PREVALENCE AND FACTORS ASSOCIATED WITH POSTPARTUM DEPRESSION AMONG ADOLESCENT MOTHERS ATTENDING POSTNATAL AND UNDER-FIVE CLINICS IN PERI-URBAN AREA, DAR ES SALAAM.

Beatrice M. Matondo, MD

MMED Obstetrics and Gynaecology Dissertation
The Muhimbili University of Health and Allied Sciences
October, 2021

Muhimbili University of Health and Allied Sciences

School of Medicine

Department of Obstetrics & Gynaecology

Prevalence and Factors Associated with Post-Partum Depression Among Adolescent Mothers Attending Postnatal and Under-Five Clinics in Peri-Urban Area, Dar Es Salaam.

By

Beatrice M. Matondo.

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of Master Medicine in Obstetrics and Gynaecology of Muhimbili University of Health and Allied Sciences.

October, 2021.

CERTIFICATION

The undersigned certifies that she has read and hereby recommends for examination of the dissertation entitled *"Prevalence and factors associated with postpartum depression among adolescent mothers attending postnatal and under-five clinics in per urban area, Dar es salaam"* in partial fulfillment of the requirements for the degree of Master of Medicine in Obstetrics and Gynecology of Muhimbili University of Health and Allied Sciences.

_____

Dr Peter J.T. Wangwe

(Supervisor)

_____

Date:

_____

Dr Ester S. Mzilangwe

(Co supervisor)

_____

Date:

DECLARATION AND COPYRIGHT

I, Beatrice Matondo**,** declare that this dissertation is my original work and has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature ………………………….… Date ………………………………….

ACKNOWLEDGEMENT

DEDICATION

To my Beautiful Daughters Kaitlyn and Kailah Nkacha, the upcoming adolescents, representing all adolescents, for their tolerance and patience in my absence at home due to this work, to my Lovely Husband Gabriel Nkacha for his love and constant support throughout my studies. My beloved mother for her constant support and prayers throughout my studies. My late father Alfred Njile Matondo may his soul continue to rest in eternal peace Amen. You are special to me in unspeakable ways.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

ARHS	Adolescent Reproductive Health Services
EPDS	Edinburg Postnatal Depression scoring Scale
GBV	Gender-Based Violence
MUHAS	The Muhimbili University of Health and Allied sciences
PPD	Postpartum depression
SPSS	Statistical Package for Social Science
WHO	World Health Organization
IPV	Intimate Partner Violence
ANC	Antenatal care
HICs	High-income Countries
IPD	In-Patient Department
LICs	Low-income Countries
MNH	Muhimbili National Hospital
UNICEF	United Nations International Children's Emergency
OPD	Outpatient Department.
PNC	Post-natal care
C/S	Cesarean section
SVD	Spontaneous vertex delivery.

DEFINITION OF TERMS

➤ An adolescent according to WHO is any person between ages 10 and 19, A young person who is developing into an adult

➤ A child adopted by the convention on the rights of the child, as a person under the age of 18 years

➤ Depression according to the Edinburg Postnatal Depression Scoring Scale (EPDS), mothers who score 13 or above are likely to be suffering from a depressive illness of varying severity.

➤ The Postpartum period is the period immediately after delivery extending up to six weeks.

ABSTRACT

Background: Postpartum depression(PPD) has been described as "a thief that steals motherhood". Maternal depression is a major public health concern as it affects both mothers and their children. PPD which is often underdiagnosed has been associated with child abundance, child malnutrition and suicidal or suicidal ideation. Research has demonstrated that PPD is associated with mother-infant bonding impairment, child abuse, child neglect, maternal abuse and self-harm. Globally, the prevalence of PPD among adolescents varies.

We aimed at determining the prevalence of PPD and its associated risk factors among Adolescent mothers attending a postnatal and under-five clinic in a Peri-urban area (Kigamboni) Dar-es-salaam.

Methods: A cross-sectional analytical study was conducted in two Health Centers located at Kigamboni, Dar es Salaam between October 2020 to January 2021. We interviewed 380 adolescent mothers attending postnatal and under-five clinics at Vijibweni and Kigamboni health centers. Information on bio-psychosocial factors contributing to PPD, social demographic and depression assessment using Edinburg Postpartum Depression Scoring scale with a score of ≥13 was collected by face-to-face interview. Data were analyzed using SPSS software version 23. Bivariate and multivariate logistic regression analyses were done to identify factors associated with Postpartum depression. A p-value <0.05 was considered to be statistically significant.

Results: Forty -four percent of adolescent mothers were having signs of depression. PPD was significantly associated with an unplanned pregnancy (AOR=7.40, 95% CI=3.16 - 17.38). On the other hand, being married (AOR=O.92, 95% CI=0.12-0.69); family support (AOR=0.42, 95% CI=0.22-0.81) and partner support (AOR=0.13, CI=0.28-0.60) had less likelihood of being associated with postpartum depression.

Conclusion: The prevalence of PPD was higher in the study sample. In the light of the findings, maternal health care providers and the government is cautioned to consider the mental health of adolescent mothers.

1.0 INTRODUCTION

1.1. Background

Postpartum depression (PPD) is defined in the psychiatric nomenclature as a major depressive episode beginning within the first four weeks after childbirth and lasting at least for two consecutive weeks. The signs and symptoms of PPD are similar to those associated with Major Depressive Disorder(1).

PPD has been described as a "thief that steals motherhood" (2). Particularly as a depressed mother may prematurely discontinue breastfeeding due to the reduction of breast milk production six months postpartum (3). Moreover, the depressed state of the mother can also induce depression in infants (4).

The etiology for PPD has complex pathophysiology and is likely to result from the interplay of genetic, neuroendocrine, and psychosocial factors (5). Other factors that predispose to the development of PPD include a history of mood disorders, a family history of psychiatric disorders, negative life events, poor marital relationships, lack of social support, drug abuse, maternal perfectionism, and antenatal depression or anxiety (6,7).

PPD is a common complication of childbearing affecting approximately 10-15% of women and as such represents considerable health problems affecting women and their families (8). It is a significant clinical issue that is often under-assessed and misunderstood. In addition, PPD is associated with abnormal development, cognitive impairment, and psychopathology in children (9,10).

Approximately 1.2 billion adolescents are aged between 10-19 years of age worldwide of which up to 16% constitute the world's population (11). According to UNICEF statistics, the Adolescent population (10-18yrs) comprises 23% of the total population of Tanzania, and 18% of adolescents are currently married or living with a partner. Moreover, 28% of women gave birth before the age of 18 years. Adolescent mothers in Tanzania, as one of the countries in sub-Saharan Africa, are a very big problem among adolescent girls. Pregnancy during adolescence has been associated with school dropout among girls in Tanzania (12).

In Tanzania adolescents aged 15-19 have a higher birth rate of 116 per 1000 twice the world's average of 65 births per 1000 adolescents. (13).

PPD in adolescents is often undetected and under-diagnosed, and adolescents at risk are rarely recognized during pregnancy or delivery. Therefore, there is a need to find out the magnitude of PPD in adolescents and associated risk factors.

Several screening tools for PPD have been validated for use during pregnancy and the postpartum period, those tools include the Beck Depression Inventory (BDI), the Centre for Epidemiologic Studies Depression Scale (CES-D), Patient Health Questionnaire 9 (PHQ9), and Edinburgh Postnatal Depression Scale (EPDS). The Edinburgh Postnatal Depression Scale (EPDS) is the most widely used screening instrument. It was developed to assist primary health care professionals in detecting mothers suffering from postpartum depression; a distressing disorder more prolonged than the "blues" (which occur in the first week after delivery), but less severe than puerperal psychosis (14).

1.2. Literature Review

Prevalence

The Prevalence of PPD in adolescent mothers and adult mothers differ according to different places worldwide. Globally about 10% of pregnant women and 13% of women who just gave birth are suffering from mental health problems. The prevalence is higher in developing countries, where 15.8% develop a mental illness during pregnancy and 19.8% after childbirth.(15). According to WHO Globally adolescent pregnancies and adolescent motherhood are the cause of concern due to their significant impacts on the individual and their offspring (16).

A Medline literature search was conducted in the USA for Articles Published between 1996 and 2015. The purpose was to review the epidemiology, risk factors, treatments and prognosis for the adolescent with PPD. After the review, it was found that the prevalence was 25%, higher in adolescents than the observed prevalence of 10% in adults (17).

According to a systematic review and meta-analysis which was done in Africa (from 2007-2018) to determine the epidemiology of PPD and its associated factors. The pooled prevalence was 17.8% which shows that the prevalence is high in African countries (17). In sub-Saharan Africa studies have reported various prevalence, others have high prevalence compared to other countries, in Uganda it was 6.6%and in Ghana 33.3%.

Eswatini had a prevalence of 47.4% and in the Democratic Republic of Congo was 50.8% which was the highest (19–21).

In the majority of the studies which assessed PPD, adolescents were included as women of reproductive age, few studies have been done on prevalence in adolescents. Moreover, a study which was conducted in Peripheral District Hospital in Ugu, Southern Kwa Zulu-Natal in South Africa had a prevalence of 8.8% (22).

Associated factors

Different Socio-demographic factors are associated with PPD in adolescent mothers; these factors include biological factors, psychological factors and social factors. Moreover, every country had shown to have different factors which are more pronounced compared to other factors.

Biological factors associated with PPD

Age is one of the determinants of PPD among adolescent mothers, the study done in Canada to assess developmental task attainment and child abuse potential in a risk adolescent mothers showed that, young adulthood had placed more subjective importance on task and reported attaining these tasks had significantly lower child abuse potential score, meaning as age increases the risk of PPD decreases(23). While meta-analysis review which was done in African countries from 2007-2018 didn't show any significant association, instead it showed that the history of maternal health problems during pregnancy like Hypertension, HIV, Tuberculosis was associated with PPD (24)

The study done in Tanzania at Muhimbili National hospital age was also a determinant of PPD (26,27). The study concluded that one out of five women with a history of pre-eclampsia had features of PPD, the risk was high in adolescent women(28).

Personal /family history of depression has been also associated with PPD. A study done in Iran to assess the risk factor associated with PPD in rural areas showed that a positive history of depression is consistently a strong risk factor for PPD (29,30)

Psychological factors associated with PPD.

In low and middle-income countries, about 75% of patients with psychological, neurological and substance use conditions do not have access to services(31).

Intimate partner violence(IPV) has also been shown to be a determinant of PPD. A study done in Vietnam showed that there is a great association between partner violence and PPD (32). In another study which was done in Kwa Zulu South Africa, IPV was 9.18 times more likely to have PPD compared to other factors (22). A cohort study was done in Moshi to assess PPD in women who have experienced IPV, the analysis showed that the risk of PPD was highest in younger women aged (18-24) years (33).

A study which was done in Ethiopia in 2017 showed that women who had unplanned pregnancies had 4.49 times more likely to develop PPD than women who had planned pregnancies (25). Unstable marital status was also associated with PPD together with women who had the death of an infant (34–37).

In Nairobi, a study to assess depression with comorbid substance use in the antepartum period showed that about 60.4% had depression and those who were severely depressed were using alcohol and these were also associated with PPD (38). In another study which was done in Ethiopia, history of childbirth, and substance use had a higher probability of PPD compared to other factors like marital status, low economic status, unplanned pregnancy, and childbirth without their relatives (15).

Social factors associated with PPD.

Poor family or partner support has been associated with a high level of PPD. In the study which was done in Eswatini assessing the factor associated with PPD, those who had poor support from their partners had a high level of depression compared to those who had support from their partners. Other factors like social demographic, unemployment, unplanned pregnancy and clinical variables, did not show statistical significance (19).

Marital status and education level are also associated with depression. A study done in Uganda among adolescents showed a significant relation with PPD (25). A study which was done in Tanzania at Muhimbili showed that those who were married had a low chance of PPD compared to those who are not married. And those who had a low level of education had a statistically significant relationship with PPD (28).

PPD has been studied mostly in women of reproductive age as a whole but with dominance over adult women. There is limited studies which involves adolescent alone. Although minimal studies have been done to show that the prevalence of PPD in adolescents is higher compared to adult women. This study will be an eye opener to our country, the results may be used to improve care given to adolescent mothers and therefore improve their quality of life.

1.3. Conceptual framework.

Mental disorders are the result of the complex interplay of bio-psychosocial factors. Postpartum depression is one of the mental disorders; the study used a bio-psychosocial model to assess factors associated with postpartum depression among adolescent mothers. Biological factors assessed were maternal age, obstetric factors, personal/ family history of depression, pre-eclampsia, HIV+. Psycho-social factors assessed were marital status, education level, unplanned pregnancy, and school dropout, poor family or partner support, IPV, and drug or substance use. The study aimed to identify how respective variables within each cluster of categorized factors determine the cause of Postpartum depression among adolescent mother

PRIMARY PREDICTORS

OUTCOME

Bio-psychosocial etiological factors for depression.

Biological

-maternal age

-Obstetric factors

-Personal/ family history of depression

-HIV+

-preeclampsia

Psychosocial

-Marital status

-Education level

-Unplanned pregnancy

-School dropout

-Poor family/partner support

-IPV

-Drug or Substance use

POSTPARTUM
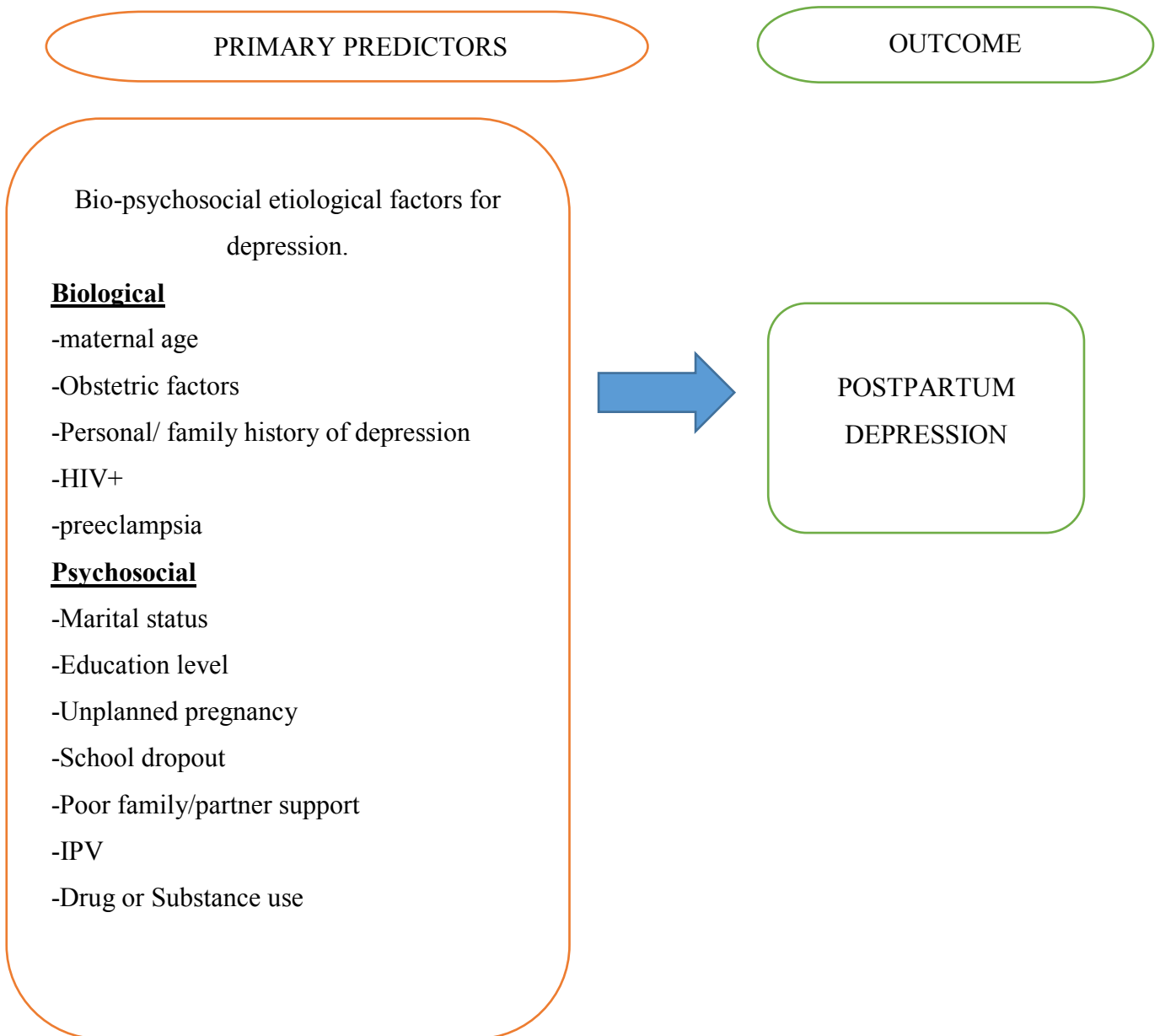
DEPRESSION

Figure 1: Conceptual framework for postpartum depression and associated factors.

1.4. Problem Statement.

Tanzania is among developing countries facing major public health problems on sexual and reproductive health for Adolescents. The majority of adolescents in Tanzania are at risk from a broad range of health problems, including mental health. In the year 2015 through 2016, the Ministry of Education Science and Technology, in collaboration with UNICEF Tanzania, conducted a study to establish the profile of the out-of-school children in terms of who they are, where they are and what they are doing. The study also established the factors and practices that keep children out of school. Among the factors which were found was pregnancy (39). The rate of school drop-out was more in the Peri-urban area. The year 2017 the president of the Republic of Tanzania announced that all children who get pregnant during primary and secondary should not go back to school. This brought an idea on trying to find out what happens when they give birth and their life after delivery particularly in their mental health. PPD has been associated with significant morbidity and mortality. Studies have been done extensively in adults but less in adolescent mothers, (17).

PPD is a major public health problem affecting 10-57% of adolescent mothers which can affect not only adolescent mothers but also their infants (40). In Tanzania, studies have shown PPD to be associated with other Comorbid like Pre-eclampsia, IPV and HIV. Other factor associated with PPD includes maternal young age which had a greater percentage. This study, therefore, sought to examine the magnitude of factors leading to PPD among adolescent mothers (28)

1.5. Rationale.

The rationale of the study was to find out what happens to adolescents' mothers after delivery and when they are out of school because of pregnancy. Also to provide baseline research knowledge and raise awareness on factors associated with depression in adolescents. Findings from this study will help to improve care given to adolescent and therefore improve their quality of life. Also can be used as a guide to the policymakers and implementers to initiate adolescent-friendly services to those areas where they haven't started yet, improve adolescent-friendly services in health facilities where they have started

implementing. It may also show the need and the possibility of creating a simple screening tool, for PPD among adolescent mothers.

Understanding the magnitude of the situation will help policymakers and stakeholders to see the demand to increase the implementation of adolescent-friendly health services in health facilities especially in Peri-urban areas where the rate of school dropout and cultural practice for early marriages is high compared to urban areas

1.6. Research Questions

1. What is the prevalence of PPD among adolescent mothers in Peri- urban areas Kigamboni Dar es salaam?
2. What are the factors associated with PPD among adolescent mothers in Peri-urban areas Kigamboni Dar es salaam?

1.7. Objectives

1.7.1. Broad Objective

To determine the prevalence and associated factors of **PPD** among adolescent mothers attending postnatal and under-five Clinics in Peri-urban area Kigamboni Dar es Salaam from October 2020 to January 2021.

1.7.2. Specific objectives

1. To determine the prevalence of PPD among adolescent mothers attending postnatal and under-five clinics
2. To determine factors associated with PPD among adolescent mothers attending postnatal and under-five clinics.

2.0. METHODOLOGY

2.1. Study Design.

This was an analytical cross-sectional study involving adolescent mothers

2.2 Study setting

The study was conducted at Vijibweni hospital and Kigamboni Health Centre. These health facilities are both located in Kigamboni District in Dar es salaam. Vijibweni Hospital offers referral services for the Vijibweni ward, Mjimwema, Kigamboni, Tungi, Sumangala, Kibada, and all areas of the Kigamboni district. Currently, Vijibweni Hospital acts as the District Hospital in Kigamboni and serves about 9340 outpatients(OPD) and 178in patients (IPD) on monthly basis. The hospital has inpatient wards for Pediatrics, Medical, Surgery, Obstetrics, and Gynecology as well as Reproductive and Child health. Currently, the hospital doesn't have an Obstetrician and Gynecologist, psychologist, or Psychiatrist. But on average in a month they conduct about 240 deliveries of women who are >20years and 25 to 31 deliveries of women who are <20 years of age. Among these women, the turn up for postpartum clinics involves about 209 for those who are >20 years of age and 35 for those who are <20 years of age. The hospital offers services for GBV screening for the general population.

Kigamboni Health Centre is also located at Kigamboni ward, which has a population of more than 36,982 and provides health services to more than five wards which include Kigamboni, Maweni, Mjimwema, Kisiwani, and Kibada. They also provide OPD and IPD services. On inpatient, they have Pediatrics, Medical, Obstetrics, and gynecology except for the surgical ward. The health center has one Obstetrician and Gynecologist who is also the medical officer in charge of the health center, but they don't have a Psychologist or Psychiatrist. The Health Centre also provides Reproductive and child Health with an average of 80 to 120 deliveries for those aged >20 years and 5 to 10 deliveries for those aged <20 years of age on monthly basis. The Health Centre has a postnatal turn up of 50 women in a month for >20 years and 8 to 10 women for <20 years of age. It also offers under-five clinics from Monday to Friday with an average of ≥2000 children every day including those who are beginning the clinic for the first time. The Health Centre offers a GBV clinic for antenatal women and postnatal women by health personnel who was sent

for a special training, but there are no screening services for postpartum depression that are offered at the Health Centers.

2.3. Study population

All mothers attending postnatal and under-five clinics.

2.4. Study sample

All mothers aged 19 years old and below.

2.5. Sampling Method and Sample Size.

2.5.1. Sampling Method.

A Convenience sampling technique was used to select participants. All mothers aged 19 years and below with children less than six weeks attending PNC and under-five clinics at Vijibweni Hospital and Kigamboni Health Centre were included until the required sample size was reached. Recruitment of participants was done using the postnatal register book and antenatal card.

2.5.2. Sample Size

The sample size was calculated by using Kish Leslie's formula:

$n = z^2 p(100-p)/\varepsilon^2$

Where:

n = Minimum sample size designed,

z = the point on standard normal deviation corresponding to 95% Confidence Interval (1.96)

p = prevalence of PPD among adolescents According to a study which was done at Kwazulu-Natal South Africa, the prevalence was 8.8%.

ε = Margin of error set at 3%

$n = z^2 p(100-p)/\varepsilon^2$

Hence, n = $1.96^2 \times 8.8 \times (100-8.8) \div 3^2$

N = 342 participants.

Adjusting for non-response rate

$$= 342 \times \frac{(100)}{100 - f\%}$$

Where f% is non-response percentage = 10%

$$= 342 \times \frac{100}{90}$$
$$= 380$$

When adjusted for non-response of 10% then, n =380 participants.

The minimum required sample size was 380 adolescent mothers.

2.5.3. Inclusion Criteria

- ❖ Adolescent mothers with children less or equal to six weeks attending postnatal and under-five clinics at Vijibweni Hospital and Kigamboni Health Centre.
- ❖ Post-partum adolescent mothers from the second week to six weeks
- ❖ Adolescent mothers who had early neonatal death and attending the postpartum clinic

2.5.4. Exclusion Criteria

- ❖ Adolescent mothers with severe systemic illness on the day of a clinic visit.

2.6. Training of research assistants and Pretesting of the questionnaire

The questionnaire was pretested at the same health facility before the initiation of data collection from which no changes to the questionnaire were deemed necessary. Two Research assistants one from each health facility were recruited, these were assistant nursing officers trained on the purpose of the study, meaning of every question in the questionnaire, and professional conduct in approaching women to be recruited for the study.

2.7. Data Collection

Data were collected from October 2020 to January 2021 Following a daily health education conducted by on-duty nurses at the under-five clinic from Monday to Friday, which was followed by the introduction of the research team to the attending women and informing them on the research and its aim. Collected antenatal cards (those who are coming for the first time in the clinic, upon arrival they collect their cards for numbering and registration to ensure they are attended as in the order of their arrival) adolescent mothers were sorted as per inclusion criteria and their card labeled with a yellow sticker (to avoid repetition on subsequent visits). Attending nurses were instructed on the labeling on the cards to direct adolescent mothers with a sticker on their cards to the research team for obtaining informed written assent and interview. And for those who came late similarly, identification and labeling of their cards and interviews after obtaining a written informed assent was done following being seen by the attending nurse. For the adolescent mothers who came for postnatal services, the nurse who was doing registration sorted them as per inclusion criteria and give them priority to be seen by the attending nurse. After they have been seen by the attending nurse, the nurse directed the adolescent mother to the research team. For those who assented to the study a consecutive sampling was done and an interview administered data collection was done with an average of 3 to 4 adolescent mothers per day although on other days we could get one to two or not at all. The interview was conducted in a separate room which was provided to the research team to ensure confidentiality. Data was collected using a pilot-tested structured Swahili questionnaire by the principal investigator and trained research assistants and filled in the datasheet. Signs of depression were measured using Swahili version of the Edinburgh Postnatal Depression Scale (EPDS) (41). The EPDS is the most reliable and widely used screening tool for measuring signs of depression and PPD in both high and low-income countries (42). The EPDS is based on the 10-item questionnaire, with the terms corresponding to various clinical depression symptoms such as low energy, feeling of guilt, sleep disturbance and suicidal thoughts. Higher total scores indicate more depressive symptoms; the maximum score is 30. In this study, the cut-off point for the definition of signs of depression was 13 or more. The cut-off score of ≥13 has previously been validated against detailed psychiatric assessments in HIV high-risk population of pregnant women in Tanzanian and was

observed to have sensitivity and specificity of 69% and 78% respectively (43). . Bio-Psychosocial factors including (family support, partner support, and quality of relationship with partner, food insecurities, history of depression, drug or substance use, HIV status stressful events during pregnancy) contributing to PPD were obtained from the mothers. Obstetric history was obtained from the maternal card. Adolescent mothers who had signs of depression, and who needed immediate attention were referred to the doctors for further management.

2.8. Data management and Analysis.

Using statistical package for social science (SPSS) version 23. Coded data were entered daily until the completion of data collection. Before data analysis, quick frequency tables were run to check for consistency and missed data. Frequency distribution tables to present demographic and other variables were used. The Edinburgh Postnatal Depression Scale (EPDS) was used to evaluate maternal depression from more than seven days to less than six weeks. It contained a total of 10 items on four-point Likert scales (0 to 3) and the total score ranged from 0 to 30 points. The current validation study showed that a cutoff point of ≥13 gave 66% sensitivity and 95% specificity, with an overall positive predictive value ranging from 26% to 69% (44). Bivariate analysis was done to show the association of the dependent and independent variables using chi-square value and a p-value. Those with a P-value of <0.2 were put for multiple logistic regression analysis to determine the level of effect (crude and adjusted odds ratio) of the independent variables to the dependent variable with a P-value less than 0.05 considered statistically significant.

2.9. Ethical consideration

The ethical clearance for the study was obtained from the Senate Research and Publication Committee of Muhimbili University of Health and Allied Sciences (MUHAS). Permission to conduct the study was obtained from the Kigamboni district medical officer, Medical officers in charge at Vijibweni Hospital, and Kigamboni health Centre their nurses in charge of the RCH.

Written informed assent was obtained from the adolescent mothers, where they were informed on the purpose of the study and the benefits obtained from the study findings.

Adolescent mothers had the right to withdraw from the study any time they wished and withdrawal from the study did not affect their subsequent postnatal care or other services. Mothers' information was kept confidential. The research data obtained will be kept for 5 years after the study dissemination and publication, and thereafter destroyed.

Other postnatal care services and under-five clinic services were performed as per institution protocol. Adolescent mothers who were found to have PPD were referred to doctors in the outpatient clinics for psychotherapy and medical therapy and those who showed the need for further management were referred to the higher institution as per the ministry of health referral systems.

3.0. RESULTS

One hundred and sixteen out of 380 participants had an EPDS score of 13 and above. This category was considered as having PPD giving a prevalence of 44% (fig 2).

Majority of participants were between 18 and 19 of age. Most of them were single with primary level education and about three quarter were unemployed.

Marital status showed significant association with PPD, furthermore some of the psychosocial variables showed significant association with PPD (table 4). Only one participant had previous history of depressive illness.

Table 4 shows the findings of logistics regression analysis of factors associated with PPD among adolescent mothers. Unplanned pregnancy had higher chances of having PPD compared to planned pregnancy. Moreover, those who were married, having family and partner support had less likelihood of being depressed compared to those who were not married and those who did not have family and partner support.

Table 1: Social demographic characteristics of adolescent mothers included in the study (N=380).

Variable	Frequency n(%)
Marital status	
Single	**201(52.89)**
Married	165 (43.42)
Separated	12(3.16)
Widow	2(0.53)
Level of education	
Not completed primary education	35 (9.21)
Completed primary education	**178 (46.84)**
Secondary education	146 (38.42)
college	21(5.53)
Occupation	
Housewife or unemployed	**295 (77.63)**
Self-employed	58 (15.26)
Employed	27 (7.11)
Age group	
$\leq$17	61(16.05)
18- 19	**319 (83.95)**

The mean age for the study participants was (standard deviation) 18.3 ± 0.8 years. Most of the participants were not in marriage about 201 (52.89%) and 178 (46.84%) had a primary school education level

The Pie chart shows the Prevalence of postpartum depression among adolescent mothers.
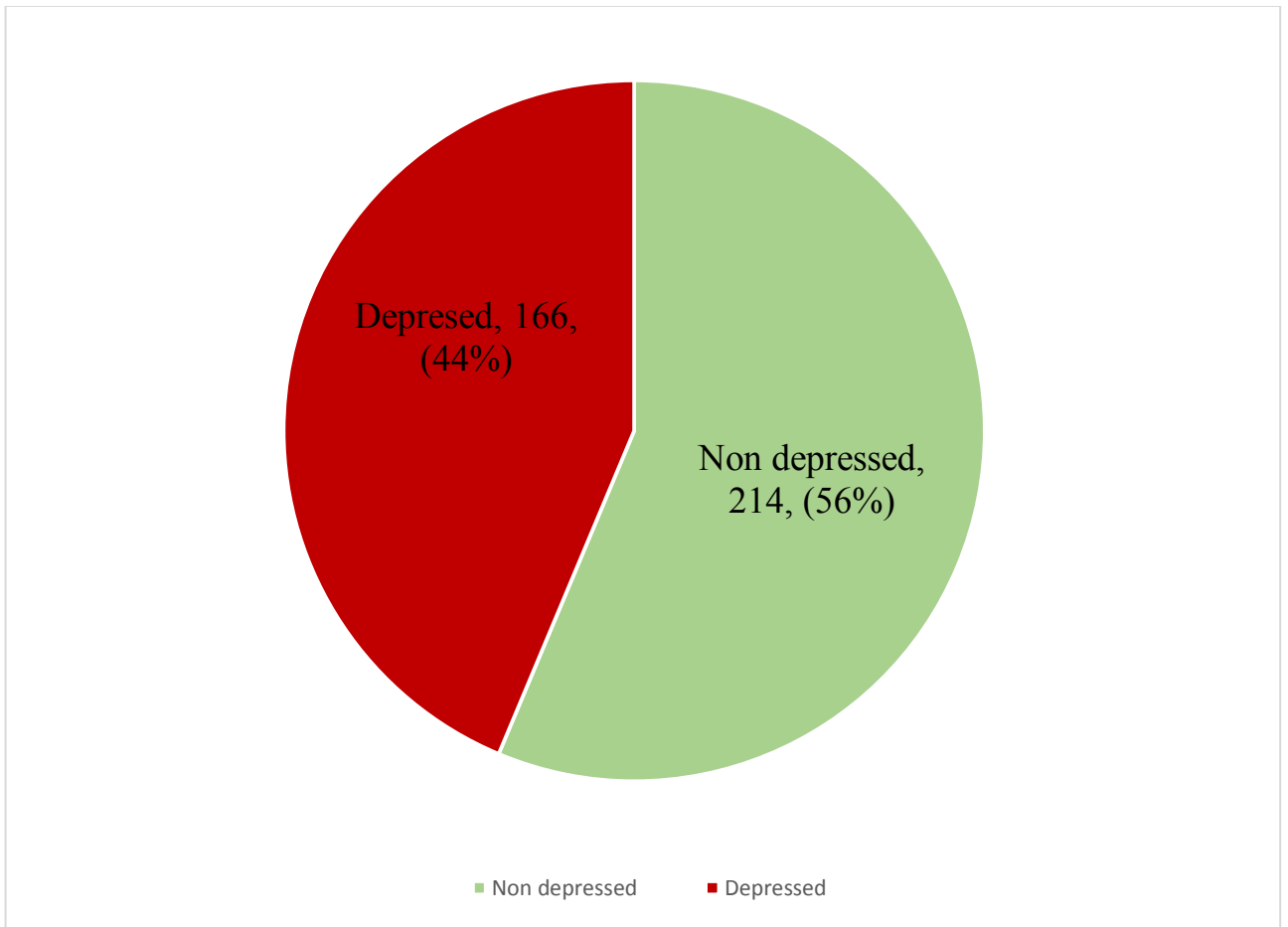
Figure 1: The proportion of Depression status among participants, about 44% were depressed.

Table 2: Biological factors associated with depression status among participants using chi-square test. (N=380)

Variable	Non depressed Frequency (%) (n= 214)	Depressed Frequency (%) (n=166)	P value
Parity			
One	178(53.61)	**154(46.39)**	**0.005**
Two	36(75.00)	12(25.00)	
Gestation age			
=>37 weeks	210(56.60)	161(43.40)	0.512*
Preterm < weeks	4(44.44)	5(55.56)	
Mode delivery			
Vaginal delivery	189(58.70)	**133(41.30)**	**0.028**
C/S	25(43.10)	33(56.90)	
Baby's condition			
Stable	213(56.50)	164(43.50)	0.583*
Unstable	1(33.33)	2(66.67)	
Mode of feeding			
Not breastfeeding	1(25.00)	3(75.00)	0.322*
Breastfeeding	213(56.65)	163(43.35)	
Hypertensive disorders during pregnancy			
Yes	11(37.93)	**18(62.07)**	**0.038**
No	203(57.83)	148(42.17)	
HIV status			
Positive	1(100.00)	0(0.00)	1*
Negative	213(56.20)	166(43.68)	

Variables put for logistic regression, p-value<0.2 and *fisher exact P value

Adolescent mothers who had delivered once, delivered by C/S, and those who had hypertensive disorders were more depressed compared to those who delivered twice, delivered by SVD, and didn't have the hypertensive disorder

Table 3: Psychosocial factors associated with depression status among participants using the chi-square test (N=380)

Categories	None depressed Frequency (%) (n=214)	Depressed Frequency (%) n= 166	Total	P Value
Marital status				
Single	61(30.35)	140(69.65)	201	<0.001*
Married	151(91.52)	14(8.48)	165	
Divorced/separated	2(16.67)	10(83.33)	12	
Widow	0(0.00)	2(100.00)	2	
Level of education				
Not completed primary education	15(42.86)	20(57.14)	35	<0.001
Completed Primary education	84(47.19)	94(52.81)	178	
Secondary education	99(67.81)	47(32.19)	146	
College	16(76.19)	5(23.81)	21	
Pregnancy planned				
Yes	161(85.19)	28(14.81)	189	<0.001
No	53(27.75)	138(72.25)	191	
Satisfied with the level of family support				
Not satisfied	47(38.84)	74(61.16)	121	<0.001
Satisfied	167(64.48)	92(35.52)	259	
Partner of the child support				
No, not at all	50(25.25)	148(74.75)	198	<0.001
Yes, supportive	164(90.11)	18(9.89)	182	
Used any illicit drugs				
Yes	63(47.37)	70(52.63)	133	0.01
No	151(61.13)	96(38.87)	247	
Past 6 months your partner hurt you				
Yes	40(38.83)	63(61.17)	103	<0.001
No	174(62.82)	103(37.18)	277	
Past 6 months forced into a sexual act by your partner				
Yes	27(38.03)	44(61.67)	71	0.001
No	187(60.52)	122(39.48)	309	

Variables put for logistic regression, p-value<0.2

The studied psychosocial factors were found to be statistically significant (p-value <0.05) associated with the prevalence of postpartum depression.

Table 4: The factors associated with depression status among participant's Multivariate logistic regression model (N=380)

Variable	Bivariate C0R (95% CI)	P-value	Multivariate AOR (95%)	- value
Parity				
2	1	1	1	1
1	2.60(1.30-5.16)	0.007	0.69(0.30-1.59)	0.39
Mode delivery				
Vaginal delivery	1	1	1	1
C/S	1.88(1.07-3.30)	0.029	0.95(0.48-1.90)	0.906
Hypertensive disorder during pregnancy				
No	1	1	1	1
Yes	2.24(1.02-4.89)	0.042	1.87(0.72-4.84)	0.196
Marital status				
Separated	1	1	1	1
Single	0.45(0.09-2.15)	0.324	0.15(0.22-1.06)	0.057
Married	0.01(0.00-0.09)	<0.001	**0.92(0.12-0.69)**	**0.02**
Education				
Not completed primary education	1	1	1	1
Completed Primary education	0.83(0.40-1.74)	0.639	0.91(0.31-2.64)	0.863
Secondary education	0.36(0.16-0.75)	0.007	0.57(0.19-1.72)	0.319
College	0.23(0.70-0.78)	0.018	0.45(0.06-3.56)	0.449
Pregnancy planned				
Yes	1	1	1	1
No	14.97(8.97-24.96)	<0.001	**7.40(3.16-17.38)**	**<0.001**
Satisfied with the level of family support				
Not satisfied	1	1	1	1
Satisfied	0.34(0.22-0.54)	<0.001	**0.42(0.22-0.81)**	**0.009**
Partner of the child support				
No, not at all	1	1	1	1
Yes, supportive	0.37(0.20-0.66)	<0.001	**0.13(0.60-0.28)**	**<0.001**
Used any illicit drugs				
Yes	1	1	1	1
No	0.57(0.37-0.87)	0.01	0.60(0.30-1.21)	0.156
Past 6 months your partner hurt you	1	1	1	1

Yes				
No	0.37(0.23-0.59)	<0.001	0.99(0.48-2.06)	0.99
Forced into a sexual act by your partner				
No	1	1	1	1
Yes	2.66(1.67-4.24)	<0.001	0.95(0.452.058)	0.915

COR-Crude Odds Ratio   **AOR**-Adjusted Odds ratio
- Statistically significant at p<0.05

Multivariate logistic analysis

The factors which are more likely to cause PPD was unplanned pregnancy, and protective

factors were marital status, level of education, Family and social support.

4.0. DISCUSSION

Among the adolescent mothers included in the study, almost half of them had PPD. The occurrence of PPD was significantly associated with an unplanned pregnancy. Marriage, education level, family and partner support was found to be protective for PPD.

Even though the prevalence of PPD was found to be higher than the Worldwide prevalence rate of 12%-15% (45) the results are comparable to those from previous studies, done in Eswatini by Dlamini LP et al with a prevalence of 47.4% which was slightly higher compared to our finding. This could be due to differences in social-demographic characteristics of the study participants where the majority were older than 24 years) (19). This is contrary to other studies, a Medline literature search was conducted in the USA for articles published between 1996 and 2015. The purpose was to review the epidemiology, risk factors, treatments, and prognosis for adolescents with PPD and it was found to have a prevalence of 25% compared to 10% which was observed in the adult. A meta-analysis which was done by Dadi et al in sub-Saharan Africa which involved all groups of women of reproductive age reported various prevalence in different countries in adolescent mothers. The prevalence was 6.6% in Uganda and 33.3% in Ghana) (18). A study which was done in Zimbabwe showed the prevalence of PPD in adolescents to be 13.0% which is less than our study (46). The differences in prevalence rates in studies from other region was attributed to differences in study designs, measurements of PPD, characteristics of study population and variation in the contextual risk factors for maternal mental health disorders in different settings.

Biological factors like parity, mode of delivery, and hypertensive disorders had no statistically significant effect on PPD in adolescent mothers in this study. This could be since the health facilities where the study was conducted were in the Peri-urban area and has good and advanced antenatal services where mothers who are at risk are identified and Referred to the higher health facilities. Moreover, the study done in Tanzania at Muhimbili National hospital with Mbaraka et al, medical disorders in pregnancy was a determinant of PPD where pre-eclampsia had a high association with postpartum depression and the greater association was in Adolescent compared to adult (28). which showed that the history of maternal health problems during pregnancy like Hypertension, HIV, and Tuberculosis had an association with PPD (18).

Unplanned pregnancy was more associated with PPD than other factors. In this study, the majority of adolescent mothers had primary education level and others didn't finish their primary education level, therefore staying idol makes them be at high risk of involving themselves in love affairs. The similarity was seen in a meta-analysis which was done in Ethiopia by Getinet et al showed that women who had unplanned pregnancies had 4.49 times more likely to develop PPD than women who had planned pregnancies (34). The study done by Mbawa et al in Zimbabwe had similar findings where unplanned pregnancy, lack of information about contraception were associated with PPD. Other factors like first pregnancy, prenatal depression, negative relationship with guardian or parent had also association with postpartum depression (46).

Adolescent mothers who were married, those who had high education levels, and those who happen to get family and partner support, in this study had less likelihood of developing PPD compared to other groups. This is because they had the confidence of having a home and getting basic needs to sustain themselves and their babies. This is similar to the studies done elsewhere in Africa (15,19,24,25).

Adolescent mothers who were not using any illicit drugs were less likely to develop depression although it was not statistically significant. It could be because majorities were living with other family members. This is contrary to a study done by Kimbui E. et al which assessed depression with comorbid substance use in antepartum. The study showed that about 60.4% had depression and those who were severely depressed were using alcohol and these were associated with postpartum depression (38).

Despite the reported results, this study had some limitations. It did not take into account antenatal factors which also could be the influence of PPD, mothers with mental illness were also not included, being a hospital-based study, it possibly left those who were seriously sick like adolescent mothers who lost their babies. A community-based, cohort design could have further solidified the results observed. However, the results are valid and form a stepping stone towards improving adolescent services. Globally they are limited research on adolescent PPD, majority of the studies which has been done; adolescent mothers were included as women of reproductive age. More studies are needed particularly in rural areas whereby early marriage is a common practice. Intimate partner violence should also be investigated father because these results were not generalized.

CONCLUSION

This study confirms that Adolescent mothers attending postnatal services and under-five clinics are at risk of developing PPD. Factors associated with PPD include unplanned pregnancy, being married, poor family and partner support. PPD is a public health concern, adolescent-friendly services should be advocated and addressed as other public health issues.

RECOMMENDATION

Prevention of adolescent pregnancy by advocating sexual education and family planning in youth-friendly services clinics to every health facility. Screening tools for depression should be created and start to be used in every health facility. Again Maternal and child health should Work hand in hand with Mental health services so as to improve their quality of life. More researches concerning adolescents should be done in the country, especially in rural areas.

5.0. REFERENCES.

1. Skalkidou A, Hellgren C, Comasco E, Sylvén S, Sundström Poromaa I. Biological aspects of postpartum depression. Women's Heal. 2012;8(6):659–72.

2. Beck CT. Postpartum Depression Stopping the Thief That Steals Motherhood. AWHONN Lifelines [Internet]. 1999 Aug;3(4):41–4. Available from: https://linkinghub.elsevier.com/retrieve/pii/S109159231530282X

3. Eastwood J, Ogbo FA, Hendry A, Noble J, Page A. The Impact of Antenatal Depression on Perinatal Outcomes in Australian Women. Brown S, editor. PLoS One [Internet]. 2017 Jan 17;12(1):1–16. Available from: https://dx.plos.org/10.1371/journal.pone.0169907

4. Sara Thurgood, Daniel M. Avery LW. Postpartum Depression (PPD). Am J Clin Med [Internet]. 2009;Six(SUPPL. 2):1–6. Available from: http://aapsus.org/articles/11.pdf

5. Oates M. Postnatal affective disorders. Part 1: an introduction. Obstet Gynaecol [Internet]. 2008 Jul;10(3):145–50. Available from: http://doi.wiley.com/10.1576/toag.10.3.145.27416

6. Mohammad KI, Gamble J, Creedy DK. Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women. Midwifery [Internet]. 2011 Dec;27(6):e238–45. Available from: http://dx.doi.org/10.1016/j.midw.2010.10.008

7. Michael WO, Swain AM, Hara MWO, Swain AM. International Review of Psychiatry Rates and risk of postpartum depression — a meta- analysis Rates and risk of postpartum depression-a. Int Rev Psychiatry. 2016;0261(December):1369–627.

8. WHO. Mental health Maternal Mental Health & Child Health and Development [Internet]. WHO. 2012. p. 1–3. Available from: https://www.who.int/mental_health/maternal-child/maternal_mental_health/en/

9. Koutra K, Chatzi L, Bagkeris M, Vassilaki M, Bitsios P, Kogevinas M. Antenatal and postnatal maternal mental health as determinants of infant neurodevelopment at 18 months of age in a mother–child cohort (Rhea Study) in Crete, Greece. Soc Psychiatry Psychiatr Epidemiol [Internet]. 2013 Aug 18;48(8):1–12. Available from: http://link.springer.com/10.1007/s00127-012-0636-0

10. Ibanez G, Bernard JY, Rondet C, Peyre H, Forhan A, Kaminski M, et al. Effects of Antenatal Maternal Depression and Anxiety on Children's Early Cognitive Development: A Prospective Cohort Study. Tsuchiya KJ, editor. PLoS One [Internet]. 2015 Aug 28;10(8):e0135849. Available from: https://dx.plos.org/10.1371/journal.pone.0135849

11. Alkema L, Chou D, Hogan D, Zhang S, Moller A-B, Gemmill A, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. Lancet [Internet]. 2016 Jan;387(10017):462–74. Available from: http://dx.doi.org/10.1016/S0140-6736(15)00838-7

12. Madeni F, Horiuchi S, Iida M. Evaluation of a reproductive health awareness program for adolescence in urban Tanzania-A quasi-experimental pre-test post-test research. Reprod Health [Internet]. 2011 Dec 27;8(1):9. Available from: http://reproductive-health-journal.biomedcentral.com/articles/10.1186/1742-4755-8-21

13. World Health Organization. Pregnant Adolescents -- Delivering on Global Promises of Hope [Internet]. World Health. Geneva; 2006. Available from: https://apps.who.int/iris/bitstream/handle/10665/43368/9241593784_eng.pdf;sequence=1

14. Cox JL, Holden JM, Sagovsky R. EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS). Britihish J Psychiatry. 1987;150:782–6.

15. Fantahun A, Cherie A, Deribe L. Prevalence and Factors Associated with Postpartum Depression Among Mothers Attending Public Health Centers of Addis Ababa, Ethiopia, 2016. Clin Pract Epidemiol Ment Heal. 2018;14(1):196–206.

16. Sandmire HF, Austin SD, Bechtel RC. Experience with 40,000 Papanicolaou smears. Obstet Gynecol. 1976;48(1):56–60.

17. Dinwiddie KJ, Schillerstrom TL, Schillerstrom JE. Postpartum depression in adolescent mothers. J Psychosom Obstet Gynecol [Internet]. 2018 Jul 3;39(3):9. Available from: https://doi.org/10.1080/0167482X.2017.1334051

18. Dadi AF, Akalu TY, Baraki AG, Wolde HF. Epidemiology of postnatal depression and its associated factors in Africa: A systematic review and meta-analysis. PLoS

One [Internet]. 2020;15(4). Available from: http://dx.doi.org/10.1371/journal.pone.0231940

19.   Dlamini LP, Mahanya S, Dlamini SD, Shongwe MC. Prevalence and factors associated with postpartum depression at a primary healthcare facility in Eswatini. South African J Psychiatry. 2019;25:1–7.

20.   Haque A, Namavar A, Breene KA. Prevalence and risk factors of postpartum depression in middle Eastern/Arab women. J Muslim Ment Health. 2015;9(1):65–84.

21.   Odinka JI, Nwoke M, Chukwuorji JC, Egbuagu K, Mefoh P, Odinka PC, et al. Post-partum depression, anxiety and marital satisfaction: A perspective from Southeastern Nigeria. South African J Psychiatry. 2018;24(1):1–8.

22.   Govender D, Naidoo S, Taylor M. Antenatal and Postpartum Depression: Prevalence and Associated Risk Factors among Adolescents' in KwaZulu-Natal, South Africa. Depress Res Treat [Internet]. 2020 Jan 21;2020:1–12. Available from: https://www.hindawi.com/journals/drt/2020/5364521/

23.   Connolly J. Developmental Task Attainment and Child Abuse Potential in At-risk Adolescent Mothers. springer. 2014;

24.   Niyonsenga J, Mutabaruka J. Factors of postpartum depression among teen mothers in Rwanda: a cross- sectional study. J Psychosom Obstet Gynecol [Internet]. 2020;0(0):1–5. Available from: https://doi.org/10.1080/0167482X.2020.1735340

25.   Atuhaire C, Cumber SN. Factors associated with postpartum depression among adolescents in Uganda. Pan Afr Med J. 2018;30:1–6.

26.   Sword W, Landy CK, Thabane L, Watt S, Krueger P, Farine D, et al. Is mode of delivery associated with postpartum depression at 6 weeks : a prospective cohort study. 2011;966–77.

27.   Rich-edwards JW, Kleinman K, Abrams A, Harlow BL, Mclaughlin TJ, Joffe H, et al. Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. 2006;221–7.

28.   Mbarak B, Kilewo C, Kuganda S, Sunguya BF. Postpartum depression among women with pre-eclampsia and eclampsia in Tanzania; a call for integrative intervention. BMC Pregnancy Childbirth [Internet]. 2019 Dec 29;19(1):270. Available from:

https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-019-2395-3

29. Kheirabadi GRP 19722767. Risk Factors of Postpartum Depression in Rural Areas of Isfahan Province, Iran. 2009;12(5):461–7.

30. Beck CT. Predictors of Postpartum Depression. Nurs Res [Internet]. 2001 Sep;50(5):275–85. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11570712

31. Bitta MA, Kariuki SM, Gona J, Abubakar A, Newton CRJC. Priority mental, neurological and substance use disorders in rural Kenya: Traditional health practitioners' and primary health care workers' perspectives. PLoS One. 2019;14(7):1–19.

32. Nhi TT, Hanh NTT, Hinh ND, Toan N Van, Gammeltoft T, Rasch V, et al. Intimate Partner Violence among Pregnant Women and Postpartum Depression in Vietnam: A Longitudinal Study. Biomed Res Int. 2019;2019.

33. Rogathi JJ, Manongi R, Mushi D, Rasch V, Sigalla GN, Gammeltoft T, et al. Journal of A ff ective Disorders Postpartum depression among women who have experienced intimate partner violence : A prospective cohort study at Moshi , Tanzania. J Affect Disord [Internet]. 2017;218(December 2016):238–45. Available from: http://dx.doi.org/10.1016/j.jad.2017.04.063

34. Getinet W, Amare T, Boru B, Shumet S, Worku W, Azale T. Prevalence and Risk Factors for Antenatal Depression in Ethiopia: Systematic Review. Depress Res Treat [Internet]. 2018 Jul 9;2018:1–12. Available from: https://www.hindawi.com/journals/drt/2018/3649269/

35. Thompson O, Ajayi I. Prevalence of Antenatal Depression and Associated Risk Factors among Pregnant Women Attending Antenatal Clinics in Abeokuta North Local Government Area, Nigeria. Depress Res Treat [Internet]. 2016;2016:1–15. Available from: http://www.hindawi.com/journals/drt/2016/4518979/

36. Ghosh A, Goswami S. Evaluation of Post Partum Depression in a Tertiary Hospital. J Obstet Gynecol India [Internet]. 2011 Oct 29;61(5):528–30. Available from: http://link.springer.com/10.1007/s13224-011-0077-9

37. Biratu A, Haile D. Prevalence of antenatal depression and associated factors among pregnant women in Addis Ababa, Ethiopia: a cross-sectional study. Reprod Health [Internet]. 2015 Dec 30;12(1):8. Available from: http://reproductive-health-

journal.biomedcentral.com/articles/10.1186/s12978-015-0092-x

38. Kimbui E, Kuria M, Yator O, Kumar M. A cross-sectional study of depression with comorbid substance use dependency in pregnant adolescents from an informal settlement of Nairobi: Drawing implications for treatment and prevention work. Ann Gen Psychiatry [Internet]. 2018;17(1):1–15. Available from: https://doi.org/10.1186/s12991-018-0222-2

39. UNICEF-Tanzania. Global Initiative on Out of School Children: Tanzania Verification of the Out of School Children Study. 2018;(March):16.

40. Sangsawang B, Wacharasin C, Sangsawang N. Interventions for the prevention of postpartum depression in adolescent mothers: a systematic review. Arch Womens Ment Health [Internet]. 2018 Apr 16;22(2):14. Available from: http://link.springer.com/10.1007/s00737-018-0901-7

41. Read JS. Tanzania. Annu Surv African Law Cb Vol One 1967. 2021;157–98.

42. Rwakarema M, Premji SS, Nyanza EC, Riziki P, Palacios-Derflingher L. Antenatal depression is associated with pregnancy-related anxiety, partner relations, and wealth in women in Northern Tanzania: a cross-sectional study. BMC Womens Health [Internet]. 2015 Dec 2;15(1):68. Available from: http://dx.doi.org/10.1186/s12905-015-0225-y

43. Hipwell AE, Murray J, Xiong S, Stepp SD, Keenan KE. Effects of adolescent childbearing on maternal depression and problem behaviors: A prospective, population-based study using risk-set propensity scores. PLoS One. 2016;11(5):1–16.

44. Levis B, Negeri Z, Sun Y, Benedetti A, Thombs BD. Accuracy of the Edinburgh Postnatal Depression Scale (EPDS) for screening to detect major depression among pregnant and postpartum women: Systematic review and meta-analysis of individual participant data. BMJ. 2020;371.

45. Stellenberg EL, Abrahams JM. Prevalence of and factors influencing postnatal depression in a rural community in South Africa. :1–8.

46. Mbawa M, Vidmar J, Chingwaru C, Chingwaru W. Understanding postpartum depression in adolescent mothers in Mashonaland Central and Bulawayo Provinces of Zimbabwe. Asian J Psychiatr [Internet]. 2018;32:147–50. Available from: http://dx.doi.org/10.1016/j.ajp.2017.11.013

6.0. APPENDICES

6.1. APPENDIX 1

CONSENT FORM – ENGLISH VERSION

PREVALENCE AND FACTORS ASSOCIATED WITH POSTPARTUM DEPRESSION AMONG ADOLESCENT MOTHERS ATTENDING POSTNATAL CLINIC IN PERI-URBAN AREA DAR ES SALAM.

Introduction

Greetings! My name is Beatrice Mungi Matondo. I am a Postgraduate student at MUHAS. I am conducting a study on postpartum women. The objective of this study is to determine the prevalence and associated risk factors of postpartum depression among adolescent mothers attending a postnatal clinic in the Per-urban area of Kigamboni. This study will enable us to get information that will help plan for appropriate interventions to prevent postpartum depression and its consequences among adolescent mothers.

Participation in this study

You are kindly requested to join the study. If you agree to join the study you will be required to attend a short interview where we can talk undisturbed so that I can give instructions on how to respond to questions. The questions will take approximately 10 – 15 minutes to complete. You will be required to fill all the questions on your own, but if you are unable to read and write you will be assisted reading the questions and the answers and then you choose what you prefer.

Confidentiality

We assure you that the information obtained will only be used for research purposes. We will not keep records of names or addresses. Only the study identification number will be kept in our computer records.

Risks and Benefits

If you agree to take part in this study, we do not expect that any harm to happen to you because of joining this study. There is no direct benefit to you for participating in this study but if we find out that you have depressive symptoms you will be referred to a psychiatrist for further evaluation and management.

Right to Participation

Taking part in this study is completely your choice. You can stop participating in this study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve a penalty.

Who to Contact

If you ever have questions about this study, please contact;

The Principal Investigator

Dr. Beatrice Mungi Matondo,

The Muhimbili University of Health and Allied Sciences,

P.O. Box 65001,

Dar es Salaam.

Tanzania.

Mail.mungi.matondo@gmail.com.

Tel +255756-520712. Or

Supervisor of this study

Dr. Peter J.T Wangwe MBChB, MMED. Cert.MFM.FCOG (ECSA)

Senior Lecturer & Head of Department of OBS/GYN

The Muhimbili University of Health and Allied Sciences (MUHAS)

P.O.BOX 65117

Dar-Es-Salaam

Tanzania

Mail.drwangwe@yahoo.com, OR jwangwe@muhas.ac.tz

Phone +255784450340/0658450340. Or

Director of research and publications

Dr. Bruno Sunguya

The Muhimbili University of Health and Allied Sciences,

P.O. Box 65001,

Dar es Salaam

Email address drp@muhas.ac.tz

Tel: +255 22 2152489/0302-6

Signing of the consent;

If you agree to participate in this study, please fill and sign in this consent form.

I_____ (initials only) have read the content in this form. My questions have been answered. I agree to participate in this study

Signature of participant_____

Signature of researcher _____

Date _____

6.2. APPENDIX 2

FOMU YA IDHINI – SWAHILI VERSION

KUBAINI UWEPO WA TATIZO LA SONONA BAADA YA KUJIFUNGUA NA VISABABISHI VYAKE KWA AKINA MAMA VIJANA CHINI YA MIAKA 20 AMBAO WANAHUDHURIA KLINIKI BAADA YA KUJIFUNGUA ENEO LA NJE YA MJI DARESALAAM.

Utangulizi

Salaam! Mimi naitwa Beatrice Mungi matondo, ni mwanafunzi washahada ya uzamili katika Chuo Kikuu afya na Sayansi shirikishi cha Muhimbili. Ninafanya utafiti kwa akina mama vijana chini ya miaka 20 ambao wanahudhuria kliniki baada ya kujifungua, eneo la nje ya mji Kigamboni Daresalaam Lengo la utafiti huu ni kubaini uwepo wa tatizo la sonona baada ya kujifungua na visababishi vyake kwa akina mama vijana chini ya miaka 20 ambao wanahudhuria kliniki baada ya kujifungua Utafiti huu utasaidia kufahamu ni kwa jinsi gani tumsaidie mama asipate matatizo ya sonona mara baada ya kujifungua.

Kushiriki Kwenye utafiti

Tafadhali unaombwa ushiriki kwenye utafiti huu. Ukikubali kushiriki tutafanya mahojiano mafupi bila bughudha pamoja na wewe ili kukuelekeza jinsi ya kujaza fomu ambazo zinauliza maswali Mahojiano hayo yatachukua takribani dakika 10 -15. Ili kuwa na kumbukumbu tutatumia dodoso, sehemu zote za dodoso utatakiwa kuijaza wewe lakini kama utashindwa kusoma tutakusaidia kusoma maswali na majibu halafu wewe utachagua jibu ambalo unahisi ni sahihi kutokana na hali yako.

Usiri

Tunakuhakikishia kuwa majadiliano yetu yatahifadhiwa kwa usiri na kutumika kwa ajili ya utafiti tu. Hatutaweka kumbukumbu za majina na anuani yako. Namba ya utambulisho tu ndio itatumika kuweka kumbukumbu katika kompyuta.

Athari na Faida za ushiriki

Hatutarajii upate madhara yoyote kwa kushiriki katika utafiti huu. Hakuna faida ya moja kwa moja kwa kushiriki lakini tukigundua kuwa unadalili za sonona ya baada ya kujifungua utafaidika kwa kuonana na daktari bingwa wa magonjwa ya akili kwa ajili ya uchunguzi zaidi na matibabu.

Haki ya ushiriki

Ushiriki wako katika utafiti huu ni wa hiari. Unaweza kuacha kushiriki muda wowote hata kama ulikubali mwanzoni. Kukataa au kuacha kushiriki hakutakuwa na hatua yoyote itakayochukuliwa dhidi yako.

Mawasiliano

Kama una maswali yoyote kuhusu utafiti huu, wasiliana na:

Mtafiti mkuu

Dr Beatrice Mungi Matondo,

Chuo Kikuu cha Afya na Sayansi shirikishi cha Muhimbili,

SLP 65001,

Dar es Salaam.

Tovuti. Mungi.matondo@gmail.com.

Namba ya simu +255756-520712. Au

Msimamizi wa Mtafiti,

Dr. Peter J.T. Wangwe

Senior lecturer &Mkuu wa Idara kitengo cha Akina mama

Chuo Kikuu cha Afya na Sayansi shirikishi cha Muhimbili,

SLP 65117,

Dar es Salaam

Tovuti; drwangwe@yahoo.com/jwangwe@muhas.ac.tz .Au

Director of research and publications.

Dr. Bruno Sunguya

The Muhimbili University of Health and Allied Sciences,

P.O. Box 65001,

Dar es Salaam.

Email address drp@muhas.ac.tz

Tel: +255 22 2152489/0302-6

Kukubalikushiriki;

Kama unakubali kushiriki katika utafiti huu tafadhali thibitisha kwa kujaza na kusaini fomu hii hapa chini:

Mimi …………………………… (herufi za mwanzotu) nimesoma/nimesomewa na kuelewa yaliyomo katika fomu hii na maswali yangu yote yamejibiwa vizuri. Nakubali kushiriki katika utafiti huu.

Sahihi ya Mshiriki …………………………….

Sahihi ya Mtafiti/Msaidizi ………………………

Tarehe ………………………….

6.3. APPENDIX 3

QUESTIONNAIRE – ENGLISH VERSION

PREVALENCE AND FACTORS ASSOCIATED WITH POSTPARTUM DEPRESSION AMONG ADOLESCENT MOTHERS ATTENDING POSTNATAL CLINIC IN PERI-URBAN AREA DAR ES SALAAM.

Date of participation_____

Questionnaire No _____

Date of delivery_____

Telephone number_____

A. Social demographic/psychosocial characteristics

1. Age_____ (Years)

2. Marital status

Single

Married

Divorced/separated

Widow

3. Level of education

No formal education

Drop out

Primary education

Secondary education

College/university

4. Occupation

Housewife/unemployed

Self-employed

Employed

5. Whom do you live with now?

Husband/Partner

In-laws

My parents

Alone

With others, mention

6. Were you satisfied with the level of family support (informational, material, and emotional) you were getting and after delivery?

Not satisfied at all

Somehow satisfied

Satisfied

7. Does your partner/father of the child support you?

No, not at all

Somehow supportive

Yes, Supportive

8. How do you describe the quality of your relationship with your partner?

Very Good

Good

Poor

9. Was there any day in the past 6 months, you or your family were unable to provide food for yourselves?

Yes

No

10. Has anyone in your family suffered from mental illness or depression?

Yes

No

If yes, specify your relationship with the person……

11. Were you diagnosed to have Hypertensive disorders during pregnancy?

a) Yes

b) No

12. If yes, which type of medication were you prescribed...

13. Verify the medication you were using…………

14. What is your HIV status (don't ask review the ANC card and prove the status)

a) positive

b) Negative

15. For how long you have been using ARVS…………….

16. Have you used any illicit drugs or alcohol in the past 12 months?

a) Yes

b) No

17. In the past 6 months has your partner or husband hurt you by (hitting, slapping, shaking, pulling your hair, strangulating you) or any other form of violence?

a) Yes

b) No

18. In the past 6 months has your partner or husband forced you into a sexual act without your consent?

a) Yes

b) No

Obstetric information

(From questions 19 to 21 and 26 review ANC card)

19. Parity………………...

20. Living children ……………

21. Previous pregnancy loss…….

22. Is the pregnancy planned?

a) Yes

b) No

23. Gestation age at delivery …………...

a) Term > or equal 37 weeks

b) Preterm < 37 weeks

24. Mode of delivery

a) Vaginal delivery

b) C/S, reason……………

Neonatal outcome.

25. Birth weight of the baby …………grams

26. APGAR SCORE --------------

27. How is the baby's condition?

a) Stable

b) On oxygen therapy

c) On mechanical ventilation

28. Baby's mode of feeding

a) NPO

b) NGT route

c) Breastfeeding

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

29. I have been able to laugh and see the funny side of things:

☐ As much as I always could

☐ Not quite as much now

q not so much now

☐ Not at all

30. I have looked forward with enjoyment to things:

☐ As much as I ever did

☐ Rather less than I used to

q less than I used to

☐ Hardly at all

31. Have you blamed yourself unnecessarily when things went wrong?

☐ Yes, most of the time

☐ Yes, some of the time

☐ Not very often

☐ No, never

32. Have you been anxious or worried for no good reason?

☐ No, not at all

☐ Hardly ever

☐ Yes, sometimes

☐ Yes, very often

33. Have you felt scared or panicky for no very good reason?

☐ Yes, quite a lot

☐ Yes, sometimes

☐ No, not much

☐ No, not at all

34. Have things been getting on top of you:

☐ Yes, most of the time I haven't been able to cope at all

☐ Yes, sometimes I haven't been coping as well as usual

☐ No, most of the time I have coped quite well

☐ No, I have been coping as well as ever

35. I have been so unhappy that I have had difficulty sleeping:

☐ Yes, most of the time

☐ Yes, sometimes

☐ Not very often

☐ No, not at all

36. I have felt sad or miserable:

☐ Yes, most of the time

☐ Yes, quite often

☐ Not very often

☐ No, not at all

37. I have been so unhappy that I have been crying:

☐ Yes, most of the time

☐ Yes, quite often

☐ Only occasionally

☐ No, never

38. The thought of harming myself has occurred to me:

☐ Yes, quite often

☐ Sometimes

☐ Hardly ever

☐ Never

6.4. APPENDIX 4

QUESTIONNAIRE – SWAHILI VERSION (DODOSO)

KUBAINI UWEPO WA TATIZO LA SONONA BAADA YA KUJIFUNGUA NA VISABABISHI VYAKE KWA AKINA MAMA VIJANA CHINI YA MIAKA 20 AMBAO WANAHUDHURIA KLINIKI BAADA YA KUJIFUNGUA ENEO LA NJE YA DARESALAAM.

Tarehe ya kushiriki_____

Namba ya dodoso_____

Tarehe ya kujifungua ujauzito_____

Nambari ya simu _____

1. Umri …………………….miaka

2. Hali ya ndoa

Hajaolewa

Ameolewa

Ameachana/ametengana

Mjane

3. Kiwango cha elimu

Hajasoma shule

Elimu ya msingi

Elimu ya sekondari

Chuo kikuu

4. Ajira

Mama wanyumbani / hajaajiriwa

Amejiajiri

Ameajiriwa

Mengineyo, taja……………………..

5. Unaishi na nani kwa sasa?

Mume/mwenza

Wakwe

Wazazi wangu

Peke yangu

Wengineo, taja…………….

6. Je umeridhishwa na msaada / huduma ambayo familia ilikupa baada ya kujifungua

Sikuridhika

Naliridhika wastani

Naliridhika

7. Je mwenza wako anakusaidia / anakuhudumia?

Hapana hanisaidii kabisa

Ananisaidia wastani

Ananisaidia

8. Unaelezea vipi mahusiano yako na mwenza wako

Mazuri sana

Mazuri kiasi

Mabaya

9. Je kuna siku yoyote katika kipindi cha miezi 6 iliyopita ambapo wewe au familia yako haikuweza kukidhi mahitaji yako/yenu ya chakula?

Ndiyo

Hapana

10. Kuna mtu yeyote katika familia yako amewahi kugundulika kuwa na ugonjwa wa akili au Sonona?

Ndiyo

Hapana

Kama ndiyo, Taja mahusiano na magonjwa……….

11. Katika ujauzito huu, uliambiwa unapresha yaakina mama wajawazito?

a. Ndiyo

b. Hapana.

12. Kama ni ndiyo, ni aina gani za dawa walikupatia...

13. Naomba nione dawa ulizokuwa unatumia………

14. Hali yako ya maambukizi ya Virus vya Ukimwi ikoje? (usiulize swali tizama kwenye kadi yake?)

a. Nina maambukizi

b. Sina maambukizi

15. Ni kwa muda gani unatumia dawa za ARV……….

16. Je umewahi kutumia pombe au/na madawa ya kulevya ndani ya miezi 12 iliyopita?

a) Ndio

b) Hapana

17. Katika kipindi cha miezi 6 iliyopita, mume/mwenziwakoaliwahikukuumiza, (yaanikukusukuma, kukupigia kofi, kukutingisha, kukupigiangumi, kukupigateke, kukunyongamkono,

kuvutanywelezako, kukukaba koo, au kitendokinginekilichopelekeakuumiamwili?

a) Ndio

b) Hapana

18. Katika kipindi cha miezi 6 iliyopita mume/mwenziwako (au mwenzi wako yeyote uliyewahi kuwa nae) aliwahi kukulazimisha kufanya nae ngono au vitendo vingine vya ngono hata pale ambapo wewe haukutaka?

a) Ndio

b) Hapana

Taarifa za Uzazi (swali la 19-23 na swali la 26 tizama kwenye kadi ya mama).

19. Umezaa mara ngapi? ……………………………

20. Watoto wanaoishi wangapi……………………………….

21. Je, ushawahi kuharibikiwa na mimba…….

22. Ujauzito huu uliyojifungua ulijiandaa kuubeba?

a) Ndio

b) Hapana

23. Umri wa mimba ulipojifungua

a) Miezi tisa

b) Chini ya miezi tisa

24. Njia ya kujifungua

a) Kawaida

b) Upasuaji, sababu……………

Taarifa za mtoto

25. Uzito wa mtoto wa kuzaliwa……….
Gramu

26. APGAR Score……….

27. Hali ya motto sasa hivi?

a) Siyo mgonjwa

b) Anatumia oxygeni

c) Anatumia mashine za kusaidia kupumua (mahututi)

28. Mtoto anakula kutumia njia gani?

a) Hapaswi kulishwa

b) Anatumia tubu ya mpira wa kulishia

c) Ananyonya ziwa

Tunapenda kujua jinsi ambavyo umekuwa ukijiskia ndani ya wiki moja iliyopita. Tafadhali chagua jibu ambalo ni sahihi zaidi kwa jinsi ulivyojiski andani ya MUDA WA SIKUSABA ZILIZOPITA na sio unavyojiskia leo tu.

Ufuatao ni mfano wa jinsi ya kujaza majibu

Nimejiskia kuwa nafuraha;

☐ Ndio, wakati wote

☐ Ndio, muda mwingi (Hii inamaanisha nimekuwa na furaha muda mwingi ndani ya wiki moja iliyopita)

☐ Hapana, sio wakati wote

☐ Hapana, hata kidogo

Tafadhali jibu maswali yafuatayo

29. Nimekuwa mwenye furaha nakuona vifurahishavyo

☐ Kila mara nilivyoweza

☐ Sio mara nyingi sana kwa sasa

☐ Kwa kiwango cha chini

☐ Hapana kabisa

30. Nimekuwa nikitarajia kufurahia vitu mbalimbali

☐ Kama ilivyokuwa awali

☐ Mara chache kuliko ilivyokuwa

☐ Si kama ilivyokuwa awali

☐ Hapana kabisa

31. Nimekuwa mtu wa kujilaumu pasipo sababu za msingi mambo yalipoenda vibaya

☐ Ndio, mara zote

☐ Ndio, mara kadhaa

☐ Kwa kiasi kidogo sana

☐ Hapana, hata kidogo

32. Nimekuwa mtu mwenye wasiwasi na mashaka pasipo sababu za msingi

☐ Hapana kabisa

☐ Kwa nadra sana

☐ Ndio, mara chache

☐ Ndio, mara nyingi

33. Nimekuwa mtu mwenye hofu na kutaharuki pasipo sababu za msingi

☐ Ndio, mara nyingi

☐ Ndio, mara kadhaa

☐ Hapana, kiasi kidogo sana

☐ Hapana kabisa

34. Majukumu yangu ya kila siku yamekuwa yakinielemea

☐ Ndio, muda mwingi nimeshindwa kukabiliana nayo kabisa

☐ Ndio, wakati mwingine nimeshindwa kukabiliana nayo vizuri

q Hapana, Muda mwingi nimekabiliana nayo vizuri

☐ Hapana, nimekuwa nikikabiliana nayo kama ilivyokuwa zamani

35. Nimekuwa sina furaha kiasi cha kutopata usingizi vizuri

☐ Ndio, muda mwingi

☐ Ndio, mara kadhaa

☐ Sio mara nyingi

☐ Hapana kabisa

36. Nimekuwa nikijiskia huzuni au mnyonge

☐ Ndio, muda mwingi

☐ Ndio, kila mara

☐ Hapana, si mara nyingi

☐ Hapana, hata kidogo

37. Nimekuwa sina furaha mpaka nimekuwa nikilia

☐ Ndio, muda mwingi

☐ Ndio, mara kadhaa

☐ Mara cha chetu

☐ Hapana, kamwe

38. Mawazo ya kujidhuru mwenyewe hunijia / hunitokea

☐ Ndio, kila mara

☐ Wakati fulani

☐ Kwa nadra sana

☐ Kamwe hayajanitokea

ASANTE KWA KUSHIRIKI

6.5. APPENDIX 5

Edinburgh Postnatal Depression Scale 1 (EPDS)

Name: _____ Address: _____

You're Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today. Here is an example, already completed.

I have felt happy:

☐ Yes, all the time

☐ Yes, most of the time [This would mean: "I have felt happy most of the time" during the past week.]

☐ No, not very often

☐ Not at all

1. I have been able to laugh and see the funny side of things:

As much as I always could ____ (0)

Not quite so much now ____ (1)

not so much now ____ (2)

Not at all ____ (3)

2. I have looked forward with enjoyment to things:

As much as I ever did ____ (0)

Rather less than I used to ____ (1)

less than I used to ____ (2)

Hardly at all ____ (3)

3. I have blamed myself unnecessarily when things went wrong:

Yes, most of the time ____ (3) Yes, some of the time ____ (2)

Not very often ____ (1)

No, never ____ (0)

4. I have been anxious or worried for no good reason:

No, not at all ____ (0)

Hardly ever ____ (1)

Yes, sometimes ____ (2)

Yes, very often ____ (3)

5. I have felt scared or panicky for no good reason:

Yes, quite a lot _____ (3)

Yes, sometimes _____ (2)

No, not much _____ (1)

No, not at all _____ (0)

6. Things have been getting to me:

Yes, most of the time I haven't been able to cope at all _____ (3)

Yes, sometimes I haven't been coping as well as usual _____ (2)

No, most of the time I have coped quite well _____ (1)

No, I have been coping as well as ever _____ (0)

7. I have been so unhappy that I have had difficulty sleeping:

Yes, most of the time _____ (3)

Yes, sometimes _____ (2)

No, not very often _____ (1)

No, not at all _____ (0)

8. I have felt sad or miserable:

Yes, most of the time _____ (3)

Yes, quite often _____ (2)

Not very often _____ (1)

No, not at all _____ (0)

9. I have been so unhappy that I have been crying:

Yes, most of the time _____ (3)

Yes, quite often _____ (2)

Only occasionally _____ (1)

No, never _____ (0)

10. The thought of harming myself has occurred to me: *Yes, quite often _____ (3)

Sometimes _____ (2)

Hardly ever _____ (1)

Never _____ (0)

Edinburgh Postnatal Depression Scale (EPDS)

Postpartum depression is the most common complication of childbearing. The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for "perinatal" depression. The EPDS is easy to administer and has proven to be an effective screening tool. Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt during the previous week. In doubtful cases, it may be useful to repeat the tool after 2 weeks. The scale will not detect mothers with anxiety neuroses, phobias, or personality disorders

---

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.

Cox, J.L., Holden, J.M. and Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal

Depression Scale. British Journal of Psychiatry, 150, 782-7