

**PREVALENCE AND CORRELATES OF  
PERINATAL DEPRESSION AMONG  
ADOLESCENTS AND YOUNG ADULTS IN  
WESTERN AREA, SIERRA LEONE**

**BY  
LUCINDA BOCKARIE (MB.Ch.B)**

**MATRIC NUMBER: 197372**

**A PROJECT SUBMITTED TO THE CENTRE FOR CHILD AND ADOLESCENT  
MENTAL HEALTH, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF SCIENCE IN CHILD AND ADOLESCENT MENTAL  
HEALTH OF THE UNIVERSITY OF IBADAN, IBADAN**

**MAY, 2017**

## DECLARATION

I hereby declare that this dissertation is my original work and that it has not been submitted for any award in any other institution.

.....  
DR. LUCINDA BOCKARIE

UNIVERSITY OF IBADAN LIBRARY

## CERTIFICATION

I certify that this project was carried out by Lucinda Bockarie in the Centre for Child and Adolescent Mental Health, University of Ibadan.

---

### Supervisor

**Professor Olayinka Omigbodun**  
**MBBS (Ibadan), MPH (Leeds), FMCPsych, FWACP**  
**Professor and Head, Department of Psychiatry,**  
**College of Medicine,**  
**University of Ibadan**  
**Director,**  
**Centre for Child and Adolescent Mental Health,**  
**University of Ibadan Nigeria**

---

### Supervisor

**Dr. Tolulope Bella-Awusah**  
**MBBS (Ibadan), M.Sc. CAMH (Ibadan), FWACP**  
**Head, Department of Child and Adolescent Psychiatry,**  
**College of Medicine,**  
**University of Ibadan**

## DEDICATION

This work is dedicated to my beloved husband, Cham and my unborn child.

UNIVERSITY OF IBADAN LIBRARY

## ACKNOWLEDGEMENTS

The successful completion of this dissertation and the quality of the research work have been the result of the hard work and collaboration of so many people to whom I wish to express my sincere thanks and appreciation. Firstly, I would like to thank the Almighty Allah, the Most gracious, the Most merciful for granting me the knowledge and strength to accomplish this Master of Science programme.

I am sincerely grateful to my supervisors, Professor Olayinka Omigbodun and Dr Tolulope Bella-Awusah, for their tremendous effort, useful comments, remarks and engagement through the learning process of this thesis. I also wish to express my profound gratitude to the faculty members of the CCAMH for their leadership and contribution towards the success of this work. To the CCAMH administrative staff, I am gratefully indebted to your valuable support and contributions to this work, especially Ms Adeola Oduguwa and Mr Olakunle Omojola. I would also like to appreciate the CCAMH set 4 for providing support throughout this programme.

Furthermore, I would like to acknowledge the MacArthur Foundation for awarding me this great opportunity to pursue and complete this programme, I am deeply grateful.

Finally, I must express my profound gratitude to my family, especially my lovely husband Dr Alphajoh Cham for his unflinching and emotional support, kind love and inspiration through the process of this Master's programme. This great accomplishment would not have been possible without these people.

## TABLE OF CONTENTS

DECLARATION .....	ii
CERTIFICATION .....	iii
DEDICATION .....	iv
ACKNOWLEDGEMENTS .....	v
LIST OF TABLES .....	ix
ABBREVIATION AND ACRONYMS .....	x
ABSTRACT.....	xi
INTRODUCTION .....	1
1.1 BACKGROUND OF THE STUDY .....	1
1.2 JUSTIFICATION OF THE STUDY .....	4
1.3 AIM.....	5
1.4 SPECIFIC OBJECTIVES .....	5
1.5 RESEARCH QUESTIONS.....	6
1.6 PRIMARY OUTCOME MEASURES .....	6
CHAPTER TWO .....	7
LITERATURE REVIEW .....	7
2.1 Literature Research Strategy.....	7
2.2 Theoretical Foundation .....	7
2.3 Literature Review.....	9
2.3.1 Development in Adolescents and Young adults .....	9
METHODOLOGY .....	22
3.1 Study Location.....	22
3.2 Study Design.....	25
3.3 Study Population.....	25
3.3.1 Inclusion Criteria.....	26
3.3.2 Exclusion Criteria .....	26
3.4 Sample Size Calculation .....	26
3.5 Sampling Technique .....	27
3.6 Study Instruments (See Appendices for copies) .....	27

3.6.1 Socio-demographic Questionnaire .....	27
3.6.2 Edinburg Postnatal Depression Scale (EPDS) .....	28
3.6.3 Multidimensional Scale of Perceived Social Support (MSPSS) .....	28
3.7 Study Procedure .....	29
3.9 Ethical Considerations .....	31
3.9.1 Confidentiality of Data.....	32
3.9.2 Informed Consent.....	32
3.9.3 Beneficence to the Participants .....	32
3.9.4 Non- maleficence to Participants .....	33
3.9.5 Voluntary Participation .....	33
RESULTS .....	33
4.1 Socio-demographic characteristics of the study population.....	34
4.2 Obstetric characteristics of the Respondents .....	35
4.3 Prevalence of depression in the whole sample of pregnant respondents .....	38
4.3.1 Prevalence of Suicidal thoughts in the respondents.....	38
4.4 Association between Perinatal Depression and Socio- demographic Variables of the Respondents	38
4.5 Association between Perinatal Depression and Obstetric characteristics of Respondents .....	40
4.6 Respondent's perception of social support.....	43
4.7 Association between perinatal depression and respondents perceived social support.....	44
4.8 Association between suicidal thought and perceived social support of respondents .....	45
4.9 Association between perceived social support, suicidal thoughts, depression and age .....	46
4.10 Multiple logistic regressions showing the independent variables associated with Perinatal depression .....	48
4.11 Association between Perinatal Depression and stressful life event .....	50
DISCUSSION, CONCLUSION AND RECOMMENDATIONS .....	56
5.1 Discussion .....	56
5.1.1 Socio-demographic characteristics of the study population.....	56
5.1.2: Obstetric characteristics of the study population .....	59
5.1.3: Prevalence of perinatal depression and correlates .....	60
5.1.4: Perinatal depression and Social support.....	61
5.1.5 Perinatal depression and stressful life events.....	62
5.2 Conclusion .....	64
5.3 Recommendations.....	65

REFERENCES .....	66
APPENDIX A .....	74
Informed Consent Form .....	75
InfomKonsentFom .....	75
APPENDIX B .....	78
PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA LEONE.....	78
Socio-Demographic Questionnaire .....	79
APPENDIX C .....	81
Edinburg Postnatal Depression Scale 1 (EPDS) .....	82
APPENDIX D .....	84
Multidimensional Scale of Perceived Social Support ( Zimet, Dahlem, Zimet& Farley,1988) .....	85
APPENDIX E .....	86
Participative Ranking Methodology (Question Guide).....	87
APPENDIX F.....	88
Ethical Approval .....	88

UNIVERSITY OF IBADAN LIBRARY



## LIST OF TABLES

<b>Tables</b>	<b>Title</b>	<b>Pages</b>
Table 4.1	Socio- demographic Characteristics of the Respondents	35
Table 4.2	Obstetrics Characteristics of the Respondents	37
Table 4.4	Association between Perinatal Depression and Socio-demographic variables of Respondents	41
Table 4.5	Association between Perinatal depression and Obstetric characteristics of respondents	43
Table 4.6	Respondent's perception of social support	44
Table 4.7	Association between Perinatal depression and respondents perceived social support	45
Table 4.8	Association between suicidal thought and perceived social support of respondents	46
Table 4.9	Association between perceived social supports, suicidal thoughts, depression and age	48
Table 4.10	Multiple logistic regression of Perinatal depression on variables	50
Table 4.11	List of issues identified by group 1 during participant ranking exercises	52
Table 4.12	List of issues identified by group 1 during participant ranking exercises	53
Table 4.13	Average ranking of shared themes between the 2 groups	54

## ABBREVIATION AND ACRONYMS

ANC:	Antenatal Care
AWC:	Aberdeen Women's Centre
EPDS:	Edinburgh Postnatal Depression Scale
HIV:	Human Immunodeficiency Virus
LAMIC:	Low and Middle Income Countries
MICS:	Multiple Indicator Cluster Survey
PCMH:	Princess Christian Maternity Hospital
SLDHS:	Sierra Leone Demographic and Health Survey
UNDP:	United Nations Development Program
UNFPA:	United Nations Population Fund
UNICEF:	United Nations Children's Fund
WHO:	World Health Organisation

## ABSTRACT

**Background:** Perinatal depression includes depressive episodes that occur during pregnancy, around child birth or within the first year of the postpartum period. Studies have established that the prevalence of perinatal depression among adolescents and young adults is relatively high, with rates ranging from 16% to 44%, depending on the characteristics of the sample, the type of instrument used to assess depressive symptoms, and other bio psychosocial reasons. A number of studies have proven that adolescents and young adults who are mothers are at a higher risk of developing depression and depressive symptoms when compared to older adult mothers and non-pregnant/parenting adolescents. Pregnancy in adolescents and young adult is associated with serious mental health consequences. Unfortunately, like in many other sub-Saharan countries, mental healthcare services in Sierra Leone are poorly developed, and the situation is much worse for child and adolescent mental healthcare.

**Methodology:** This was a cross sectional study. Therefore the objective of the study was to examine the prevalence and correlates of perinatal depression among adolescents and young adults in Freetown, Sierra Leone. A sample of 288 pregnant adolescents and young adults aged 14-21 years old were recruited into the study from three maternity centres: Princess Christian Maternity Hospital and Aberdeen Women Centre in the Western Area urban and Waterloo Community Health Centre in the Western Area rural. The Edinburgh Postnatal Depression Scale was used to measure depression with a cut off score of equal or greater than 12. The Global School Health Questionnaire was adapted to assess socio-demographic characteristics, and the Multidimensional Scale of Perceived Social Support was used to assess respondents' level of social support received. Participatory Ranking Methodology (PRM) was used to determine the stressful life events pregnant adolescents and young adults encounter. The Statistical Package for the Social Sciences

(SPSS) version 20 was used to analyze the data. The Chi-square was used to test the association between perinatal depression and correlates, and multiple logistic regressions was used to identify independent factors associated with perinatal depression. The level of significance for all tests was at 5% ( $p < 0.05$ ). Stressful life events were analyzed using PRM, and this included the following three steps:

Piling of responses

Calculation of average ranking

Account of each responses mentioned by participants

**Results:** The overall mean age of the participants was  $18.6 \pm 1.7$  years. Higher proportions (44.4%) of the respondents were aged between 18-19 years, whilst the least proportion (23.3%) of the respondents was within the age range of 14-17 years. Islam was the predominant religion identified (79.9%), and two-thirds (66.7%) of the respondents had secondary school education, while 17.4% had no formal education. The prevalence of perinatal depression among pregnant adolescents and young adults was 29.5%. Socio-demographic correlates such as family type, person respondent lived with and marital status were identified as significant correlates of perinatal depression ( $p < 0.001$ ). There was a statistically significant association between perinatal depression and respondents perceived social support ( $p < 0.001$ ). Amongst the stressful life events mentioned by participants who were depressed, "Being out of school and Lack of support from partner (father)" were ranked the highest of all the stressful events.

**Conclusions:** This study revealed a high prevalence of perinatal depression among young persons aged 14-21 years in Freetown, Sierra Leone. There was a significant relationship between perinatal

depression, low perceived social support, and stressful life events among the study participants. Efforts should be made to establish support groups for pregnant adolescents and young adults, as well as schemes that ensure that these women are able to return to school or are engaged in some form of skills acquisition after delivery. Services providing mental health care should be incorporated in primary health care centres especially in the routine ANC services in Sierra Leone.

**Key words:** Perinatal depression, adolescent's pregnancy, stressful life events and social support.

UNIVERSITY OF IBADAN LIBRARY

## CHAPTER ONE

### INTRODUCTION

#### 1.1 BACKGROUND OF THE STUDY

The precise definition of adolescence varies by country, age and function (Dorn and Biro, 2011). It is generally associated with the teenage years, and viewed as a transitional stage of physical, cultural and psychological development occurring between puberty and legal adulthood (Dorn and Biro, 2011, Larson and Wilson, 2004). According to the World Health Organisation (WHO), an adolescent is a person between the ages of 10 to 19 years and the period of adolescence is identified as a period of human growth and development that occurs after childhood and before adulthood (WHO, 2016a). On the other hand, the period of late adolescence and young adulthood ranges between the ages of 18-24 years (Teipel, 2001). The period of young adulthood involves changes and exploration that affect all aspects of their life including family, home, work, school, resources and role. There are several changes or development, which occur during the period of adolescence and young adulthood, and these vary by gender, race, ethnicity and social class (Teipel, 2001). Some of the changes include adjusting to a new physical sense of self, adjusting to a sexually maturing body and feelings, developing and applying abstract thinking skills, relationships with parents and peers and meeting demands of increasing mature roles and responsibilities (Teipel, 2001). The combination of the “turbulence” typical of the period of adolescence, with the complexities and hormonal surge of pregnancy comes with it unique and critical consequences for the adolescent mother and the child (Sterling Honig, 2012)

Adolescent pregnancy is a global public health concern due to its high prevalence and significant morbidity rates (CDC, 2011, Chen et al., 2007). According to the World Health Organization (WHO), pregnant adolescents below the age of 15 years old are five times more likely to die during

pregnancy or delivery when compared with women in their 20s (WHO, 2013). Adolescent pregnancy has also been recognized as a complex issue. Its complexity is attributed to a combination of social, economic, and educational factors, such as lack of sexual and reproductive health knowledge, access to contraceptives, gendered social norms around adolescence and sexual behaviour, and vulnerability to power and coercion (Oyedele et al., 2015, Loaiza and Liang, 2013, Bearinger et al., 2007).

A report by WHO in 2016 revealed that about 16 million adolescents aged 15-19 years old give birth each year, which is approximately 11% of all births worldwide (WHO, 2016b). Larger proportions (95%) of adolescent-childbirths occur in low and middle-income countries (LMIC) (Ganchimeg et al., 2014). This may be attributed to the cultural practice of child marriage that is prevalent in most LMIC. Other contributory factors include high poverty rate, sexual abuse and few economic and educational opportunities for females (Gyesaw and Ankomah, 2013, Ganchimeg et al., 2014).

When pregnancy occurs in adolescence, it is frequently associated with negative social and economic consequences on the adolescents, their families and the community as a whole. A lot of girls who become pregnant have to leave school, and many of them have little or no education which makes it difficult to find a job. This may add to the economic burden on the country (WHO, 2014). Adolescent pregnancy has also been found to have a great impact on the child. Adverse infant outcomes, such as low birth weight (Kurth et al., 2010, Ferri et al., 2007), premature birth (Gilbert et al., 2004, Grote et al., 2010), and infant death (Markovitz et al., 2005) appear to be more common among children whose mothers are 15-19 years old.

Depression is a common mental disorder characterized by the presence of low mood, loss of interest in previously enjoyed activities, decreased energy, feelings of guilt or low self-worth,

disturbed sleep or appetite and poor concentration (WHO, 2012). It is a leading cause of disease burden for women living in both high- income and LAMIC (WHO 2008).

Perinatal depression is defined as depression during pregnancy (gestation), around childbirth, and within the first year postnatal (postpartum or puerperium) (Muzik and Borovska, 2010).

Depression has been known to be common and high in pregnant adolescents, although it is frequently under-detected in this population (Chalem et al., 2011), with prevalence rates ranging between 13% and 30% (Freitas et al., 2008, Ferri et al., 2007, Figueiredo et al., 2007, Hodgkinson et al., 2010, Pereira et al., 2010) depending on the characteristics of the sample and the type of instrument used to assess depressive symptoms, as well the threshold for identification of cases. A small number of studies have also looked at depression among pregnant adolescents, even though published reports suggest that compared with pregnant adults, adolescent mothers are at a proportionately greater risk of developing depression (Huang et al., 2007, Schoenbach et al., 1984). The prevalence rates of depression in a study done in the United State of America (USA) among pregnant teens estimated a higher rate between 16% and 44% (Schoenbach et al., 1984). These prevalence rates of depression may vary because of minor differences in sample composition (e.g., urban versus rural) and how depression is been operationalized (Kessler and Walters, 1998)

In a comparative study of teen mothers aged 15-20years old and adult mothers aged 21-37 years old in China, researchers found that at 6 weeks postpartum, 61% of the adolescent mothers had depression compared to 37.7% of the adult mothers (Chen et al., 2007). Perinatal depression has been associated with several risk factors. A study by Alder showed that perinatal depression was associated with foetal and obstetric problems and other adverse developmental outcomes in children (Alder et al., 2007)



## 1.2 JUSTIFICATION OF THE STUDY

Sierra Leone is one of the low income countries in sub-Saharan Africa with high adolescent fertility rate, where more than 10% of adolescents become mothers before the age of 16 years (Neal et al., 2012). There has therefore been growing concerns over the high prevalence of adolescent pregnancy, which has been attributed in part to the decade long civil war (1991 - 2002) and the Ebola virus epidemic (2014-2016) (Government of Sierra Leone, 2015). Current national statistics show that 34% of all pregnancies occur amongst adolescent girls (SLDHS, 2008), and 40% of maternal deaths occur as a result of teenage pregnancy (MICS, 2010). A study by the United Nations Development Program (UNDP) in the eastern parts of Sierra Leone in 2015, reported a 65% increase in teenage pregnancy while a study by Save The Children (Charity organization) revealed a 47% increase across the country (Whyte, 2016). Save the Children suggests that the increase in teenage pregnancy can be attributed to the adverse socioeconomic condition imposed by the Ebola epidemic and the lock down of the country. Consequently, there has been a rise in the rate of adolescent girls dropping out of school (UNICEF, 2008).

Adolescent pregnancy is associated with serious mental health consequences. Unfortunately, like in many other sub-Saharan countries, mental healthcare services in Sierra Leone are poorly developed. The situation is much worse for child and adolescent mental healthcare. There are no mental healthcare services at primary and secondary levels of care. Individuals in need of mental healthcare can only access care in the tertiary care facility which is poorly equipped and under-resourced hospital with a 400-bed capacity for a population of over seven million (SSL, 2015). This healthcare approach may either prevent patients from seeking the much needed mental health treatment or deprive them of family and community support, which is critical for their recovery and rehabilitation. The situation is worsened by the limited number of mental health trained

personnel. For instance, the country has only one trained psychiatrist who is retired and few nurses trained in child and adolescent mental health (CAMH).

Consequently, the mental health treatment gap in the country is about 99.5% (Alemu et al., 2012). Most of the research and public health interventions have been focused primarily on the prevention of adolescent pregnancy, and far less on the health and welfare of the pregnant adolescent or the adolescent mothers. There has been no published study conducted in Sierra Leone to assess the prevalence of depression among pregnant adolescents. This study therefore provided epidemiologic data on the prevalence and the correlates of perinatal depression among adolescents. This study also shed light on helpful practices that will facilitate adolescent mental health during the perinatal period, from the respondents' point of view. It is hoped that this information will emphasize the relevance of integrating mental health services into the overall primary health care system and community-based psychosocial care services for adolescents in the country.

### **1.3 AIM**

The overall aim of this study was to determine the prevalence and correlates of perinatal depression among adolescents and young adults in Western area, Sierra Leone.

### **1.4 SPECIFIC OBJECTIVES**

The specific objectives of the study were to determine:

1. The prevalence of perinatal depression among adolescents and young adults in Western area, Sierra Leone.
2. The relationship between socio-demographic factors and perinatal depression among adolescents and young adults in Western area, Sierra Leone.

3. The relationship between social support and perinatal depression among adolescents and young adults in Western area, Sierra Leone.
4. The types of stressful life events pregnant adolescents and young adults that are depressed in Western area, Sierra Leone encounter and their relative importance.

### **1.5 RESEARCH QUESTIONS**

1. What is the prevalence of perinatal depression among adolescents and young adults in Western area, Sierra Leone?
2. Is there a relationship between socio-demographic factors and perinatal depression among adolescents and young adults in Western area, Sierra Leone?
3. Is there a relationship between stressful life events and perinatal depression among adolescents and young adults in Western area, Sierra Leone?
4. Is there a relationship between social support and perinatal depression among adolescents and young adults in Western area, Sierra Leone?

### **1.6 PRIMARY OUTCOME MEASURES**

The primary outcome measures are the prevalence rate and correlates of perinatal depression among pregnant adolescents and young adults in maternity centres in Western area, Sierra Leone.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Literature Research Strategy

The literature search of this study was done by using several databases and search engines, which included Pub Med and Google Scholar. The key words used for finding information about this study were prevalence, depression, perinatal depression, postpartum depression, adolescent pregnancy, stressful life events and social support. Articles and dissertations for the period 2005 to 2016 were obtained and reviewed; articles of much older dates were included based on the relevance to the subject matter.

#### 2.2 Theoretical Foundation

There are various theories of depression that have different consequences for the therapy that is used. All these theories describe one or several aspects of depression and can be helpful in treatment(Wade, 2011).

**Behaviourist theories:** Behaviourism highlights the significance of the environment in shaping behaviour. The behaviours are observed, and the conditions through which individuals learn these behaviours include, classical conditioning, operant conditioning and social learning theory. Hence, depression is the result of an individual interacting with their environment(McLeod, 2015)

The classical conditioning theory suggests that depression is learned via associating certain stimuli with negative emotional states, whereas social learning theory (Bandura, 1977) states behaviour is learned through observation, imitation and reinforcement. Operant conditioning states that depression is as a result of removal of positive reinforcement from the environment.

People who are depressed usually become less socially active. In addition, if the person does not have social skills or has a very firm personality structure they may find it hard to make the

adjustments needed to look for new and alternative sources of reinforcement. Hence, they get trapped in a negative downward spiral(Lewinsohn, 1974).

Sigmund Freud's psychoanalytic theory states that a large number of cases of depression areas a result of biological factors and that some could be linked to loss or rejection by a parent. Freud also emphasized that depression occurs when the individual's super-ego or conscience is dominant(McLeod, 2015)

The cognitive approach of depression is based on the beliefs of people, rather than their behaviour. Depression occurs due to systemic negative bias in the thinking process(McLeod, 2015).

Aaron Beck cognitive theory identified three mechanisms that he thought were accountable for depression(Beck et al., 1983):

**The cognitive triad:** This involves three forms of negative or helpless thinking that are typical of people with depression and include: negative thoughts about self, the world and the future. People who are depressed tend to have automatic thoughts and these thoughts occur spontaneously. As these three components interact, they interfere with a person's normal cognitive process, which leads to impairments in perception, memory and inability to solve problems. The person becomes obsessed with negative thoughts.

**Negative self-schema:** According to Beck, he opined that people who were depressed were more susceptible to developing negative self-schema, and that they held a set of beliefs and expectations that were essentially negative and pessimistic. He also stated that negative schemas might be acquired in childhood due to traumatic events such as death of a parent or sibling, parental rejection or abuse, bullying at school or exclusion from a peer group. As long as negative schemas were activated, a number of illogical thoughts or cognitive biases seemed to dominate the thinking processes.

**Errors in logic:** Beck (1967) stated that people with negative self-schemas became prone to making logical errors in their thinking and tended to focus selectively on certain aspects of a situation while ignoring equally relevant information. He also pointed out a number of systematic negative biases in information processing known as logical errors or faulty thinking. These errors in logical thinking were self-defeating, and could lead to anxiety and depression. Examples of these illogical thinking patterns include: Arbitrary Inference, Selective Abstraction, Magnification and Minimization, Personalization and Dichotomous Thinking. The cognitive triad could worsen these thoughts and when a person's stream of automatic thoughts was very negative, the person could become depressed.

## **2.3 Literature Review**

### **2.3.1. Development in Adolescents and Young adults**

The precise definition of adolescence varies by country, age and function (Dorn and Biro, 2011). It is generally associated with teenage years, and is viewed as a transitional stage of physical, cultural and psychological development occurring between puberty and legal adulthood (Dorn and Biro, 2011, Larson and Wilson, 2004). According to WHO, an adolescent is a person between the ages of 10 to 19 years (WHO, 2016a). On the other hand, the period of late adolescence and young adulthood ranges between the ages of 18-24 years (Teipel, 2001). The period of young adulthood involves changes and exploration that affect various aspects of their life including family, home, work, resources, school and role (Teipel, 2001).

#### **2.3.1a Biological development in Adolescence**

Biological changes in adolescence start with the onset of puberty, which involves the occurrence of rapid physical growth and psychological changes, ending in sexual maturity (Kail and Cavanaugh, 2010). Pubertal changes are mainly influenced by the hormonal activity of

testosterone, which is primarily released by the testes in males, and estrogen, which is produced by the ovaries in females. Some of the most important aspects of pubertal development involve changes in the adolescents' weight, height, body composition, respiratory and circulatory systems (Marshal, 1978). Another major biological change during this period between puberty and young adulthood is in the frontal lobes of the brain, responsible for such functions as self-control, judgment, emotional regulation, organization, and planning (Begley, 2000). The growth spurt in adolescence is the rapid increase in height and weight, which results from the concurrent release of growth hormones, thyroid hormones, and androgens (Steinberg, 2008). There is a significant increase in weight during the period of adolescence, which makes up almost half of the adult body weight (Susman and Rogol, 2004).

### **2.3.1b Cognitive development**

Adolescence is a period of rapid cognitive development (Smith and Handler, 2007). Jean Piaget describes a stage in which the adolescent's thoughts begin to take on a more abstract form and the egocentric thoughts reduce. This allows the ability to think and reason in a broader perspective (ReCAPP, 2009). Studies from behavioural experiments and functional magnetic resonance imaging fMRI reveal that the prefrontal cortex is generally associated with the development of cognitive skills that enables the control and coordination of thoughts and behaviour (Choudhury et al., 2006). During the period of adolescence and young adulthood, thoughts, ideas and concepts develop which have a great impact on future life, playing a key role in character and personality formation (Pedersen, 1961).

### **2.3.1c Psychological development in Adolescence**

Psychologist G. Stanley Hall in his studies on adolescence viewed this period as a time of internal instability and upheaval. Other psychologists, Erik Erikson and Anna Freud wrote extensively

about adolescence. Anna Freud suggested that the psychological disturbances linked with adolescent were as a result of biological makeup and culture. Erikson on the other hand focused mainly on the division between identity formation and role fulfilment (Lerner and Steinberg, 2004).

### **2.3.1d Social development in Adolescence**

*Identity development:* Developing an identity is one of the stages in the life cycle of an adolescent (Kroger, 1996) . For adolescents to really find out who they are during this period, they try out several behaviours and appearances (Strasburger et al., 2014). It is a hard task for adolescents to develop and maintain identity due to numerous factors which include family life, environment, and social status (Kroger, 1996).According to studies put forward by the American Psychological Association (APA),adolescents who have a more difficult time develop an identity as a result of a less privileged upbringing(APA). Developing identity during the years of adolescence involves two main aspects; these are self-clarity and self-esteem (Strasburger et al., 2014).

*Relationships:* The relationships adolescents have with their peers, family, and with the people around the world, play an important role in adolescent social development. As an adolescent's social sphere develops rapidly, they often become more emotionally interested in friends than family (2012). Also, during the period of adolescence and young adulthood, there is renegotiation in parent-child roles, especially for those who live at home. This is important as residential change is highest in late adolescence and young adulthood than in any other age group(Teipel, 2001). Relationships are fundamental for the social development of these individuals due to the tremendous effect peers can have over them. The importance of these relationships helps adolescents and young adults understand the idea of personalities, how they form and why a person



has that specific type of personality. Also studies have shown that relationships have the greatest influence on the social development of an individual(Adler et al., 2012)

### **2.3.2 Pregnancy in adolescents and young adults**

Adolescent and young adult pregnancy is defined as pregnancy in girls and women between the ages of 10-24 years. It is estimated that approximately 16 million women aged 15–19 years give birth each year, about 11% of all births worldwide (WHO, 2016b). This same report indicates that 95% of these births occur in low and middle income countries. The average adolescent birth rate in middle income countries is more than twice as high as that in high income countries, with the rate in low income countries being five times as high. The proportion of births that take place during adolescence is about 2% in China, 18% in Latin America and the Caribbean and more than 50% in sub-Saharan Africa (WHO, 2016b). A study done in the USA, found that the rate of unwanted pregnancies among women aged 20 to 24 rose by 6 percent from 1994 to 2001, though it declined among adolescents, according to the National Campaign. The same study also showed that 54 percent of unwanted pregnancies occurred in women in their twenties, with the largest proportion, 32 percent, among women 20-24 years(DePaul, 2007).Several studies in other countries have shown that teenage pregnancies, particularly those below 18 years of age, have a higher risk of adverse health outcomes(Goonewardene and Waduge, 2005), including pregnancy induced hypertension (Davies and Dunlop, 1983, Konje et al., 1992, Verma and Das, 1997), maternal anaemia (Konje et al., 1992, Verma and Das, 1997), spontaneous miscarriage (Roman and Stevenson, 1983), low birth weight (Verma and Das, 1997), difficulty coping with the pregnancy(Myors et al., 2001), and behavioural problems. Adolescent mothers are reported to also have a higher overall mortality rate later in life, independent of socio-economic background (Olausson et al., 2004). Moreover, adverse infant outcomes, such as low birth weight (Kurth et al.,

2010, Ferri et al., 2007), premature birth (Gilbert et al., 2004, Grote et al., 2010), and infant death (Markovitz et al., 2005) appear to be more common among children whose mothers are 15-19 years old compared to those aged 20-24 years (young adults).

### **2.3.2a Impact of Pregnancy on Adolescents and young adults**

Several studies in other countries have shown that teenage pregnancies, particularly those below 18 years of age, have a higher risk of adverse health outcomes for both mother and child (Goonewardene and Waduge, 2005), including pregnancy induced hypertension (Davies and Dunlop, 1983, Konje et al., 1992, Verma and Das, 1997), maternal anaemia (Konje et al., 1992, Verma and Das, 1997), spontaneous miscarriage (Roman and Stevenson, 1983), low birth weight (Verma and Das, 1997), difficulty coping with the pregnancy (Myors et al., 2001), risk of sexually transmitted infections such as HIV, postpartum haemorrhage, mental disorders such as depression, obstetric fistula, and other behavioural problems. Adolescent mothers are reported to also have a higher overall mortality rate later in life, independent of socio-economic background (Olausson et al., 2004).

According to WHO, the overall disease burden (disability- adjusted life years) as a result of pregnancy and child birth in adolescents is 23%. It is also estimated that nearly 2.5 million adolescents have unsafe abortions every year with more serious complications compared to older women (WHO, 2016). Low and middle-income countries account for 14% of all unsafe abortions among adolescents aged 15-19. UNFPA points out that deaths among adolescent mothers due to pregnancy related complications is two times more than that of women aged 20 years and above, and teenage pregnancy is the leading cause of death among women in developing countries (UNFPA, 2015).

When pregnancy occurs in adolescence, it is frequently associated with negative social and economic consequences on the adolescents, their families and the community. A lot of girls who become pregnant have to leave school, and many of them have little or no education which makes it difficult to find a job. This increases the economic burdens in countries (WHO, 2014).

### **2.3.2b Impact of Adolescent and Young adults Pregnancy on the Child**

Adolescent pregnancy has also been found to have a great impact on the child, as compared to adult mothers. Adverse infant outcomes, such as low birth weight (Kurth et al., 2010, Ferri et al., 2007), premature birth (Gilbert et al., 2004, Grote et al., 2010), and infant death (Markovitz et al., 2005) appear to be more common among children whose mothers are 15-19 years old. About 50% of stillbirths and deaths of babies in the first week of life are among adolescent mothers (WHO, 2016).

### **2.3.2c Impact of the Civil War and the Ebola Epidemic on Adolescent Pregnancy**

Adolescent pregnancy has long been a problem in Sierra Leone even before the Ebola epidemic that took place from 2014-2015. Sierra Leone experienced a brutal armed conflict which started in 1991 through 2002 that resulted in high number of deaths, approximately 70,000 injuries and nearly half of its population displaced (Kaldor and Vincent, 2006). A lot of human right atrocities were committed, which included amputation of limbs and sexual violence against women and girls (HRW, 2016). In 2013, Sierra Leone was ranked among the ten countries with the highest teenage pregnancy in the world, with 28% of girls aged 15-19 years pregnant or already having given birth at least once (UNFPA, 2015). Statistical reports from UNICEF's Multiple Indicator Cluster Survey (MICS) and Demographic and Household Surveys (DHS) in 2005 and 2008 respectively, show that about 40% of women in Sierra Leone between the ages of 20 and 49 had their first child before

the age of 18. In 2013, a study by DHS found that the median age of first sexual intercourse for girls in Sierra Leone was 16.5, while for boys it was 18 years old (SSL, 2013).

There has been no comprehensive study yet to determine if there was a change in the number of teenage pregnancies during the Ebola epidemic in Sierra Leone. However, anecdotal records and other smaller-scale surveys indicate an increase in teenage pregnancies (UNDP, 2015). It was generally assumed by most of the participants in a survey (Denney et al., 2015) that the emergency measures instituted during the Ebola epidemic to reduce its spread were responsible for the increase in the rates of adolescent pregnancy. Schools were closed for a period of ten months, and other social gathering options restricted. Some of the reasons pointed out by the respondents as responsible for the increase in teenage pregnancies include: lack of activities for teenagers as a result of closure of schools, girls being at home and parents out working putting girls at risk for advances from boys and men within the household and community resulting in an increase rate of teenage pregnancy (Denney et al., 2015). Also as a result of financial hardship faced by many homes under quarantine and travel restrictions, girls were being sent out to earn income. This made them vulnerable to engaging in 'transactional sex' with older men, hence rates of teenage pregnancy increased (Risso-Gill and Finnegan, 2015).

An initial mapping was done by the Government of Sierra Leone and the UNFPA in July-August 2015 in 12 out of the 14 districts in Sierra Leone, identifying adolescents and young adults who were pregnant or became pregnant during the Ebola epidemic or girls who had given birth in the last two months. At the end of the mapping, a total of 14,386 pregnant teenagers were identified, with the youngest respondents aged 11 years old and the oldest being 20 years old. The average age was 17.49 years. UNFPA reported that 11.3% of the respondents who had already given birth,

had babies that were stillborn, resulting in a tremendously high stillborn rate of 113 per 1000 births which are almost four times the previous published rate of 30 in 1000 (UNFPA, 2015).

The Government of Sierra Leone implemented a policy in April 2015 during the Ebola epidemic that all pregnant girls must be excluded from school and from taking examinations. Thousands of pregnant girls were banned, and some that were suspected to be pregnant were publicly examined, having their breast and abdomen checked by teachers and nurses at school. The barring of pregnant girls from school and the public embarrassment, constitute an abuse of the girls' human rights (Amnesty, 2015).

### **2.3.3 Perinatal depression in Adolescents and Young adults**

Perinatal depression is depression occurring in women during pregnancy, around child birth or within the first year of the postpartum period (Muzik and Borovska, 2010). As indicated in a study, 13% of pregnant women suffered the devastating effect of depression, while another study showed that 11-20% of women suffered from post-partum depressive symptoms (O'Hara and Swain, 1996, CDC, 2008). The prevalence of depression has been found to be high among pregnant adolescents, ranging from 16% to 44% (Schoenbach et al., 1984). For non pregnant adolescents, the lifetime prevalence of depression has been documented to be between 5% and 20%, depending on the sample size. However, there may be discrepancies in the prevalence rates of depression due to differences in sample composition such as urban versus rural and how depression is been operationalized (Dopheide, 2006, Kessler and Walters, 1998).

Depression has been known to be common in pregnant adolescents, although it is frequently under-detected in this population (Chalem et al., 2011), with prevalence rate ranging between 13% and 30% (Freitas et al., 2008, Ferri et al., 2007, Figueiredo et al., 2007, Hodgkinson et al., 2010, Pereira et al., 2010) depending on the characteristics of the sample and the type of instrument used to

assess depressive symptoms, as well the threshold for identification of cases. A number of studies have proven that adolescent and young adult mothers are at higher rate of developing depressive symptoms compared to older adult mothers and non-pregnant/parenting adolescents (Schmidt et al., 2006). The higher rate of depressive symptoms in these mothers may be partly due to the unique changes that take place in their development which include physiological, hormonal and developmental changes, and with pregnancy added there are additional physiological and psychological changes (McClanahan, 2009). It has also been shown that depressive symptoms in adolescents and young adult mothers is associated with high levels of parenting stress, social isolation, low self-esteem and family conflicts, as compared to older adult mothers (Ibid., 2005).

#### **2.3.4 Risk Factors of Perinatal Depression in Adolescents and Young adults**

The main risk factors associated with perinatal depression include past psychiatric history; poverty, poor nutrition, low educational level and unemployment; lack of social, family and marital support; stressful life events; use of alcohol, tobacco and drug abuse; and a history of domestic violence (Patel et al., 2004). This study however examines socio-economic and socio-demographic factors, stressful life events and social support, and they are discussed in the following sub-sections.

##### **2.3.4a Socio-economic Factors**

Pregnancy occurring in adolescents and young adults has been frequently attributed to poor education (Bradley et al., 2002), unemployment (Mitsuhiro et al., 2006), socio-economic deprivation (Olausson et al., 2001), and social exclusion (De Silva, 2003). Antenatal and postnatal depression have been found to be more common in women of low-income and those living in low and middle income countries (Bennett et al., 2004).

### **2.3.4b Stressful Life Events**

Stressful life events may include trauma, abuse and loss of a loved one. It has been documented that stressful life events are greater among people with a past history of depression than others with no such history (Kessler, 2003). Pregnancy in adolescents and young adults appears to be a stressful life event that also increases the risk of psychiatric disorders such as depression (Freitas et al., 2008, Mitsuhiro et al., 2009). Adverse consequences of depression among these pregnant women include threats to the mothers' welfare, such as suicidal behaviour (Freitas et al., 2008); and detrimental consequences for the mother-child interactions (Panzarine et al., 1995). The impacts of adolescent and young adult pregnancies, and the associated depression, are felt far beyond the walls of the family home. They also have a demonstrable impact on the social and economic development of communities and countries (Harden et al., 2009). Thus, identifying and understanding the risk factors associated with perinatal depression during adolescent pregnancies would be helpful in developing strategies to prevent and manage the negative outcomes (Harden et al., 2009).

### **2.3.4c Social Support**

Generally, social support can be defined as a voluntary act from one person to another, which brings out an immediate or delayed positive reaction in the recipient (Hupcey, 1998). This support can be given by family members, friends, husband/spouse or others, and it can take different forms ranging from physical, emotional, financial and informational (Logsdon and Koniak-Griffin, 2005). The lack or low level of social support has been identified in several studies as a significant risk factor for postpartum depression (Robertson et al., 2004). Other studies have demonstrated that providing social support prevents disease (Cassel, 1976), and may also decrease the risk of depression during and after pregnancy for women, leading to positive health and pregnancy

outcomes (Figueiredo et al., 2006, Wahn and Nissen, 2008). A Canadian study of women with singleton live births found that both adolescent and adult mothers were five times more likely to experience postpartum depression (PPD) with no or minimal social support after delivery (Kim et al., 2014), indicating the importance of social support in reducing PPD. The relationship between the level of support and PPD showed no statistically significant difference in both groups. There are conflicting reports about the level of social support received by adolescents, young adults and older adult mothers during pregnancy and after birth. Some studies suggest that adolescents and young adult mothers receive significantly less social support than older adult mothers because of their inability to make and sustain relationships with others (Wahn and Nissen, 2008, Figueiredo et al., 2006). Adolescent and young adult mothers were also much deprived in having lower education, being of lower class, and being more likely to be single. However, the Canadian study did show that adolescent mothers received more social support than adult mothers (Kim et al., 2014).

#### **2.4 Management of Perinatal Depression in Adolescents and Young Adults**

The management of perinatal depression is a collaborative and multidisciplinary approach with the psychiatrist, obstetrician and paediatrician working together to teach patients about the risks of untreated depression and the side effects that are associated with the use of psychotropic medications. In managing perinatal depression, both psychotherapy and pharmacotherapy are involved.

There are several psychotherapeutic methods such as cognitive behavioural therapy (CBT) or interpersonal therapy (IPT) and also group therapy which may be beneficial in patients with mild to moderate depression (Yonkers et al., 2009, Dennis and Hodnett, 2007). Also, therapies for the



family and the partner have been shown to be effective in the treatment of patients with perinatal depression (Baucom et al., 1998).

Pharmacotherapy with the use of antidepressants in particular, specifically the selective serotonin reuptake inhibitors (SSRIs) are first line drugs for treating depression during pregnancy and in the postpartum period (Cooper et al., 2007, Andrade et al., 2009)

Studies have shown that depression can have an adverse consequence on the foetus and offspring. Harmful prenatal behaviour has been found to be associated with untreated depression such as smoking, poor nutrition, poor antenatal care, substance abuse and risk of suicide, each of which compromises the health of both the woman and foetus (Nonacs and Cohen, 2003, Hallberg and Sjoblom, 2005). Some of the adverse obstetric complications reported to have been associated with untreated depression include preeclampsia, preterm birth, low birth weight, miscarriage, low Apgar scores, neonatal complications and high neonatal cortisol levels at birth (Alder et al., 2007)

## **2.5 Summary and Conclusions of Literature Review**

The literature reviewed suggests a strong association between perinatal depression in pregnant adolescents and young adults and high maternal mortality and adverse developmental child outcomes.

## **2.6 Relevance of the study**

Given the high prevalence of adolescent pregnancy and the resulting high maternal mortality and morbidity in Sierra Leone, there is the need to study the potential risk factors associated with perinatal depression in adolescent and young adult pregnancies. The study findings would help to support early interventions in detecting and preventing perinatal depression in adolescents, and ultimately reduce maternal mortality and morbidity. The mental health policy objective of the

Government of Sierra Leone is to promote mental health and prevent mental disorders through early interventions and reduction of risk factors.

UNIVERSITY OF IBADAN LIBRARY

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Study Location

This study was carried out at three functioning maternity centres in the Western area of Sierra Leone that include the Princess Christian Maternity Hospital (PCMH), Aberdeen Women's Centre in Freetown, Western Urban District, and the Waterloo Community Health Centre in the Western Rural District. There are fourteen districts in Sierra Leone, and each of these has a health facility. These three health centres were selected because they are the primary health centres (PHC) in the Western Area that provide a specialized programme for pregnant adolescents and young adults. The programme provided by these centres aims at counselling, improving self-esteem, taking care of the new born, and plans for returning to school after the adolescents and young adults have delivered.

Sierra Leone is located on the west coast of Africa and covers an area of about 72,000 square kilometres. It extends from latitude 7 degrees north to 10 degrees north, and from longitude 10 degrees west to 14 degrees west. The Republic of Guinea borders it on the north and northeast, and the Republic of Liberia borders it on the east and southeast. The Atlantic Ocean is on the west and southwest and it extends about 340 kilometres. Sierra Leone is divided into four regions which include: Western Area, Northern Province, Southern Province and Eastern Province. Each region is subdivided into districts, and each district is divided into chiefdoms. There are 14 districts and 149 chiefdoms in total.

According to Statistics Sierra Leone (SSL), the published results of the 2015 national population and housing census shows that Sierra Leone's population had grown from 4,976,871 million in 2004 to 7,075,241 million in 2015. The female population constitutes the larger percentage of the

total population of Sierra Leone, with 50.9% compared to males at 49.1%. The youth population between the ages of 15 - 24 years constitutes 18.57% of the total population (542,975 males and 574,669 females). In the regions, Northern Province has 2,502,805 people compared with Western Area which has 1,493,252 million. The Eastern Province has 1,641,012 million people while the South is the least populated region with 1,438,572 people. English is the official language of Sierra Leone, and there are about 15 ethnic groups. The major ethnic groups include the Mende, Temne, Limba and Krio. The main religions are Islam and Christianity

### **Princess Christian Maternity Hospital**

Princess Christian Maternity Hospital (PCMH) caters for patients with Obstetric and Gynaecological issues. It is situated in Freetown, Western Urban district, Sierra Leone. PCMH is the largest public maternity hospital in the country, and the main referral hospital in Sierra Leone for obstetric and gynaecological problems. The hospital runs a 24-hour service, which include routine antenatal care. It also has a unit for maternal and child health, providing services to mothers and children. The extra services provided for adolescents and young adults, attracts a lot of them to the health facility. In addition, health services provided for pregnant women and children under the age of 5 years are free. PCMH has a large capacity of 150 beds, with a laboratory system, water supply and 24-hour electricity supply. Clinical staff who work at the hospital include: medical doctors, nurses, midwives, community health officers and health attendants. The hospital runs antenatal services every day, and on average 45-50 pregnant adolescents and young adults are seen per week for booking and routine antenatal clinic.

### **Aberdeen Women's Centre**

The Aberdeen Women's Centre (AWC) was opened in Freetown in 2010 to provide free vital obstetric and paediatric care for women and children under the Free Healthcare Programme. It is managed by a UK-based charity with funding from the Freedom for Fistula Foundation, Engender Health and the Government of Sierra Leone. The centre has a maternity unit, fistula unit and children's clinic. The maternity unit is equipped with 21 beds, and provides free contraception, free antenatal, and crucial postnatal and safe delivery care for the poorest women in the local community who benefit from 4-5 months into their pregnancies until they give birth.

The centre also provides special services for pregnant adolescents and young adults under the "Dream Team Program". The programme provides special counselling support to enhance their self-esteem, and support for breast feeding, immunization, and caring for new-born babies. The centre receives 40-45 bookings per month from pregnant adolescents and young adults for antenatal care.

### **Waterloo Community Health Centre**

The centre is located in Waterloo, the capital of the Western Area Rural District, 20 miles east of Freetown. It caters for the Waterloo District community, and provides 24-hour service in maternity care and delivery, family planning, immunization, HIV counselling and treatment, and general consultation for children aged five years and below. Services to lactating mothers, pregnant women and children under the age of five are provided at no cost under the Free Healthcare Programme. It is equipped with a minor operating theatre which is not operational at the moment, a small laboratory for basic investigations, and a 6-bed capacity for observatory purposes to monitor patients in a critical condition during pregnancy and after delivery. The centre also has an adolescent and school counselling programme, which encourages pregnant adolescents to return

to school after delivery. On average, the centre receives about 40-45 pregnant adolescents and young adults per month for antenatal care.

### **3.2 Study Design**

This study adopted a cross sectional design to determine the prevalence and correlates of perinatal depression among adolescents and young adults attending the selected maternity facilities for ANC. Both quantitative and qualitative methods were used in data collection. The quantitative method examined the prevalence and correlates of perinatal depression among adolescents and young adults in the perinatal period.

The study also included the Participative Ranking Methodology (PRM), which involves both qualitative and quantitative data collection. PRM supports a participatory process, which points out key findings or concerns. The PRM is very similar to an open -ended focus group discussion. In which participants produce responses to a particular set of questions which are ranked and compared among groups. This method of data collection in a structured form and results can be used to build up action plans that address recognized concerns(Stark et al., 2009).

This method was used to assess the stressful life events among pregnant adolescents and young adults who screened positive to depression using the Edinburgh Postnatal Depression Scale (EPDS).

### **3.3 Study Population**

The study population included all adolescents and young adults between the ages of 10-21years of age who were within the perinatal period, and attending one of the three maternity centres in Freetown and Waterloo for booking, antenatal or postnatal services. Even though the age of young adults extends to 24 years, the researcher made a decision to take only the younger range of young

adults because they are more similar to adolescents in terms of their characteristics and behaviour. Recruitment of participants therefore stopped at age 21 years.

### 1.3.1 Inclusion Criteria

Participants who met the following inclusion criteria were recruited into the study:

- i. Ages of 10-21 years,
- ii. Either pregnant or within one year postpartum period,
- iii. Willing to participate by assent and whose guardians/caregiver are willing to consent on a voluntary basis,
- iv. Ability to understand Krio (Lingua Franca) and/or English.

### 3.3.2 Exclusion Criteria

The study excluded adolescents and young adults with severe medical illnesses, and obstetric or gynaecological problems.

### 3.4 Sample Size Calculation

The sample size for the study was calculated using the formula:

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

Where,

n = sample size;

$Z\alpha$  = standard normal deviation corresponding to a two-tailed 5% level of significance = 1.96;

p = proportion of perinatal depression, prevalence obtained based on similar studies among general women population that included adolescents in Nigeria = 20% (0.2) (Adewuya and Afolabi, 2005)

q = 1- p = 1 – 0.2 = 0.8;

d = the precision of the estimate (relative or absolute) = 5% = 0.05;

Arbitrarily setting the alpha level at 0.05 (two-tailed); the sample size was estimated at 246 participants. The alpha level denotes the probability of the study outcome being by chance is low and the chance of a null error is 5% (Godwin, 2010). Adjusting for a non-response of 15%, 37 more participants were added to the sample size to give a minimum sample size of 283 participants.

### **3.5 Sampling Technique**

A convenience sampling technique was used to identify and recruit potential study participants on a voluntary basis for the quantitative aspect of the study, whereby standardized interviewer-administered questionnaire was administered to the participants.

A participative ranking methodology (PRM) was also used for the qualitative aspect for participants who met the inclusion criteria in the study and who were said to be depressed using the EPDS. Participants were categorized into two groups based on their age and a convenience sampling also was done for the exercise. Group one, (ages range from 16 to 18 years), and group two, (ages range from 19-21 years). There were eight participants in each group and PRM question guide was drawn which contains four questions. (See Appendix E)

### **3.6 Study Instruments (See Appendices for copies)**

Study data was collected using the following standardized public domain instruments: Socio-demographic questionnaire, Edinburgh Postnatal Depression Scale (EPDS), Multidimensional Scale of Perceived Social Support (MSPSS).

#### **3.6.1 Socio-demographic Questionnaire**

This instrument was adapted from the Global School Health Questionnaire and has been validated for use in Nigeria by(Omigbodun et al., 2008). It was modified and utilized by the investigator to collect data on individual, family, social and antenatal history. It is an interviewer- administered



semi-structured questionnaire. It was a 26-item questionnaire consisting of both open and closed questions.

### **3.6.2 Edinburg Postnatal Depression Scale (EPDS)**

The Edinburg Postnatal Depression Scale is a 10-item questionnaire which is a valuable and efficient tool to assess for depression during pregnancy and one week postpartum period. This instrument is validated in Nigeria and other developing countries (Adewuya et al., 2006). A score above  $\geq 12$  out of a maximum of 30 indicates that the participant may suffer from moderate to severe depression.

### **3.6.3 Multidimensional Scale of Perceived Social Support (MSPSS)**

The Multidimensional Scale of Perceived Social Support developed by (Zimet et al., 1988) is an instrument used to assess perceptions of support from family, friends and a significant others. It is a 12-item questionnaire that was used to measure the relationship between social support from family members, friends or other significant persons and perinatal depression in adolescents. The score is rated on a 7- point likert scale of: 7= very strongly agree, 6= strongly agree, 5= mildly agree, 4= neutral, 3= mildly disagree, 2= strongly disagree and 1= very strongly disagree. Thus, the total score of 84 is obtained and is graded as follows:

69-84 High perceived social support

49-68 Moderate perceived social support

12-48 Low perceived social support

The mean score was calculated across each subscale (Family, Friends and Significant other)

Significant other Subscale: Sum across items 1, 2, 5 and 10, then divided by 4.

Family Subscale: Sum across items 3, 4, 8, and 11, then divided by 4.

Friends Subscale: Sum across items 6, 7, 9 and 12, then divided by 4.

Total Scale: Sum across all 12 items, then divide by 12.

Any mean total scale score ranging from 1 to 2.9 could be considered low support; a score of 3 to 5 could be considered moderate support; a score from 5.1 to 7 could be considered high support.

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

1- 2.9 Low perception of social support

3- 5 Moderate perception of social support

5.1- 7 High perception of social support.

### **3.7 Study Procedure**

Potential participants for the study were identified and recruited based on a set of inclusion and exclusion criteria. The matron-in-charge at the three maternity centres was contacted to help identify pregnant adolescents and young adults attending clinic and adolescents or young adult mothers admitted at or visiting their respective centres as potential study participants. Potential participants who met the set of inclusion criteria were then recruited on a voluntary basis. Information soliciting consent to participate, and clearly defining the study's objectives, the conditions of participation, and the potential health implications of the study findings was shared with the potential participants during the clinic session. Those who voluntarily expressed an interest in participating in the study were allowed to sign an informed consent form. The primary researcher then interviewed the participants in a private room in the maternity centres to ensure privacy and confidentiality. The survey questionnaires were interviewer-administered questionnaires. After the interview, the questionnaires were reviewed immediately for completeness, accuracy and consistency.

The qualitative aspect of the study of the study was done using the PRM to assess the stressful life events among adolescents and young adults that screened positive to depression using the EPDS.

The steps involved in collecting information from participants are described below:

**Pile:** In the process of piling, the facilitator first described the scope of the research questions to the participants and then worked to generate responses from the individuals in the group. A note-taker was there to obtain key features of the discussion. The responses given by participants were linked to specific objects which were 'piled' up in front of the group and listed by the note-taker.

**Rank:** The facilitator asked the participants to agree among themselves about which object represented the most important issue to the least important one. A concern maybe listed very often but, as indicated by the ranking exercise, may not be seen by the participants as the biggest concern. An average ranking or final 'rank' was then calculated for issues mentioned by the group.

**Account:** Each step of the process was recorded and this included responses listed in the 'piled' section, as well as final 'rank' of each agreed response. The note-taker recorded the reasons stated by each participant- their 'account' for positioning of any object.

### **3.8 Data Management and Analysis**

Data collected was cleaned and summarised in tables, percentages, and charts. The Statistical Package for Social Sciences (SPSS) was used to analyse the data. The first part of the data analysis involved a descriptive statistical computation (mean, standard deviation, and frequency) of the participants' demographic characteristics to provide an overall description of the study sample. The second part of the data analysis was determination of the association among the variables (independent and dependent) to test hypotheses. Chi square test was used to test the association between perinatal depression and categorical socio-demographic correlates and perceived social

support. Multiple logistic regressions was used to identify independent factors associated with perinatal depression. Level of significance for all tests was at 5% level.

The Qualitative part of the study addressed stressful life events among adolescents and young adults that were depressed within the perinatal period. The following steps were involved in the data analysis

1. Compilation of the response data: The facilitators' tabulated lists of responses (ranked life events and attributes) are compiled. Each response was transcribed onto a card for sorting and the rank which defined the importance of the response was noted on each card.
2. Analysis of response frequencies: once the responses are compiled onto cards, the investigator identified how many groups identified the same responses to determine which responses were listed most frequently.
3. Calculation of average rankings: in order to evaluate the importance of the responses the average rank of responses was calculated and each response with lower rankings indicating greater importance. Calculation of the average ranking of an issue mentioned by participants was done by adding up the ranking number from each group and dividing by the number of groups.

### **3.9 Ethical Considerations**

Ethical and scientific approval to conduct the study was obtained from the Office of the Sierra Leone Ethics and Scientific Review Committee of the Ministry of Health and Sanitation, Youyi Building, Freetown. The checklists/ protocol for ethical approval contain provisions that protect study participants rights and minimize the risk of harm to them. The conduct of this study was guided by fundamental principles of voluntary participation; free, prior and informed consent; privacy and confidentiality. The consent form (Appendix A) clearly and fully describes the nature of the study, recruitment procedures, potential risks and benefits involved, and the rights of the

participants to withdraw from the study at any time without penalty or repercussions. Every participant was individually interviewed by the interviewer in a private room within the maternity centres to ensure privacy and confidentiality of information. Data collected in this study was kept safe on a password-protected personal computer and used only for the purpose of this study.

### **3.9.1 Confidentiality of Data**

Information collected from participants was secured and kept confidential. The questionnaires used were coded according to each participant. The local language (Krio) was used to translate all research protocols, consent form and questionnaires to enable easy understanding by the participants.

Two professional translators did the translation (English – Krio) and the back-translation (Krio – English) of all the survey questionnaires and the informed consent form. The translation and back-translation were done separately and independently to validate the translation. Translation was necessary for instances.

### **3.9.2 Informed Consent**

All information regarding the study procedure was clearly explained to all participants in order to allow them make informed decisions as to whether or not to participate in the study. For participants who are below 18 years, consent was obtained from parent or guardians, and assent from participants.

### **3.9.3 Beneficence to the Participants**

During the course of data collection, participants who screened positive for depression using the EPDS were given free psychological support (counselling) during the interview process and the health centres were informed about their conditions. No participant was suspected of having any

other mental illness. Any case of severe mental illness would have been referred to the Sierra Leone Psychiatric Hospital at Kissy, Freetown.

A "Thank You Card" was given to participants as a form of encouragement for participation in the study.

#### **3.9.4 Non- maleficence to Participants**

The participants will only be obliged to respond to questions on the questionnaires. No invasive procedure was carried out during the course of the study.

#### **3.9.5 Voluntary Participation**

The will to participate in this study was absolutely voluntary and participant had the right to withdraw at any time during the course of the study without any penalty. Participants were not required to answer questions they are not comfortable with nor do not want to answer, and may as a result withdraw from the study at that point.

## **CHAPTER FOUR**

### **RESULTS**

This chapter provides findings from the study which examine the prevalence and correlates of perinatal depression among pregnant adolescents and young adults in Western area, Sierra Leone. It is divided into three sections; section one presents the socio-demographic and obstetrics characteristics, section two presents the prevalence and correlates of depression and section three presents the qualitative findings from the qualitative studies.

## **Section 1 Socio-demographic and Obstetric characteristics**

### **4.1 Socio-demographic characteristics of the study population**

A total of 288 pregnant adolescents and young adults were recruited into the study, with age ranging from 14 to 21 years. Higher proportions (44.4%) of the respondents were aged between 18-19 years, whilst the least proportion (23.3%) of the respondents was within the age range of 14-17 years. Majority 230 (79.9%) of the respondents were Muslims. A total of 169 (58.9%) affirmed that they were from a polygamous family setting. One third (66.7%) of the respondents had secondary school education and above, while 50 (17.4%) had no formal education. Regarding marital status of respondents, 141 (49.1%) indicated they were married, with 120 (41.7%) cohabiting with their partner. (See Table 4.1)

**Table 4.1: Socio- demographic Characteristics of the Respondents N=288**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage %</b>
<b>Age (years)</b>		

14-17	67	23.3
18-19	128	44.4
20-21	93	32.3
Total	288	100
<b>Religion</b>		
Islam	230	79.9
Christianity	58	20.1
Total	288	100
<b>Family type</b>		
Monogamous	118	41.1
Polygamous	169	58.9
Total	287	100
<b>Marital status</b>		
Single	146	50.9
Married	141	49.1
Total	287	100
<b>Level of education</b>		
No formal education	50	17.4
Primary	46	16.0
Secondary/ Tertiary	192	66.7
Total	288	100
<b>Employment status</b>		
Students	10	3.5
Unemployed/Home makers	126	43.7
Traders/Artisans	152	52.8
Total	288	100

#### 4.2 Obstetric characteristics of the Respondents

Table 4.2 shows the frequencies and percentages of the obstetric characteristics of respondents.

More than half 187 (65.2%) of the respondents reported they registered pregnancy at the hospital



within the second trimester (4-6 months). A total of 164 (57.7%) of the respondents indicated that it was their first time of attending antenatal clinic for care. Majority (83.3%) of the respondents reported they had taken two (2) doses of tetanus toxoid injection during this period when they were pregnant. An overwhelming majority (94.4%) of the respondents reported they had experienced health difficulties or challenges in the current pregnancy. Some of the challenges included vomiting, loss of appetite, fatigue, vaginal discharge, bleeding during pregnancy and oedema (See Table 4.2).

**Table 4.2: Obstetrics Characteristics of the Respondents N= 288**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage %</b>
------------------	------------------	---------------------

<b>Age of pregnancy at registration for ANC</b>		
First trimester (1-3 months)	45	15.7
Second trimester (4-6 months)	187	65.2
Third trimester (7-9 months)	55	19.2
Total	287	100
<b>Number of times attended ANC</b>		
1	164	57.7
2-3	73	25.7
>4	47	16.5
Total	284	100
<b>Completed 2 doses of tetanus toxoid injection in this pregnancy</b>		
Yes	240	83.3
No	48	16.7
Total	288	100
<b>Self-report of health challenges in this pregnancy</b>		
Yes	269	94.4
No	16	5.6
Total	285	100

## Section 2 Prevalence and correlates of perinatal depression

### **4.3 Prevalence of depression in the whole sample of pregnant respondents**

The overall prevalence of perinatal depression was 85(29.5%) out of 288 pregnant adolescents and young adults that were sampled.

#### **4.3.1 Prevalence of Suicidal thoughts in the respondents**

From the study, out of the 288 respondents sampled, a proportion of (8%) reported they had thought of harming themselves (Suicidal thoughts) in the past seven days prior to the interview date. This was for 27.1% of the 85 respondents who screened positive to depression on the Edinburgh Postnatal Depression Scale (EPDS).

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

The prevalence of perinatal depression in respondents aged 14-17 years (38.8%) was higher than for those aged 20-21 years (25.8%). This difference was not statistically significant ( $p= 0.158$ ). Regarding religion, depression was found to be higher among Christians (37.9%) as compared to Muslims (27.4%). This difference was not statistically significant ( $p= 0.116$ ). A higher proportion of the respondents who reported they came from a monogamous family had depression, compared to those from a polygamous family setting (38.1% Vs 23.7%). This difference was statistically significant ( $p<0.001$ ). A higher prevalence of perinatal depression 64 (43.8%) was reported among respondents who were single, compared to 21 (14.9%) of respondents who were married. This difference was statistically significant ( $p< 0.001$ ). Also, respondents who reported living with their husbands had a lower prevalence of depression than those living with other people (16.7% Vs 38.8%). This difference was statistically significant ( $p<0.001$ ). Depression was found to be higher

among respondents who had a secondary school and higher education (31.8%), than those with no formal education (20.0%). This difference was not statistically significant ( $p= 0.264$ ). Regarding income earning, the prevalence of depression was higher (52.9%) of respondents who were not earning income (students, homemakers or unemployed), compared to those who were earning income (traders or artisans) 40 (47.1%). This difference was statistically not significant ( $p= 0.208$ ). (See Table 4.4)

UNIVERSITY OF IBADAN LIBRARY

**Table 4.4: Association between Perinatal Depression and Socio- demographic variables of Respondents N= 288**

Variables	Perinatal depression	Total	X <sup>2</sup>	p- value
-----------	----------------------	-------	----------------	----------

	Yes (%)	No (%)			
<b>Age (years)</b>					
14 - 17	26(38.8)	41(61.2)	67	3.69	0.158
18 - 19	35(27.3)	93(72.7)	128		
20 - 21	24(25.8)	69(74.2)	93		
Total	85(29.5)	203(70.5)	288(100)		
<b>Religion</b>					
Islam	63(27.4)	167(72.6)	230	2.473	0.116
Christianity	22(37.9)	36(62.1)	58		
Total	85(29.5)	203(70.5)	288(100)		
<b>Family type</b>					
Monogamous	45(38.1)	73(61.9)	118	6.976	0.008*
Polygamous	40(23.7)	129(76.3)	169		
Total	85(29.6)	202(70.4)	287(100)		
<b>Person lives with</b>					
Husband	20(16.7)	100(83.3)	120	16.324	<0.001*
Parents/Grandparents	25(38.5)	40(61.5)	65		
Other	40(38.8)	63(61.2)	103		
Total	85(29.5)	203(70.5)	288(100)		
<b>Level of education</b>					
No Formal Education	10(20.0)	40(80.0)	50	2.664	0.264
Primary	14(30.4)	32(69.6)	46		
Secondary and higher	61(31.8)	131(68.2)	192		
Total	85(29.5)	203(70.5)	288(100)		
<b>Marital status</b>					
Married	21(14.9)	120(85.1)	141	28.823	<0.001*
Single	64(43.8)	82(56.2)	146		
Total	85(29.6)	202(70.4)	287(100)		
<b>Employment status</b>					
Earning income (traders/artisans)	40(47.1)	112(55.2)	152	1.583	0.208
Not earning income (students, unemployed/homemakers)	45(52.9)	91(44.8)	136		
Total	85(29.5)	203(70.5)	288(100)		

\* :Value significant at  $p < 0.05$

#### 4.5 Association between Perinatal Depression and Obstetric characteristics of Respondents

Table 4.5 shows the association between perinatal depression and obstetric characteristics of pregnant adolescents and young adults. Depression was found to be high among respondents who registered for Antenatal Care (ANC) in the third trimester, compared to those who registered in the first trimester (36.4% Vs 35.6%). This association was not statistically significant ( $p= 0.222$ ). Regarding the number of times attended ANC, (32.9%) of those with depression were reported to have attended ANC 2-3 times, compared to those who attended 4 times and above (27.7%). The prevalence of depression was higher among respondents with health challenges in the current pregnancy, compared to those with no health challenges (30.1% Vs 25.0%). This difference was statistically not significant ( $p= 0.848$ ) (See Table 4.5).

**Table 4.5: Association between Perinatal depression and Obstetric characteristics of respondents N= 288**

Variables	Perinatal depression		Total	X <sup>2</sup>	P value
	Yes (%)	No (%)			
<b>Age of pregnancy registration for ANC</b>					
First trimester (1-3 months)	16(35.6)	29(64.4)	45	3.008	0.222
Second trimester (4-6months)	49(26.2)	138(73.8)	187		
Third trimester (7-9 months)	20(36.4)	35(63.6)	55		
Total	85(29.6)	202(70.4)	287(100)		
<b>Number of times attended ANC</b>					
1	46(28.0)	118(72.0)	164	0.636	0.728
2-3	24(32.9)	49(67.1)	73		
>4	13(27.7)	34(72.3)	47		
Total	83(29.2)	201(70.8)	284(100)		
<b>Self-report of health challenges in this pregnancy</b>					
Yes	81(30.1)	188(69.9)	269	0.613	0.848
No	4(25.0)	12(75.0)	16		
Total	85(29.7)	201(70.3)	286		

#### 4.6 Respondent's perception of social support

Table 4.6 shows respondent's perceptions of social support using the Multidimensional scale of perceived social support. There were 3 categories of respondent's perception of social support and these are: High social support; Moderate social support; and Low social support. These perceptions of social support can be received by respondents from either family, friends or significant others such as spouse.

From Table 4.6, 17(6.0%) of pregnant adolescents and young adults perceived the social support they received to be low, more than half 203(71.5%) of the respondents perceived to received moderate social support and 64(22.5%) received high social support (See Table 4.6)

**Table 4.6: Respondent's perception of social support**

Variable	Frequency	Percentage %
Low perceived social support	17	6.0
Moderate perceived social support	203	71.5
High perceived social support	64	22.5
Total	284	100



#### 4.7 Association between perinatal depression and respondents perceived social support

Table 4.7 shows the association between perinatal depression and perceived social support among pregnant adolescents and young adults. A higher proportion of respondents 56 (87.5%) who did not have depression reported to have received high level of social support, compared to those who had depression 8 (12.5%). There was a statistically significant association between perinatal depression and respondents perceived social support ( $p < 0.001$ ). (See Table 4.7).

**Table 4.7: Association between perinatal depression and respondents perceived social support**

Variables	Depression		Total	X <sup>2</sup> -value	Df	p-value
	Yes	No				
Low perceived social support n(%)	9(52.9)	8(47.1)	17(6.0)			
Moderate perceived social support n(%)	67(33.0)	136(67.0)	203(71.5)	14.561	2	0.001*
High perceived social support n(%)	8(12.5)	56(87.5)	64(22.5)			
Total	84(29.6)	200(70.4)	284(100)			

\*: Value significant at  $p < 0.05$

#### 4.8 Association between suicidal thought and perceived social support of respondents

Table 4.8 shows the association between suicidal thought and perceived social support of pregnant adolescents and young adults. About 6(35.3%) of the respondents who reported they had suicidal thoughts in the last one week prior to interview date, also reported they received low social support. This proportion is high, compared to 17(8.4%) and 0(0.0%) of respondents who reported to perceived moderate and high social support respectively from family, friends and significant others. This association between suicidal thoughts and perceived social support was statistically significant ( $p \leq 0.001$ ). (See Table 4.8)

**Table 4.8: Association between suicidal thought and perceived social support of respondents**

Variables	Suicidal thought		Total n(%)	X <sup>2</sup> - value	df	p-value
	Yes n(%)	No n(%)				
Low perceived social support	6(35.3)	11(64.7)	17(6.0)			
Moderate perceived social support	17(8.4)	186(91.6)	203(71.5)	22.554	2	0.000*
High perceived social support	0(0.0)	64(100)	64(22.5)			
Total n(%)	23(8.1)	261(91.9)	284(100)			

\*: Value significant at  $p < 0.05$

#### **4.9 Association between perceived social support, suicidal thoughts, depression and age**

Table 4.9 shows association between ages of the respondents grouped into three categories as 14-17 years, 18-19 years and 20-21 years, perceived social supports, suicidal thoughts and depression. The results show that respondents aged 20-21 years (48.4%) had a high level of perceived social support, compared to respondents aged 14-17 years (29.4%) with a low level of perceived social support. There was a significant association between age of respondents and perceived social support ( $p < 0.001$ ). The result shows no significant association between age of respondents and depression ( $p = 0.158$ ). However, a high prevalence of depression (38.8%) was found among respondents aged 14-17 years, compared to (25.8%) in respondents aged 20-21 years. Also from the results, it shows a higher proportion of respondents aged 14-17 years who reported suicidal thoughts (13.4%), compared to older respondents aged 20-21 years (4.3%). This association was not statistically significant ( $p = 0.109$ ). (See Table 4.9)

**Table 4.9: Association between perceived social support, suicidal thoughts, depression and age**

Variables	Age (years)			Total n(%)	X <sup>2</sup> -value	p-value
	14-17	18-19	20-21			
<b>Social support</b>						
Low social support n(%)	5(29.4)	10(58.8)	2(11.8)	17(6.0)		
Moderate social support n(%)	53(26.1)	91(44.8)	59(29.1)	203(71.5)	13.404	0.009*
High social support n(%)	8(12.5)	25(39.1)	31(48.4)	64(22.5)		
Total	66(23.2)	126(44.4)	92(32.4)	284(100)		
<b>Depression</b>						
Yes	26(38.8)	35(27.3)	24(25.8)	85(29.5)		
No	41(61.2)	93(72.7)	69(74.2)	203(70.5)	3.685	0.158
Total	67(23.3)	128(44.4)	93(32.3)	288(100)		
<b>Suicidal thought</b>						
Yes	9(13.4)	10(7.8)	4(4.3)	23(8.0)		
No	58(86.6)	118(92.2)	89(95.7)	265(92.0)	4.429	0.109
Total	67(23.3)	128(44.4)	93(32.3)	288(100)		

\*: Value significant at p< 0.05

#### **4.10 Multiple logistic regressions showing the independent variables associated with Perinatal depression**

The adjusted odds ratios and confidence intervals from the multiple logistic regression of perinatal depression on socio-demographic variables are shown in Table 4.10. Position among parents' children, marital status, and social support remained significantly associated with perinatal depression after adjusting for other variables. Adolescents and young adults of higher order among parents' children were more significantly less likely than first children to have depression. Unmarried women were 4.34 times more likely than those married to have perinatal depression (95% CI = 1.43 – 13.22). Women reporting low social support were 9 times more likely to have perinatal depression (95% CI = 2.23 – 38.15), and those that received moderate social support 3 times more likely (95% CI = 1.2 – 7.53) than women that had high social support. Age, religion, influence of religion on family life, family type, family size, and person respondent lives with were not independently significantly associated.

**Table 4.10: Multiple logistic regression of perinatal depression on variables N= 288**

<b>Variables</b>	<b>Adjusted Odds ratios (AOR)</b>	<b>95% CI OR</b>	<b>p-value</b>
<b>Age (years)</b>			
14 - 17	0.85	0.38 - 1.90	0.697
18 - 19	0.74	0.37 - 1.49	0.397
20 - 21(Ref)	1		
<b>Religion</b>			
Islam(Ref)	1		
Christianity	1.39	0.69 - 2.78	0.359
<b>Influence of religion on family life</b>			
Very much(Ref)	1		
Much	0.57	0.27 - 1.22	0.148
Just a little	0.56	0.28 - 1.11	0.096
<b>Family type</b>			
Monogamous	1.19	0.55 - 2.59	0.659
Polygamous(Ref)	1		
<b>Number in the family</b>			
<10	1.37	0.49 - 3.85	0.553
10-19	1.58	0.59 - 4.20	0.360
20+(Ref)	1		
<b>Position among parent's children</b>			
1(Ref)	0.29	0.12 - 0.72	0.007*
2-4	0.38	0.16 - 0.93	0.035
5+			
<b>Person lives with</b>			
Husband(Ref)	1		
Parents/Grandparents	1.15	0.33 - 3.94	0.829
Other	1.01	0.32 - 3.20	0.990
<b>Marital status</b>			
Married(Ref)	1		
Single	4.34	1.43 - 13.22	0.010*
<b>Social support</b>			
Low	9.22	2.23 - 38.15	0.002*
Moderate	3.01	1.20 - 7.53	0.019*
High(Ref)	1		

\*: Indicates significant association

Ref: Reference category

#### **4.11 Association between Perinatal Depression and stressful life event**

Participative Ranking Methodology was used to assess the types of stressful life events pregnant adolescents and young adults encounter. This exercise was done for those who screened positive to depression using the Edinburgh Postnatal Depression Scale (EPDS).

There were two (2) groups of participants from the list of respondents who screened positive to depression using the EPDS. Each group had eight (8) participants and the age range was different in each. The ages in the two groups were 16-18 years for group one and 19-21 years for group two.

The question guide contains four questions and these include:

1. What makes life stressful for young pregnant girls?
2. Why are these things stressful?
3. Which of these is the most stressful down to the least stressful? Rank them in order of how stressful they are.
4. What are the things that can be done (by family, friends, society or government) to help improve these stressful events? And make life easier for a girl who is pregnant.

## GROUP 1 (16-18 years)

Table 4.11 shows the list of stressful life events mentioned by adolescents and young adults, ranking of the events and examples given by them. The rank indicates the priority given to each issue; 1 been the most highly ranked, whilst 8 is the least ranked.

**Table 4.11: List of issues identified by group 1 during participant ranking exercises**

List of stressful life events	Rank	Examples
Kicked out of the house by parents	1	<i>"They were my only hope, staying with my neighbour stresses me"</i>
Lack of support from partner	2	<i>"He travelled and I am the only one taking care of my pregnancy"</i>
Being out of school	3	<i>"My dad always criticized me when he sees my friends going to school"</i>
Unplanned pregnancy	4	<i>"Lack or minimal knowledge about pregnancy prevention or the use of contraceptives"</i>
Lack of support from parent	5	<i>"Sometimes I don't even have what to eat, and I walk on foot to clinic"</i>
Attempted abortion	6	<i>"I wasn't ready to become a mother yet"</i>
Maltreatment by partner	7	<i>"He blamed me of being pregnant"</i>
Friends abandoned me	8	<i>"No one to count on to tell me problems"</i>



## GROUP 2 (19-21 years)

Table 4.12 shows the list of stressful life events mentioned by adolescents and young adults, ranking of the events and examples given by them. The rank indicates the priority given to each issue; 1 been the most highly ranked, while 8 is the least ranked.

**Table 12: List of issues identified by group 2 during participant ranking exercises**

List of stressful life events	Rank	Examples
Being out of school	1	<i>"Parents could not afford to send me back to school after I deliver"</i>
Lack of support from partner	2	<i>"He is also a student and he cannot afford to support me"</i>
Lack of support from parents	3	<i>"There is no one else to support me"</i>
Having twin pregnancy	4	<i>"I cannot even take care of myself, now I am having 2 children"</i>
Unplanned pregnancy	5	<i>"I wasn't ready for it, now I am out of school"</i>
Pregnancy denied by father	6	<i>"He wasn't ready for a child due to financial constraints "</i>
Attempt abortion	7	<i>"My mom asked me to abort the pregnancy because she cannot take care of my baby and I"</i>
Hunger/ poverty	8	<i>"No support from partner or parents"</i>

**Table 13: Average ranking of shared themes between the 2 groups.**

Table 4.13 shows the average ranking of shared themes between the two groups. This ranking indicates the priority given to each issue. The two most highly ranked stressful events were "Being out of school and lack of support from the father or partner", while the least ranked was attempted abortion.

**Table 4.13: Average ranking of shared themes between the 2 groups.**

List of stressful life events	Average rank
Being out of school	2
Lack of support from the father	2
Lack of support from parent	4
Unplanned pregnancy	4.5
Attempted abortion	6.5

**What are the things that can be done (by Government, family, friends, NGOs and other people) to help improve these stressful events?**

**Themes derived from the adolescents and young adults during the PRM exercise include:**

**Support provided by families:** *"Families should encourage and support their pregnant adolescents and young adults throughout the pregnancy and thereafter".*

**Pregnant adolescents and young adults should be allowed to return to school:** *"Family and Government provide support to us pregnant adolescents so that we can return to school after delivery; this will make us become responsible citizens in the future".*

**Government should provide support:** *"Government should provide support to pregnant adolescents and young adults who are facing challenges, and going astray"*

**Government should provide more contraception:** *"We are not happy that we are pregnant at an early age, and we all do make mistakes. Some of us were not aware of "preventive" (contraception). We would like the Government to provide more contraception to prevent early pregnancy among adolescents and young adults. This will allow us to go to school and achieve more. I am hoping and praying my parents would send me back to school after I safely deliver the baby. Staying home stresses me".*

**Young people should be provided with counselling to take education opportunities seriously:** *"I am also appealing to other adolescents and young adults out there not to repeat our mistakes, particularly when they are in school. They should take schooling seriously, and not be sexually active so that they would not be dropouts".*

**Provision of programmes to support the return to school for pregnant adolescents:**  
*"Government should provide scholarship programme for pregnant mothers who have*

*dropped out of school; parents may not have the upper hand to send back adolescent mothers to school".*

**Vocational training should be made available for pregnant adolescents and those who are mother:** *"Also parents who do not have the upper hand to send us back to school should at least provide some vocational training for us".*

UNIVERSITY OF IBADAN LIBRARY

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Discussion

This study examined the correlates of perinatal depression among pregnant adolescents and young adults in Freetown, Sierra Leone. A sample of 288 pregnant adolescents and young adults with ages ranging from 14 to 21 years were recruited into the study. The discussions of the findings obtained from the study are divided into five sections. Sections one to three discuss the socio-demographic characteristics, obstetric characteristics and the prevalence of perinatal depression respectively. Sections four and five discuss perinatal depression and its relationship with social support received by adolescents and young adults and stressful life events encountered by these women.

##### 5.1.1 Socio-demographic characteristics of the study population

The overall mean age of the participants was  $18.6 \pm 1.7$  years old. This mean age is lower than what was ( $19 \pm 2.2$  years old) reported in a similar study of the correlates of perinatal depression among young people aged 15-24 years old in Southwest Nigeria (Adeoye, 2016). However a study carried out in Brazil among pregnant adolescents aged 13-19 years, reported a lower mean age of  $17.3 \pm 1.6$  years old (Coelho et al., 2013). The difference in the reported mean ages of respondents could be attributed to the differences in the age range of the study participants for each study. Similar to the current study, respondents in Southwest Nigeria included young adults aged 19-24 years old (Adeoye, 2016), while the study among Brazilian population included only adolescent respondents aged 13-19 years old (Coelho et al., 2013).

Furthermore, the proportion of participants recruited into this study differed by age groups. The lowest proportion of participants was in the younger adolescent age group (14-17 years old). This healthcare facility based study failed to recruit the early adolescents aged 9-13 years. Even though there would be lower rates of pregnancies among early adolescents, the few who actually get pregnant may fail to present in hospital due to stigma, shame or poverty. This is evidenced by the dearth of research on perinatal depression in early adolescents. A reason why pregnancy is relatively uncommon in this very young age group would not necessarily be because they are not sexually active but because their reproductive organs are not well-developed especially in developing countries where infection and under nutrition delays the onset of puberty (Omigbodun et al., 2010). The highest proportion of adolescents was in the 18-19 years old category. This is typically the age when adolescents complete their senior secondary school education (equivalent to high school) and are making plans for the next phase of their lives. Also, it is important to note that adolescents who got pregnant during the post-Ebola period in Sierra Leone were banned from schools.

An overwhelming majority (79.9%) of the respondents were Muslims. This finding is in keeping with the religious affiliation of the people of Sierra Leone (78.2% Muslims Vs. 21.2% Christians) (SLDHS, 2015). The large proportion of Muslims found in this study is also similar to the findings reported by few studies conducted across the country. For instance, a study among in-school adolescents in the eastern part of Freetown, Sierra Leone reported a proportion of 77.7% Muslims with the rest being Christian (Bah, 2016) while another study among mothers of under-five children in Western Area, Sierra Leone found that over two-thirds (68.3%) were Muslims as against a third (31%) being Christians (Luke, 2016).

More than half (58.9%) of the respondents reported that they were from polygamous family settings. According to the Sierra Leone Demographic and Health Survey, more women were raised in polygamous families while 37% of married women were in polygamous marriages (SLDHS, 2008). This may be a reflection of the tenets of the predominant religion Islam in the country, which permits male followers to marry up to four wives.

Less than half (49%) of the respondents in this study were married in contrast to another study on perinatal depression in young persons aged 15 to 24 years in Southwest Nigeria where over three quarters (76.3%) were married (Adeoye, 2016). In a study conducted in the USA in 2001, adolescents who had children within the context of a marriage accounted for only 4% of births to adolescents younger than age 15 years and 21% of births to girls aged 15- 19 years (Maritin et al., 2002) an indication that most adolescents getting pregnant were unmarried. The difference in proportion may be a reflection of the culture of child marriage in most African countries. According to a report by UNICEF, it is estimated that about 10% of women and girls alive today are married before their 18<sup>th</sup> birthday and 17% of them live in Africa (UNICEF, 2015). Possibly the study in Southwest Nigeria had more child brides. Although, there is a gradual decline in the prevalence of child marriage in Africa, it still remains higher than the global rate (UNICEF, 2015). The finding that almost half of the respondents in the current study were unmarried also suggests that some of the young women may have had unwanted pregnancies. This study showed that more than half of the respondents had at least secondary level of education, while less than 1 in 5 had no formal education. In Sierra Leone, it is estimated that more than half of the women and two in five men aged 15-49 years have no formal education (SLDHS, 2013). About 30% of women and 47% of men have attended secondary school or higher (SLDHS, 2013). The relatively high proportion of adolescents and

young adults with secondary school education in this study can be linked to the fact that majority of respondents living in the Western urban area have an increased awareness about the importance of education when compared to those living in the Western rural area (Waterloo).

The findings of this study revealed that very few (3.5%) of the respondents were still in school. Majority of the respondents were traders, homemakers or simply unemployed. This may be attributed to the fact that they had dropped out of school because of unplanned pregnancy and had acquired other skilled training.

#### **5.1.2: Obstetric characteristics of the study population**

The most common gestational age at registration in the maternity centres was within second trimester and only about one in seven adolescents and young adults booked in the first trimester. This is similar to the findings of (Adeoye, 2016) in Southwest Nigeria were just above 1 in 10 respondents (14.4%) registered in maternity centres in their first trimester (Adeoye, 2016). Moreover, the current study revealed that over half of the respondents had attended Antenatal care (ANC) just once as at the time of the interview. These findings reiterate the relatively poor utilization of ANC by this age group of adolescents and young adults, despite the provision of free health care services that are available to all pregnant women in Sierra Leone (Thompson, 2010). This poor utilization of ANC would also explain why majority (94.4%) of the respondents reported health challenges in their current pregnancy.



### **5.1.3: Prevalence of perinatal depression and correlates**

Almost 30% of pregnant adolescents and young adults in Freetown, Sierra Leone had perinatal depression while 8% harboured suicidal thoughts.

This is relatively higher than what had been found in southwest Nigeria among pregnant women. For instance, (Adeoye, 2016) reported a 20% prevalence rate of perinatal depression among young persons in Ibadan, while (Thompson and Ajayi, 2016) reported a prevalence of 24.5% among women aged 15-49 years attending antenatal clinics in Abeokuta.

A possible reason for the high prevalence in our study is the fact that the study was conducted in two of the areas that were most affected by the recent EVD epidemic that befell Sierra Leone and which recorded a high mortality rate, left many children orphans and disrupted economic and social activities among others (UNFPA, 2015). Although Nigeria has had its share of trauma resulting from political and religious conflicts, the reported studies were carried out in southwest Nigeria, which is a relatively peaceful region of the country. Studies carried out in communities or regions that have been exposed to traumatic events report higher rates of perinatal depression. For instance, among women in South Africa, the prevalence of antenatal and postnatal depression was found to be 47% and 50.3% respectively (Stellenberg and Abrahams, 2015).

Studies have established that adolescent mothers are at higher risk of developing depression during pregnancy and the postpartum period (Barnet et al., 1996, Hudson et al., 2000, Rich-Edwards et al., 2006), hence, the younger the mother the greater the risk for depression (McGee et al., 1983). This is similar to the pattern found in this study; 38.8% of adolescents aged (14-17 years) had perinatal depression compared to the 25.8% of young adults aged 20-21 years. This is also similar to the pattern found by (Adeoye, 2016) where the proportion of perinatal depression among adolescents and young adults was 22% vs. 14% respectively.

Furthermore, in this study, there was a significantly higher proportion of depression among respondents living with other people than their husbands, and the unmarried. The results highlight the importance of being in a stable supportive relationship during pregnancy and the need to corroborate support system for these adolescents and young adults, especially those that are single. This finding is in line with a study done among pregnant women in Southwest Nigeria, where they found a significant relationship between maternal depression and single marital status (Thompson and Ajayi, 2016)

In addition, the thoughts of stigma and shame of having to raise a child alone and possibly not getting financial and psychological support from the child's father could worsen the woman's psychological health.

#### **5.1.4: Perinatal depression and Social support**

Social support was perceived to be moderate in majority of the adolescents and young adults, and social support was inversely associated with the presence of perinatal depression. Perceived social support can be received from either family members, friends or significant others such as a spouse (Zimet et al., 1988), and it could take on different forms ranging from physical, emotional, financial and informational support (Logsdon and Koniak-Griffin, 2005). Perceived social support was significantly higher in the young adults aged 20-21 (48.4%) than in the adolescent of a younger age 14-17 (29.4%). The difference in the level of support between adolescents and young adults may be attributed to their ability to make and sustain relationships with others. (Wahn and Nissen, 2008) and (Figueiredo et al., 2006) demonstrated this in a study that showed that young adults and adolescent mothers received significantly less social support than older adult mothers because of their inability to make and sustain relationships with others. Also, the need for emotional support in the young pregnant

adolescents would be much higher than in the older young adults who would be more able to cope.

Perinatal depression was significantly and inversely associated with social support in this study, that is depression was found to be high among adolescents and young adults who perceived to receive low social support, and low among adolescents and young adults who perceived to receive high levels of social support. The study also showed that majority of the respondents who reported a high level of perceived social support had no suicidal thoughts. Furthermore, more than one third of respondents who reported that they had suicidal thoughts also reported low social support. This possible explanation for these findings among adolescents and young adults in this study could be a lack of social support leading to suicidal ideation.

The significant association between perinatal depression and respondents' perceived social support has also been reported by (Robertson et al., 2004) and (Kim et al., 2014), identifying lack of or low (minimal) level of social support as a significant risk factor for postpartum depression. Other studies have demonstrated that providing social support decreases the risk of depression during and after pregnancy for women, leading to positive health and pregnancy outcomes (Figueiredo et al., 2006, Wahn and Nissen, 2008).

#### **5.1.5 Perinatal depression and stressful life events**

This study also examined in detail the types of stressful life events pregnant adolescents and young adults face, using the Participatory Ranking Methodology (PRM). A list of stressful life events were mentioned by the respondents, and these include: being kicked out of parents house, pregnancy denied by partner, being out of school, attempted abortion, lack of support from parent and partner, and unplanned pregnancy. Among the list of events mentioned,

“Being out of school” and “Lack of support from partner” were ranked the highest. “Being out of school” as a stress event may be attributed to the fact that most parents would reject an adolescent pregnancy and as a consequence withdraws both financial and social support to the adolescent. The “Lack of support from partner” stress event may be attributed to the fact that the “fathers” would, in most cases, most likely also be adolescents and do not have financial resources themselves to provide support for their partners. The "unplanned pregnancy" stress is consistent with a study done in Brazil on major depressive disorder during teenage pregnancy and the associated correlates. It showed that teenagers who did not welcome the pregnancy were found to have high levels of depression; and that the pregnancy itself could be counted as a stressful life event (Coelho et al., 2013). “Attempted abortion” ranked the least of the life stressful events. These expressed stressful events are consistent with findings from other studies that have shown that depressive symptoms in adolescents and young adults are associated with high levels of parenting stress, social isolation, low self esteem and family conflicts, as compared to older adult mothers (Ibid., 2005). Some findings in other studies suggests that pregnant adolescents are less distressed than they seem to be; the reason why they get depressed derives from aspects other than age, but is highly associated with adolescent pregnancy (Figueiredo et al., 2006). Pregnancy in adolescents and young adults has been shown to be a stressful life event itself that also increases the risk of psychiatric disorders such as depression (Freitas et al., 2008, Mitsuhiro et al., 2009).

## **5.1.6 STRENGTHS AND LIMITATIONS OF STUDY**

### **STRENGTH**

This is the first study of such nature to be conducted in the study location.

## **LIMITATIONS**

The study may have been subjected to information bias (recall bias) as data were collected by self-reporting of sensitive personal health information based on remembering of events and situational factors. Recalling activities or relationships during the pregnancy period may have been difficult for some of the study respondents, and these difficulties may have resulted in inaccurate or biased recall.

This study was limited to Freetown and Waterloo in the Western Area of Sierra Leone. The use of the non-probability sampling technique makes the study sample not representative, and therefore the study findings may not be generalized to the population of pregnant adolescents and young adults in Sierra Leone.

## **5.2 Conclusion**

The current national statistics in Sierra Leone shows that 34% of all pregnancies occur amongst adolescent girls, and 40% of maternal deaths occur as a result of teenage pregnancy (UNFPA, 2014). While there is paucity of reliable empirical data on the prevalence of mental health disorders among pregnant adolescents in Sierra Leone, there has been no published study conducted in Sierra Leone to assess the prevalence of perinatal depression among pregnant adolescents. This study is a mixed method and the overall aim was to assess the prevalence and correlates of perinatal depression among adolescents and young adults in Freetown, Sierra Leone.

The study findings indicate that approximately 30% adolescents and young adults between the ages of 14 and 21 years in Freetown, Sierra Leone have perinatal depression. The study

revealed that there was a significant relationship between perinatal depression and socio-demographic characteristics, perceived social support, and stressful life events among pregnant adolescents and young adults in Freetown, Sierra Leone. These findings provide baseline epidemiological data to aid with identifying and understanding risk factors associated with perinatal depression amongst adolescents and young adults in Freetown, Sierra Leone. The policy implications would be the development of strategies and programmes for the integration of Adolescent friendly mental health services into primary health care, and also to prevent and manage negative health outcomes of pregnancy amongst adolescents and young adults in the country.

### **5.3 Recommendations**

The following are recommended in view of the findings from this study:

1. The Government of Sierra Leone should incorporate mental health services into the routine ANC especially for adolescents and young adults, considering the high prevalence of perinatal depression found among these women.
2. There is a need for public health experts and programme planners to consider interventions to train family members or women volunteers to support adolescents and young adults who may suffer depression and lack social support.
3. The Government should provide support to pregnant adolescents and young adolescents so they can return to school after delivery. Being out of school was the most important stressful life events ranked by adolescents according to the participatory ranking methodology that was done.

## REFERENCES

- Adeoye, B. F. 2016. Prevalence and correlates of perinatal depression among youths in Ibadan north and Egbeda local Government areas of Oyo State. University of Ibadan, Ibadan, Nigeria.
- Adewuya, A. O. & Afolabi, O. T. 2005. The course of anxiety and depressive symptoms in Nigerian postpartum women. *Archives of Women's Health*, 1-3.
- Adewuya, A. O., Ola, B. A., Dada, A. O. & Fasoto, O. O. 2006. Validation of the Edinburgh Postnatal Depression Scale as a screening tool for depression in late pregnancy among Nigerian women. *Journal Of Psychosomatic Obstetrics And Gynaecology*, 27, 267-72.
- Adler, R. B., Rosenfeld, L. B., Proctor, R. F. & Winder, C. 2012. Interplay: The Process of Interpersonal Communication, Third Canadian Edition" Oxford University Press.
- Alder, J., Fink, N., Bitzer, J., Hosli, I. & Holzgreve, W. 2007. Depression and anxiety during pregnancy: a risk factor for obstetric, fetal and neonatal outcome? A critical review of the literature. *The Journal of Maternal-Fetal & Neonatal Medicine*, 20, 189-209.
- Alemu, W., Funk, M., Gakurah, T., Bash-Taqi, D., Bruni, A., Sinclair, J. & Kobie, A. 2012. WHO profile on mental health in development (WHO proMIND): Sierra Leone. Geneva: WHO.
- Amnesty 2015. Sierra Leone: Pregnant schoolgirls excluded from school and banned from exams.
- Andrade, S. E., McPhillips, H. & Loren, D. 2009. Antidepressant medication use and risk of persistent pulmonary hypertension of the newborn. *Pharmacoepidemiol Drug Saf*, 18, 246-252.
- APA American Psychological Association. 2010. United States Department of Health and Human Services.
- Bah, A. B. 2016. Prevalence and correlates of mental disorders and malnutrition among school-going adolescents in the eastern region of Freetown, Sierra Leone.: University of Ibadan, Ibadan, Nigeria.
- Barnet, B., Joffe, A., Duggan, A. K., Wilson, M. & Repke, J. 1996. Depressive symptoms, stress, and social support in pregnant and postpartum adolescents. *Arch Pediatr Adolesc Med* 150, 64-69.
- Baucom, D. H., Shoham, V., Mueser, K. T., Daiuto, A. D. & Stickle, T. R. 1998. Empirically supported couple and family interventions for marital distress and adult mental health problems. *J Consult Clin Psychol*, 66, 53-88.
- Bearinger, L., Sieving, R., Ferguson, J. & Sharma, V. 2007. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. *The Lancet*, 369, 1220-1231.

- Beck, A. T., Epstein, N. & Harrison, R. 1983. Cognitions, attitudes and personality dimensions in depression. *British Journal of Cognitive Psychotherapy*.
- Begley, S. 2000. Getting inside a teen brain: Hormones aren't the only reason adolescents act crazy. Their gray matter differs from children's and adults'. *Newsweek*.
- Bennett, H. A., Einarson, A., Koren, G. & Einarson, T. R. 2004. Prevalence of Depression during Pregnancy: Systematic Review. *Obstet Gynecol*, 103, 698-709.
- Bradley, T., Cupples, M. E. & Irvine, H. 2002. A case control study of a deprivation triage: teenage motherhood, poor educational achievement and unemployment. *Int J Adolesc Med Health*, 12, 117-23.
- Cassel, J. 1976. The contribution of the social environment to host resistance. *American Journal of Epidemiology*, 104, 107-123.
- CDC 2008. Prevalence of self-reported postpartum depressive symptoms—17 states, 2004–2005. *Morbidity and Mortality Weekly Report*
- CDC 2011. Vital signs: teen pregnancy - United States, 1991-2009. *MMWR Morb Mortal Wkly Rep.*, 60, 414-420.
- Chalem, E., Mitsuhiro, S. S., Manzolli, P., Barros, M. C., Guinsburg, R. & Sass, N. 2011. Underdetection of psychiatric disorders during prenatal care: a survey of adolescents in Sao Paulo, Brazil. *J Adolesc Health.*, 50, 93-6.
- Chen, X. K., Wen, S. W., Fleming, N., Demissie, K., Rhoads, G. G. & Walker, M. 2007. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *Int J Epidemiol*, 36, 368-73.
- Choudhury, S., Blakemore, S.-J. & Charman, T. 2006. Social cognitive development during adolescence. *Social Cognitive and Affective Neuroscience*, 1, 165-74.
- Coelho, F. M. C., Pinheiro, R. T., Silva, R. A., Quevedo, L. A., Souza, L. D. M., Castelli, R. D., Bonati De Matos, M. & Pinheiro, K. A. T. 2013. Major Depressive Disorder during Teenage Pregnancy: Socio-demographic, Obstetric and Psychosocial Correlates. *Revista Brasileira de Psiquiatria*, 35, 51–56.
- Cooper, W. O., Willy, M. E., Pont, S. J. & Ray, W. A. 2007. Increasing use of antidepressants in pregnancy. *Am J Obstet Gynecol.*, 196.
- Davies, A. M. & Dunlop, W. 1983. Hypertension in pregnancy. In: S. L. Barron, A. M. T. (ed.) *Obstetrical Epidemiology*. London: Academic Press.
- De Silva, M. O. 2003. *Teenage sexual behaviour and pregnancy. Trends and determinants*.



- Denney, L., Gordon, R. & Ibrahim, A. 2015. Teenage Pregnancy after Ebola in Sierra Leone: Mapping responses, gaps and ongoing challenges. *Secure Livelihoods Research Consortium (SLRC)*.
- Dennis, C. L. & Hodnett, E. 2007. Psychosocial and psychological interventions for treating postpartum depression.
- Depaul, A. 2007. *Unintended Pregnancy Down Among Teens But Up for Young Adults* [Online].
- Dopheide, J. A. 2006. Recognizing and treating depression in children and adolescents. . *Am J Health Syst Pharm* 63.
- Dorn, L. D. & Biro, F. M. 2011. Puberty and its measurement: a decade in review. . *Journal of Research on Adolescence*, 21, 180-195.
- Ferri, C. P., Mitsuhiro, S. S., Barros, M. C. M., Chalem, E., Guinsburg, R. & Patel, V. 2007. The impact of maternal experience of violence and common mental disorders on neonatal outcomes: a survey of adolescent mothers in Sao Paulo, Brazil. *BMC Public Health*, 7.
- Figueiredo, B., Bifulco, A., Pacheco, A., Costa, R. & Magarinho, R. 2006. Teenage pregnancy, attachment style, and depression: a comparison of teenage and adult pregnant women in Portuguese series. *Attach Hum Dev* 8, 123-138.
- Figueiredo, B., Pacheco, A. & Costa, R. 2007. Depression during pregnancy and the postpartum period in adolescent and adult Portuguese mothers. *Arch Womens Ment Health*, 10, 103–109.
- Freitas, G. V. S., Cais, C. F. S., Stefanello, S. & Botega, N. J. 2008. Psychosocial conditions and suicidal behavior in pregnant teenagers: a case-control study in Brazil. . *Eur Child Adolesc Psychiatry*, 17, 336-42.
- Ganchimeg, T., Ota, E., Morisaki, N., Laopaiboon, M., Lumbiganon, P., Zhang, J., Yamdamsuren, B., Temmerman, M., Say, L., Tunçalp Ö, Vogel, J. P., Souza, J. P. & Mori, R. 2014. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *International Journal of Obstetrics and Gynaecology*, 40-8.
- Gilbert, W., Jandial, D., Field, N., Bigelow, P. & Danielson, B. 2004. Birth outcomes in teenage pregnancies. *J Matern Fetal Neonatal Med*, 16, 265-70.
- Goonewardene, I. M. R. & Waduge, R. P. K. D. 2005. Adverse effects of teenage pregnancy. *Ceylon Medical Journal*, 50, 116-120.

- Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S. & Katon, W. J. 2010. A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Arch Gen Psychiatry*, 67, 1012-24.
- Gyesaw, N. Y. K. & Ankomah, A. 2013. Experiences of pregnancy and motherhood among teenage mothers in a suburb of Accra, Ghana: a qualitative study. *International Journal of Women's Health*, 5, 773-780.
- Hallberg, P. & Sjoblom, V. 2005. The use of selective serotonin reuptake inhibitors during pregnancy and breast-feeding: a review and clinical aspects. *J Clin Psychopharmacol*, 25, 59-73.
- Harden, A., Brunton, G., Fletcher, A. & Oakley, A. 2009. Teenage pregnancy and social disadvantage: systematic review integrating controlled trials and qualitative studies. *BMJ*, 339.
- Hodgkinson, S. C., Colantuoni, E., Roberts, D., Berg-Cross, L. & Belcher, H. M. E. 2010. Depressive Symptoms and Birth Outcomes among Pregnant Teenagers. *NIH Public Access Author Manuscript J Pediatr Adolesc Gynecol. Author manuscript*, 23, 16-22.
- HRW 2016. III. Human rights abuses committed against civilians.
- Huang, Z. J., Wong, F. Y. & Ronzio, C. R. 2007. Depressive symptomatology and mental health help-seeking patterns of U.S.- and foreign-born mothers. *Matern Child Health J* 11, 257.
- Hudson, D. B., Elek, S. M. & Campbell-Grossman, C. 2000. Depression, self-esteem, loneliness, and social support in adolescent mothers participating in the New Mothers' Network. *Adolescence*, 35 443-453.
- Hupcey, J. E. 1998. Clarifying the social support theory-research linkage. *J Adv Nurs* 27, 1231–1241.
- Kail, R. V. & Cavanaugh, J. C. 2010. *Human Development: A Lifespan View* (5th ed.). Cengage Learning.
- Kaldor, M. & Vincent, J. 2006. *Case Study Sierra Leone*. New York: UNDP Evaluation Office.
- Kessler, R. C. 2003. Epidemiology of women and depression. *J Affect Disord* 74.
- Kessler, R. C. & Walters, E. E. 1998. Epidemiology of DSM-III-R major depression and minor depression among adolescents and young adults in the National Comorbidity Survey. *Depress Anxiety* 7.
- Kim, T. H. M., Connolly, J. A. & Tamim, H. 2014. The effect of social support around pregnancy on postpartum depression among Canadian teen mothers and adult mothers in the maternity experiences survey. *BMC Pregnancy and Childbirth*, 14, 1471-2393.

- Konje, J. C., Palmer, A., Hay, D. M. & Imrie, A. 1992. Early teenage pregnancies in Hull. *British Journal of Obstetrics and Gynecology*, 99, 969-73.
- Kroger, J. 1996. *The Balance Between Self And Other*. New York, U.S.A: Routledge.
- Kurth, F., Belard, S., Mombo-Ngoma, G., Adegnika, A. A. & Bouyou-Akotet, M. K. 2010. Adolescence as risk factor for adverse pregnancy outcome in Central Africa- a cross-sectional study. *PLoS One.*,5.
- Larson, R. & Wilson, S. 2004. Adolescence across place and time: Globalization and the changing pathways to adulthood. In: LERNER, R., & STEINBERG, L. (ed.) *Handbook of adolescent psychology*. New York: Wiley.
- Lerner, R. M. & Steinberg, L. D. 2004. *Handbook of Adolescent Psychology* Hoboken, NJ: John Wiley & Sons.
- Lewinsohn, P. M. 1974. *A behavioral approach to depression*. [Online].
- Loaiza, E. & Liang, M. 2013. *Adolescent Pregnancy: A review of the evidence*. New York: UNFPA.
- Logsdon, M. C. & Koniak-Griffin, D. 2005. Social support in postpartum adolescents: guidelines for nursing assessments and interventions. *J Obstet Gynecol Neonatal Nurs* 34, 761–768.
- Luke, R. D. C. 2016. *Status and correlates of mental and physical health of under-fives and their mothers in kroo bay community in Freetown, Sierra Leone.*: University of Ibadan, Ibadan, Nigeria.
- Maritin, J. A., Park, M. M., . & Sutton, P. 2002. Births: Preliminary Data for 2001. *Natl Vital Stat Rep* 50:(10).
- Markovitz, B. P., Cook, R., Flick, L. H. & Leet, T. L. 2005. Socioeconomic factors and adolescent pregnancy outcomes: distinctions between neonatal and post-neonatal deaths? . *BMC Public Health.*, 5, 79.
- Marshal, W. 1978. Puberty. In: FALKNER, F. & TANNER, J. (eds.) *Human growth*. New York: Plenum.
- Mcclanahan, K. K. 2009. Depression in Pregnant Adolescents: Considerations for Treatment. *Journal of Pediatric and Adolescent Gynecology*, 22, 59-64.
- Mcgee, R., Williams, S., Kashani, J. H. & Silva, P. A. 1983. Prevalence of self-reported depressive symptoms and associated social factors in mothers in Dunedin. *Bristish Journal of Psychiatry*, 143, 473-479.
- Mcleod, S. A. 2015. *Psychological Theories of Depression* [Online]. Available: [www.simplypsychology.org/depression.html](http://www.simplypsychology.org/depression.html).

- Mitsuhiro, S. S., Chalem, E., Barros, M. M., Guinsburg, R. & Laranjeira, R. 2006. Teenage pregnancy: use of drugs in the third trimester and prevalence of psychiatric disorders. *Rev Bras Psiquiatr*, 28, 122-5.
- Mitsuhiro, S. S., Chalem, E., Barros, M. M., Guinsburg, R. & Laranjeira, R. 2009. Prevalence of psychiatric disorders in pregnant teenagers. *J Adolesc.*, 32, 747-52.
- Muzik, M. & Borovska, S. 2010. Perinatal depression: implications for child mental health. *Mental Health in Family Medicine*, 7, 239-47.
- Myors, K., Johnson, M. & Langdon, R. 2001. Coping styles of pregnant adolescents. *Public Health Nursing*, 18, 24-32.
- Neal, S., Matthews, Z., Frost, M., Fogstad, H., Camacho, A. V. & Laski, L. 2012. Childbearing in adolescents aged 12-15 in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries. *Acta Obstetrics and Gynaecology Scandinavica*, 91, 1114-1118.
- Nonacs, R. & Cohen, L. S. 2003. Assessment and treatment of depression during pregnancy: an update. *Psychiatr Clin North Am*, 26, 547-62.
- O'hara, M. W. & Swain, A. M. 1996. Rates and risk of postpartum depression: ameta-analysis. . *International Review of Psychiatry* 8, 37-54.
- Olausson, P. O., Haglund, B., Weitoft, G. R. & Cnattingius, S. 2001. Teenage childbearing and long-term socio-economic consequences: a case study in Sweden. . *Fam Plann Perspect.*, 33, 70-4.
- Olausson, P. O., Haglund, B., Weitoft, G. R. & Cnattingius, S. 2004. Premature death among teenage mothers. *BJOG*, 111, 793-9.
- Omigbodun, O., Dogra, N., Esan, O. & Adedokun, B. 2008. Prevalence And Correlates Of Suicidal Behaviour Among Adolescents In Southwest Nigeria. *International Journal of Social Psychiatry*, 54.
- Omigbodun, O. O., Adediran, K. I., Akinyemi, J. O., Omigbodun, A. O., Adedokun, B. O. & Esan, O. 2010. Gender and rural/urban differences in the nutritional status of in-school adolescents in Southwestern Nigeria. . *Journal of Biosocial Science.*, 1-24.
- Oyedele, O., Wright, S. & Maja, T. 2015. Community Participation In Teenage Pregnancy Prevention Programmes: A Systematic Review. *International journal of Nursing Didactics*, 5, 26-38.
- Panzarine, S., Slater, E. & Sharps, P. 1995. Coping, social support, and depressive symptoms in adolescent mothers. *J Adolesc Health*, 17.

- Patel, V., Rahman, A., Jacob, K. S. & Huges, M. 2004. Effect of maternal mental health on infant growth in low income countries: new evidence from South Asia. *BMJ*, 328, 820-823.
- Pedersen, S. 1961. Personality formation in adolescence and its impact upon the psycho-analytical treatment of adults. *Int J Psychoanal*, 42, 381-8.
- Pereira, P. K., Lovisi, G. M., Lima, L. A. & Legay, L. F. 2010. Obstetric complications, stressful life events, violence and depression during pregnancy in adolescents at primary care setting. *Rev Psiq Clin.*, 37, 216-22.
- RECAPP 2009. Theories & Approaches: Adolescent Development.
- Rich-Edwards, J. W., Kleinman, K., Abrams, A., Harlow, B. L., Mclaughlin, T. J., Joffe, H. & Gillman, M. W. 2006. Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. *J Epidemiol Community Health* 60, 221–227.
- Risso-Gill, I. & Finnegan, L. 2015. Children’s Ebola Recovery Assessment: Sierra Leone,’ Freetown: Save the Children, PLAN, World Vision International, UNICEF.
- Robertson, E., Grace, S., Wallington, T. & Stewart, D. 2004. Antenatal risk factors for postpartum depression: a synthesis of recent literature. *Gen Hospital Psychiatry* 26, 289-295.
- Roman, E. & Stevenson, A. C. 1983. Spontaneous abortion. *Obsterical Epidemiology*. London: Academic Press.
- Schmidt, R. M., Weimann, C. M., Rickert, V. I. & O’brian Smith, E. 2006. Moderate to severe depressive symptoms among adolescent mothers followed four years postpartum. *Journal of Adolescent Health*, 38, 712-718.
- Schoenbach, V. J., Garrison, C. Z. & Kaplan, B. H. 1984. Epidemiology of adolescent depression. *Public Health Rev*, 12, 159.
- SLDHS 2008. Sierra Leone Demographic and Health Survey.
- SLDHS 2013. Sierra Leone Demographic and Health Survey Key Findings.
- SLDHS. 2015. "Sierra Leone Demographic and Health Survey 2013" (PDF). *Statistics Sierra Leone and MeasureDHS*. [Online].
- Smith, S. R. & Handler, L. 2007. The clinical assessment of children and adolescents: a practitioner's handbook.
- SSL 2013. Sierra Leone Demographic and Health Survey 2013 Preliminary Report. Freetown/Rockville, MD: Statistics Sierra Leone/ICF International.

- Stark, L., Ager, A., Wessells, M. & Boothby, N. 2009. Developing Culturally Relevant Indicators of Reintegration for Girls Formerly Associated with Armed Groups in Sierra Leone Using a Participative Ranking Methodology”, Intervention. *International Journal of Mental Health, Psychosocial Work and Counselling in Areas of Armed Conflict* 7, 4-16.
- Steinberg, L. 2008. Adolescence. New York, NY: McGraw-Hill.
- Stellenberg, E. L. & Abrahams, J. M. 2015. Prevalence of and factors influencing postnatal depression in a rural community in South Africa. *Afr J Prim Health Care Fam Med*, 7.
- Sterling Honig, A. 2012. Teen pregnancy. *International journal of adolescence and youth*, 17, 181-187.
- Strasburger, V. C., Wilson, B. J. & Jordan, A. B. 2014. Children and Adolescents: Unique Audiences. *Children, Adolescents, and the Media*. U.S.A: SAGE Publications.
- Susman, E. & Rogol, A. 2004. Puberty and psychological development. In: Lerner, R. & Steinberg, L. (eds.) *Handbook of adolescent psychology*. New York: Wiley.
- Teipel, K. 2001. Understanding Adolescence. In: State Adolescent Health Resource Center, K. I., University Of Minnesota. (Ed.).
- Thompson, F. 2010. Now it's free, how to pay for it? Sierra Leone's dilemma. Bulletin World Health Organization.
- Thompson, O. & Ajayi, I. 2016. Prevalence of Antenatal Depression and Associated Risk Factors among Pregnant Women Attending Antenatal Clinics in Abeokuta North Local Government Area, Nigeria. *Depress Res Treat*, 2016, 15 pages.
- UNDP 2015. Assessing Sexual And Gender Based Violence During The Ebola Crisis In Sierra Leone, Freetown: UNDP and Irish Aid.
- UNFPA. 2014. *UNFPA support to the reduction of teenage pregnancy in Sierra Leone*. [Online]. UNFPA. Available: <http://sierraleone.unfpa.org/assets/user/file/AYC%20TEENAGE%20PREGNANCY.pdf> [Accessed 21 September 2016 2016].
- UNFPA 2015. Rapid Assessment of Pregnant Adolescent Girls in Sierra Leone, Freetown.
- UNICEF 2015. A Profile of Child Marriage in Africa.
- Verma, V. & Das, K. B. 1997. Teenage primigravidae: a comparative study. *Indian Journal of Public Health*, 41, 52-5.

- Wade, R. M. 2011. *Theories of Depression - Applied Social Psychology* [Online]. Available: [www.personal.psu.edu/bfr3/blogs/applied\\_social\\_psychology/2011/10/theories-of-depression.html](http://www.personal.psu.edu/bfr3/blogs/applied_social_psychology/2011/10/theories-of-depression.html).
- Wahn, E. H. & Nissen, E. 2008. Sociodemographic background, lifestyle and psychosocial conditions of Swedish teenage mothers and their perception of health and social support during pregnancy and childbirth. . *Journal of Public Health*, 36, 415-423.
- WHO. 2014. *WHO Adolescent pregnancy* [Online]. Available: [www.who.int/mediacentre/factsheets/fs364/en/](http://www.who.int/mediacentre/factsheets/fs364/en/) [Accessed 18 August 2016].
- WHO. 2016a. *Adolescent development* [Online]. Available: [http://www.who.int/maternal\\_child\\_adolescent/topics/adolescence/dev/en/](http://www.who.int/maternal_child_adolescent/topics/adolescence/dev/en/) [Accessed 3 October 2016 2016].
- WHO. 2016b. *Maternal, newborn, child and adolescent health* [Online]. Available: [www.who.int/maternal\\_child\\_adolescent/topics/maternal/adolescent\\_pregnancy/en/](http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/) [Accessed 9 August 2016].
- Whyte, L. 2016. Sierra Leone: Ebola crisis sparks teen pregnancy surge as girls face sexual exploitation.
- Yonkers, K. A., Wisner, K. L. & Stewart, D. E. 2009. The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists. *Obstet Gynecol.*, 114, 703-713.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G. & Farley, G. K. 1988. The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment* 52, 30-41.

## **APPENDIX A**

### **PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA LEONE**

## Informed Consent Form

### InfòmKònsentFòm

You are invited to take part in a research study of women who are between the ages of 10 and 21 years and are pregnant or have delivered within one year with symptoms of depression. The researcher is inviting pregnant adolescents and adolescent mothers within the first year postpartum period between 10 and 21 years of age who are attending and/or admitted at the Princess Christian Maternity Hospital, Aberdeen Women Centre and the Waterloo Community Health Centre. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether or not to take part in the study.

A researcher named Dr Lucinda Bockarie, who is a mater's student at the Centre for Child and Adolescent Mental Health of the University of Ibadan, Nigeria, is conducting this study. The study is also supervised by Professor Olayinka Omigbodun and Dr Tolulope Bella-Awusah, both are faculty members at the Centre for Child and Adolescent Mental Health of the University of Ibadan, Nigeria.

A de invaytyufòtek pat pan dis wok we de fənòtòtumandən we ol 10 to 21ia we gètèlè, ò we dònònfò wan iaengètpròblèm we de pwèldən at. Di posin we de du dis wok de invaytyòngbèlèuman we de insaydènfòsia, ènol 10 to 21 iaèn de go klinik ò admit na Princess Christian Maternity Hospital, Aberdeen Women Centre èn di Waterloo Community Health Centre. Dis fòmna wan pat pan wan prosès we neminfòmKònsent we go alawyufòsabibòt dis stòdibifoyumekòpyumayndwèdayu go tek pat.

Wan pòsin we de du Risach we nem Dr Lucinda Bockarie we de du in Mastazna Centre for Child èn Adolescent Mental Health na di University of Ibadan, Nigeria nain de du dis stòdi. Na Professor Olayinka Omigbodun èn Dr. Tolulope Bella- Awusah de supavays mi wok èn nafakòltimèmbadèna di Centre for Child èn Adolescent Mental Health na di University of Ibadan, Nigeria.

#### Background Information:

#### Wetin Di Stòdi De bòt:



The overall aim of this study is to assess the prevalence and correlates of perinatal depression among adolescents in Freetown and Waterloo, Sierra Leone.

**Di wanolemɔf dis stɔdinafɔsho di we aw umanden kin fil we den go bɔnenaftadenbɔn.**

Procedures:

**Aw fɔ du am:**

If you agree to be in this study, you will be asked to:

If yugrifɔ de na dis stɔdi, naden tin yaden go aksyufɔ du:

- Complete a survey questionnaire. Data will be collected only once, and the survey should take between 30 to 60 minutes to complete;

Fɔansadenkweshɔnya. Na wan tɛmnɔmɔden go gɛdadɛnkweshɔnyaɛn di wanɔl wok nɔfɔtek pas 30 to 60 minit.

- Completing the survey questionnaire will indicate your implied consent and willingness to participate in the survey.

We yuansaɔl di kweshɔnden I de sho se yugrienwilinfɔtek pat pan di wok.

- You are required to answer all questions in the survey questionnaire. However, you are not required to answer questions you are not comfortable with or do not understand, and may as a result withdraw your participation in the study at that point.

Yu fɔansaɔl di kweshɔndenna di kweshɔnpepa but a nɔ de fɔsyufɔansakweshɔn we yunɔ want ɔ we yunɔndastand we go mekyunɔkɔntinyu di wok.

- You will be interviewed by the Principal Researcher, Dr Lucinda Bockarie, who will contact you to collect the survey questionnaire.

Na fɔgi di kweshɔnpepa we yudɔnansa to di wan we de du di risachenna Dr, Lucinda Bockarie we go kɔntactyu.

**Voluntary Nature of the Study: Yu GriFɔ Dis Wok:**

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at the clinic/hospital will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time without penalty.

Dis wok nafɔɔsin we gri wit ɔl in at fɔ du am. ɔlman go rɛspɛktwetinyudisaydfɔdu. Nɔbodina di klinik ɔ ɔspitulnɔ go trityudifren we if yudisaydfɔlɛf di wok. Yu kin disaydfɔ du di wok nawɛnchenjyumayndɛnitɛm. Yu kin stɔpɛnitɛmɛnnɔbɔdinɔ go du yunatin.

**Risks and Benefits of Being in the Study: Di DenjaɛnBɛnifitFɔ De na Dis Stɔdi**

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as providing sensitive information on your pregnancy or delivery. Being in this study would not pose risk to your safety or wellbeing.

The results of this research will help provide more information on perinatal depression among adolescents in Sierra Leone.

Fɔ de na dis wok min se sɔmsmɔlsmɔlprɔblɛmɛn tin we winɔ kin lɛk go ɔlwezapin, lɛkfɔprovaydinfɔmeshɔnbɔtbɛlɛumanbiznɛs. Fɔ de pan dis wok nɔfɔmekyufredfɔyulayf. Di rizɔlt pan dis wok go ɛpprovaydinfɔmeshɔnbɔt aw umandɛn kin fil we dɛn go bɔnɛnɛftadɛnbɔn.

**Benefit/Bɛnifit:**

A "Thank You Card" will be given to participants as a form of encouragement for participation in the study.

Dɛn go gi wan “TɛlTɛnkikad”fɔɛnkɔrej di wan dɛn we tek pat.

**Privacy/Sikrit:**

Any information you provide will be kept in private and confidential. The researcher will not use your personal information for any purposes outside of this research project. Data will be kept secured by password-protected computers.

ɛniinfɔmeshɔn we yugi go bi sikritɛndɛnnɔ go tɛlɛnibɔdi. Di pɔsin we du di risach no go yuzuinfɔmeshɔn pas fɔ di projɛkt wok. Di infɔmeshɔn go de nakɔmpyuta we gɛtpaswɔd we go bi sikrit.

**Contacts and Questions: UdatFɔKɔntactɛnKwɛshɔnDɛn:**

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone/WhatsApp: +232-78293849 or email (and Facebook):

[lulukabs@yahoo.com](mailto:lulukabs@yahoo.com) .

You may keep this consent form for your own records.

Thank you very much for taking part in this study.

**Yu kin aksenikweshonnaw ɔ if yugɛtkweshonletaon, kɔntakt di wan we du di risach bay**

**Fon/Watsap: +232-78293849 or email and Facebook: [lulukabs@yahoo.com](mailto:lulukabs@yahoo.com)**

**Yu kin kip dis konsentfɔmfɔyusef.**

**Tenkitenkifɔ we yutek pat pan dis wok**

**Statement of Consent:            StetmentɔfKɔnsent:**

**I have read the above information and I feel I understand the study well enough to make a decision about my participation.**

**A dɔn rid di infɔmeshɔnɛn a tink se a ɔndastandgudgud wan fɔdisayd if a fɔ bi pat ɔf dis wok.**

**Signature**

.....

## **APPENDIX B**

### **PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA LEONE**

## Socio-Demographic Questionnaire

Adapted from School Health Questionnaire in English (Omigbodun&Omigbodun., 2008)

*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.*

**Wetin fɔ du: Duyarayt di ansa to di kweshɔn ɔ drɔ wan sakulusay I de tɔkbɔtyu. Dis notoegzam; nafofenotnɔmɔbɔtyuɛnyuwɛlbɔdibiznes.**

No.	Questions/Kweshɔn	Answers/Ansa
1	Name of maternity hospital/health centre? Di ospitul/elthsenta in nem?	
2	Where do you live (Present Address)? Usayyu tap (raytnaw)?	
3	What is your date of birth (day/month/year)? Ustemyubɔn (de/mɔnt/ia)?	
4	Do you practise any religion? Yu de praktisenirilijɔn?	Yes/Yes No/No
5	Please write down the exact place you attend for worship Duyarayt di kɔrɛkt say we yu de wɔship.	(a) Islam/Islam (b) Orthodox Christian/ƆthɔdɔksKristien (c) Pentecostal Christian/ PentikɔstalKristien (d) Traditional religion/TradishɔnalRilijɔn (e) Other/Ɔdawan
6	How much does the teaching of your religion guide your behaviour? Aw yurilijɔn de epfɔgayd di we weyu de biev?	(a) Very much/Bɔkutɛm (b) Much/wan wan tɛm (c) Just a little/lilibit (d) Not at all/Atɔl
7	How much does the teaching of your religion guide your family life? Aw yurilijɔn de epfɔgayd di we weyu family de biev?	(a) Very much/Bokutɛm (b) Much/Wan wan tɛm (c) Just a little/Lilibit
<b>FAMILY INFORMATION</b>		
8	Family type: UskaynFamili	(a) Monogamous/Wan (b) Polygamous/Pas wan
9	Number in the family Na unɔmɔs we de na di famili	
10	What is your position among your parent's children? Yu nanɔmbaɔmɔs pan di pikindɛn?	
11	Who do you live with presently? Udatyu de wit raytnaw?	(a) Parents/Mama ɛn Papa (b) Mother/Mama (c) Father/Papa (d) Grandparents/GraniɛnGrampa (e) Husband/Mared man

		(f) Husbands relative/Yu man in fambul (g) Other [please specify]/Eniɔdapɔsin.....
12	Who brought you up from your childhood? Udatmenyufrom we yusmɔl?	(a) Parents/Mama en Papa (b) Mother/Mama (c) Father/Papa (d) Grandparents/Grani en Grandpa (e) Husband/Mared man (f) Husbands relative/Yu man in fambul (g) Other (please specify) Eniɔdapɔsin.
13	What is your level of education? Uskaynedyukeshonyuget?	(a) No Formal Education/Nɔwande go skul (b) Primary/Praymari (c) Secondary/Sekɔndari (d) Tertiary institution [please specify] .....
14	What kinds of job do to earn money? Uskayn wok yu de du fɔgetmɔni?	
15	Are you married? Yu mared?	Yes/Yes No/No
16	How many years are you in marriage? ɔmɔsiayudɔnmaredfɔ?	
17	Occupation of husband: [Write the exact occupation, if applicable] Uskayn wok yumaredman de du? (Rayt di kɔrekt wok)	
18	How many wives does your husband have? ɔmɔswɛfdɛnyumaredmangɛt?	
	<b>ANTENATAL- RELATED QUESTIONS BIFO YU BɔN- KWESHɔN DɛN</b>	
19	When did you register this pregnancy? Ustemyuripot se yugetbele?	
20	Who accompanied you to the hospital the first time? Udatkeryu go naɔspitul di fɔstem?	(a) Husband/ boyfriend/Maredman ɔ bɔyfren (b) Mother/Mama (c) Grandmother/Grani (d) Aunt/Anti (e) Other/ ɔdawan
21	How many times have you attended the antenatal clinic? ɔmɔstemyudɔn go naKlinik?	
22	Did you complete 2 doses of injection in this pregnancy? Yu bin dɔnfɔtek di tuinjekshɔn we yugetbele?	Yes/Yes No/No

23	If no why? If di ansana No, wetin du?	
24	Do you have any difficulties or challenges in this pregnancy? Yu de getenipròblem wit di beɛ?	Yes/Yes No/No
25	If yes, what sort of difficulties? If di ansanayes, uskaynpròblem?	(a) Bleeding/de blid (b) Difficulty with breathing/Pròblemfòblo (c) Vaginal discharge/ (d) Vomiting/Vòmit (e) Oedema (f) Lack of appetite/Nòebul it (g) Fatigue/Taya bad bad wan (h) Others [please specify] ...ɔdawan
26	Have you spoken to another about it? Yu bin telenibòdibòt dis?	Yes/Yes No/No

Edinburg Postnatal Depression Scale 1 (EPDS)

Your Date of Birth/Ustemyubòn? \_\_\_\_\_

Baby's Date of Birth/Ustemyubebibòn? \_\_\_\_\_

## APPENDIX C

### PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA LEONE

## Edinburg Postnatal Depression Scale 1 (EPDS)

### Instructions for using the Edinburgh Postnatal Depression Scale:

#### Dis na aw foyuz di Edinburgh Postnatal Depression Scale:

1. *The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.*  
**Den go aks di Mama fɔgi di ansa we nia to aw I de fil di las 7 de den.**
2. *All the items must be completed*  
**Fɔansaɔl di kweshɔnden.**
3. *Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)*  
**Tektemmek di Mama nɔtɔk wit enibɔdibɔt di ansaden.**
4. *The mother should complete the scale herself, unless she has limited English or has difficulty with reading.*  
**Di Mama fɔansaɔl di kweshɔn pas if I nɔsabiEnglish ɔ I nɔebul rid**

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.

**As yugɛtbɛɛ ɔ yujɛsbɔn, wi want fɔ no aw yu de fil. Duyachɛk di ansa we fiba di we aw yu de filɔ di pas 7 de noto tide nɔmɔ.**

**Dis na wan ɛgzampul we dɔngudgud wan.**

No.	Sample Question	Answer
1	I have felt happy?	<input type="checkbox"/> Yes, all the time <input type="checkbox"/> Yes, most of the time <input type="checkbox"/> No, not very often <input type="checkbox"/> No, not at all
<i>This would mean: "I have felt happy most of the time" during the past week.</i>		

*Please complete the other questions in the same way.*

No.	Questions	Answers
1	I have been able to laugh and see the funny side of things. Aebullafɛnsi di fɔni say pan tin den.	<input type="checkbox"/> As much as I always could Bɔkutɛm we a ebul <input type="checkbox"/> Not quite so much now Notoɔltɛm <input type="checkbox"/> Definitely not so much now Fɔtrutruntoɔltɛm. <input type="checkbox"/> Not at all Nɔntɛm
2	I have looked forward with enjoyment to things.	<input type="checkbox"/> As much as I ever did/ɔltɛm <input type="checkbox"/> Rather less than I used to/notoɔltɛm

	A bin op fænjøytin.	<input type="checkbox"/> Definitely less than I used to/Wan wan tem <input type="checkbox"/> Hardly at all/At fæsi
*3	I have blamed myself unnecessarily when things went wrong. A kin blemmisseffønatin we tin nò de wok.	<input type="checkbox"/> Yes, most of the time/ Yes, plentitem <input type="checkbox"/> Yes, some of the time/Yes, sòntem de <input type="checkbox"/> Not very often/Wan wan tem <input type="checkbox"/> No, never/I nòwandeapin
4	I have been anxious or worried for no good reason. A kin anshòs ò wòrifønatin.	<input type="checkbox"/> No, not all/No, notòltem <input type="checkbox"/> Hardly ever/I at fæsi <input type="checkbox"/> Yes, sometimes/Yes, sòntem de <input type="checkbox"/> Yes, very often/Yes, bókutem
5	I have felt scared or panicky for no very good reason. A kin skiad ò panic fønatin.	<input type="checkbox"/> Yes, quite a lot/Yes, bókutem <input type="checkbox"/> Yes, sometimes/Yes, sòntem de <input type="checkbox"/> No, not much/No, wan wantem <input type="checkbox"/> No, not all/No, notòltem
*6	Things have been getting on top of me Tin ðen kin tinapna mi ed.	<input type="checkbox"/> Yes, most of the time I haven't been able to cope at all/Bókutemano kin ebul. <input type="checkbox"/> Yes, sometimes I haven't been coping as well as usual/Sòntem de anò kin ebullek di fòstem. <input type="checkbox"/> No, most of the time I have coped quite well/No, boku tem a kin ebul. <input type="checkbox"/> No, I have been coping as well as ever/No, a kin ebulòltem.
*7	I have been so unhappy that I have had difficulty sleeping Anò bin gladiendatmek a nò bin de slip.	<input type="checkbox"/> Yes, most of the time/Yes, plentitem. <input type="checkbox"/> Yes, sometimes/Yes, sòntem de <input type="checkbox"/> Not very often/Wan wan tem <input type="checkbox"/> No, not at all/No, atòlatòl
*8	I have felt sad or miserable A bin fìlsòri ò mi at bin pwel.	<input type="checkbox"/> Yes, most of the time/Yesmostem <input type="checkbox"/> Yes, quite often/Yes, bókutem <input type="checkbox"/> Not very often/No, notòltem <input type="checkbox"/> No, not at all/No, atòlatòl
*9	I have been so unhappy that I have been crying A nò bin gladiendatmek a kin kraykray	<input type="checkbox"/> Yes, most of the time/Yes, mostem <input type="checkbox"/> Yes, quite often/Yesbókutem <input type="checkbox"/> Only occasionally/Pas wan wantem <input type="checkbox"/> No, never/No, atòlatòl
*10	The thought of harming myself has occurred to me A kin tinkfò du bad tin to misef.	<input type="checkbox"/> Yes, quite often/Yesbókutem <input type="checkbox"/> Sometimes/Sòntem de <input type="checkbox"/> Hardly ever/I nòizifòapin <input type="checkbox"/> Never/Wande I nòapin.

Administered/Reviewed by \_\_\_\_\_ Date \_\_\_\_\_



## **SCORING**

QUESTIONS 1, 2, & 4 (without an \*)

Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS 3, 5 – 10 (marked with an \*)

Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Maximum score: 30

Possible Depression: 10 or greater

Always look at item 10 (suicidal thoughts)

*Users may reproduce the scale without further permission, providing they respect copyright by quoting the names of the authors, the title, and the source of the paper in all reproduced copies.*

## **APPENDIX D**

### **PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA LEONE**

## Multidimensional Scale of Perceived Social Support ( Zimet, Dahlem, Zimet& Farley,1988)

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

Circle the "1" if you very strongly disagree/if yunogritrangatranga wan

Circle the "2" if you strongly disagree/if yunogritranga wan

Circle the "3" if you mildly disagree/yunogrisml

Circle the "4" if you are neutral/yunotekənipozishon

Circle the "5" if you mildly agree/yugrisml

Circle the "6" if you strongly agree/yugritranga wan

Circle the "7" if you very strongly agree/yugritrangatranga wan

1. There is a special person who is around when I am in need 1 2 3 4 5 6 7  
Wan speshalposin kin de we a de in nid.
2. There is a special person with whom I can share my joys and sorrows 1 2 3 4 5 6 7  
Wan speshalposin de we a kin tok to bot di tem we a gladien we mi at pwel.
3. My family really tries to help me 1 2 3 4 5 6 7  
Mifambulden kin tray fæp mi.
4. I get the emotional help and support i need from my family 1 2 3 4 5 6 7  
A kin get di lovensopot we a nidfrom mi fambulden.
5. I have a special person who is a real source of comfort to me 1 2 3 4 5 6 7  
A get wan speshalposin we kin korej mi.
6. My friends really try to help me 1 2 3 4 5 6 7  
Mipadiden kin tray fæp mi
7. I can count on my friends when things go wrong 1 2 3 4 5 6 7  
A kin abop pan mi padiden we tin go bad.
8. I can talk about my problems with my family 1 2 3 4 5 6 7  
A kin tokbot mi problem wit mi fambulden.
9. I have friends with whom I can share my joys and sorrows 1 2 3 4 5 6 7  
A getpadiden we a kin tok to we a gladien we mi at pwel.
10. There is a special person in my life who cares about my feelings 1 2 3 4 5 6 7  
Wan speshalposin de na mi layf we kiabot aw a de fil.
11. My family is willing to help me make decisions 1 2 3 4 5 6 7  
Mifambuldengrifæp mi disayd.
12. I can talk about my problems with my friends 1 2 3 4 5 6 7  
A kin tokbot mi problem to mi padiden.

UNIVERSITY OF IBADAN LIBRARY

**APPENDIX E**

**PREVALENCE AND CORRELATES OF PERINATAL DEPRESSION  
AMONG ADOLESCENTS AND YOUNG ADULTS IN WESTERN AREA, SIERRA  
LEONE**

## Participative Ranking Methodology (Question Guide)

What makes life stressful for young pregnant girls?

**Wetin kin meklayfgetstresfɔyɔngbɛɛuman?**

Why are these things stressful?

**Way mekdɛn tin ya kin getstres?**

Which of these is the most stressful down to the least stressful? Rank them in order of how stressful they are.

**Pan ɔlden tin ya, uswan get stresmɔ? putdɛm bay aw dɛnkam.**

What are the things that can be done (by family, friends, society or government) to help improve these stressful events? And make life easier for a girl who is pregnant.

**Wetinwifɔ du (Fambuldɛn, padidɛm, sosayti ɔ gɔvnmɛnt)**

**fɔɛppuldɛnstresya?ɛnfɔmeklayfizifɔ di bɛɛuman.**

APPENDIX F

Ethical Approval



GOVERNMENT OF SIERRA LEONE  
Office of the Sierra Leone Ethics and Scientific Review Committee  
Directorate of Policy Planning and Information  
5<sup>th</sup> Floor, Youyi Building Brokfields, Freetown  
Ministry of Health and Sanitation

23<sup>rd</sup> January, 2017

**TO:** **Dr. Lucinda Bockarie (M.Sc. Candidate)** **Principal Investigator**  
Centre for Child and Adolescent Mental Health  
University of Ibadan  
lulukabs@yahoo.com  
+232-78-293-849

**Study Title:** **Correlates of Perinatal Depression among Adolescents in Freetown, Sierra Leone**

**Version:** 20 December, 2016

**Supervisor:** Professor A. Omig bodan  
Dept. Obstetrics & Gynaecology  
University of Ibadan

**Submission Type:** First protocol version submitted for review

**Committee Action:** Expedited Review

**Approval Date:** 19 January, 2017

The Sierra Leone Ethics and Scientific Review Committee (SLESRC) having conducted an expedited review of the above study protocol and determined that it presents minimal risk to subjects, **hereby grants ethical and scientific approval for it to be conducted in Sierra Leone.** The approval is valid for the period, **19 January, 2017 –18 January, 2018.** It is your responsibility to obtain approval for any on-going research prior to its expiration date. The request for re-approval must be supported by a progress report.

For further enquiries please contact: [efoday@health.gov.sl](mailto:efoday@health.gov.sl)