wani agbedemeji (N).

Maaki eerin (4), ti o ba fara moo (A).

Maaki aarun "5" ti o ba fi ara moo gidigidi (SA)

1. Eniyan pataki kan wa nitosi nigbati mo ba nilo iranlowo.	1 2 3 4 5
2. Eni pataki kan wa ti mo le ba pin ayo ati ibinuje mi.	1 2 3 4 5
3. Awon ebi mi maa nran mi lowo.	1 2 3 4 5
4. Mo ri iranlowo ati atileyin ti mo nilo lodo ebi mi.	1 2 3 4 5
5. Mo ni enikan pataki ti o je orisun itunu fun mi.	1 2 3 4 5
6. Awon ore mi gbiyanju pupo lati ran mi lowo.	1 2 3 4 5
7. Mo le gbokanle awon ore mi nigba ti nnkan dojuru.	1 2 3 4 5
8. Mo le so awon isoro mi fun ebi mi.	1 2 3 4 5
9. Mo ni awon ore ti mo le ba pin ayo ati ibinuje mi.	1 2 3 4 5
10. Mo ni enikan ni igbesiaye mi ti o mo nipa ohun ti mo n la koja.	1 2 3 4 5
11. Awon ebi mi nfe lati ranmi lowo nipa sise ipinu.	1 2 3 4 5
12. Mo le so nipa isoro mi fun awon ore mi.	1 2 3 4 5

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