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### Prevalence of Depression and Anxiety Disorders among Perinatal Teenage Girls Accessing Maternal Child Health Services in Nairobi County, Kenya

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Depression and anxiety are categorized as common mental health disorders and the prevalence vary in different contexts. Perinatal teenage girls experience heightened stress levels that could increase the prevalence of depression and anxiety disorders. This study was conducted to determine the prevalence of depression and anxiety disorders among perinatal teenage girls accessing maternal child health services in Nairobi County, Kenya. This was a cross sectional study which involved teenage girls between the age of 10-19 years who were accessing maternal child health (MCH) services during pregnancy and within one-year post-delivery. Non-probability purposive sampling technique was used to identify four health care facilities offering MCH services where the participants were selected purposively. Socio-demographic questionnaire, Beck's Depression Inventory (BDI) and Beck's Anxiety Inventory (BAI) tools were utilized in collecting data from a sample of 175 perinatal teenage girls. Data analysis was done by using Statistical Package for Social Sciences SPSS (SPSS®) Version 28. The study established that the prevalence of depression was 70.8% at varying levels of severity: Mild depression was 16.6%, Moderate depression was at 24.0% while severe depression was 30.3%. The prevalence of anxiety was at 33.7% at varying levels as well, moderate anxiety was 26.3% while high anxiety was 7.4%. Depression and anxiety are prevalent during teenage perinatal period and therefore, antenatal, and postnatal teenagers should be screened for depression and intervention provided promptly.

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## INTRODUCTION

Depression and anxiety are categorized as common mental health disorders in the world population, but the prevalence varies in different regions [1,2]. In 2017, the WHO estimated the global prevalence of anxiety disorders at about 3.6% while depression was 4.4% [3]. Different studies have also pointed at a high prevalence of lifetime experience of the common mental disorders [4–7]. For instance, a review of 174 surveys from 63 countries identified that 29.2% of the respondents had experienced depression or anxiety in their lifetime [2]. The prevalence of these conditions is significantly higher in the low- and middle-income countries (LMICs), ranging from 20 – 30% [8]. In Kenya, a mental health task force set up in 2019 reported that 1 in 10 persons (10% of the Kenyan population) suffer from anxiety and depressive symptoms [9].

Evidently, teenage pregnancy is associated with increased prevalence of common mental disorders and mostly depression [10]. The prevalence of depressive disorder is high during the teenage perinatal period, with reported wide prevalence variation range of between 8 – 47% [11,12]. Some studies have also identified high levels of teenage perinatal depression. In a study conducted in Yaoundé Cameroon on a sample of 1,307 participants, 70% of perinatal teenagers had depression of varying severity [13]. A comparative analysis study of depression in pregnant and non-pregnant adolescents found that the prevalence of depression among pregnant adolescents was two folds higher than the non-pregnant adolescent population [14]. The result of

the study indicated a relationship between pregnancy status and mental disorders like depression and anxiety among the teenage girls.

At KwaZulu-Natal, South Africa a study which focused on the prevalence of antenatal and postpartum depression among adolescent participants established 15.9% and 8.8% prevalence of antenatal depression and postpartum depression respectively [15]. In Nigeria, a study that involved 1,359 teenage participants from 30 selected maternal child health facilities found out that 18.1% of the participants had depression [16]. It is quite evident that the prevalence is varying according to studies conducted in different regions. In Kenya, a study which involved teenage pregnant girls aged 14 – 18 established a high prevalence of depression at 43.1% [17] while another study on teenage girls aged 15 – 18 years from a Nairobi County maternal clinic found depression prevalence of 32.9% [10]. also established that the prevalence of postpartum depression among adolescent mothers seeking postnatal care at a tertiary health care facility was 11.3% [18]. These studies have established that depression is a common mental health condition in adolescent perinatal period. This is also associated with anxiety disorder.

Anxiety disorder has been investigated in different studies and the comorbidity of depression and anxiety conditions is common especially in primary health care setting and is associated with severe chronicity and slow rate of recovery [19]. The prevalence of anxiety disorder is reportedly high during teenage perinatal period. For instance, a cross-sectional study of pregnant

teenage girls aged 10 – 19 years identified a prevalence of 13.6% [20]. A comparative study on anxiety and depression identified a significantly higher prevalence of anxiety and depression in teenage (< 18 years) mothers compared to the adult mothers (20 – 35 years) [12]. According to the study, 15% of teenage mother had anxiety compared to 12% in adult while 23% of teenage mothers had depression compared to 11.9% in the adult mothers [12].

Previous findings on prevalence of teenage pregnancy rates have relevance for the current study due to the correlation between common mental disorders and teenage pregnancy and postpartum [21]. High proportion of teenage pregnancy would translate to increased burden of anxiety and depression in the perinatal teenage population. The WHO estimates adolescents global birth rate at 49 for every 1000 girls that are aged between 15-19 years [22]. The prevalence is significantly high in low- and middle-income countries (LMCs) [23]. In Kenya, 15% of the teenage girls between 15-19 years have ever been pregnant [24] and the prevalence is higher in Nairobi County compared to the other regions of the country [25]. It is evident that the pregnant teenage girls are at a higher risk of depression and anxiety disorders than the general teenage population [15] but the statistics are varying. However, there is no adequate data on perinatal mental health situation in the LMICs. Kenya as many other Sub-Saharan African countries is struggling to collect vital statistics that would provide adequate information on national mental

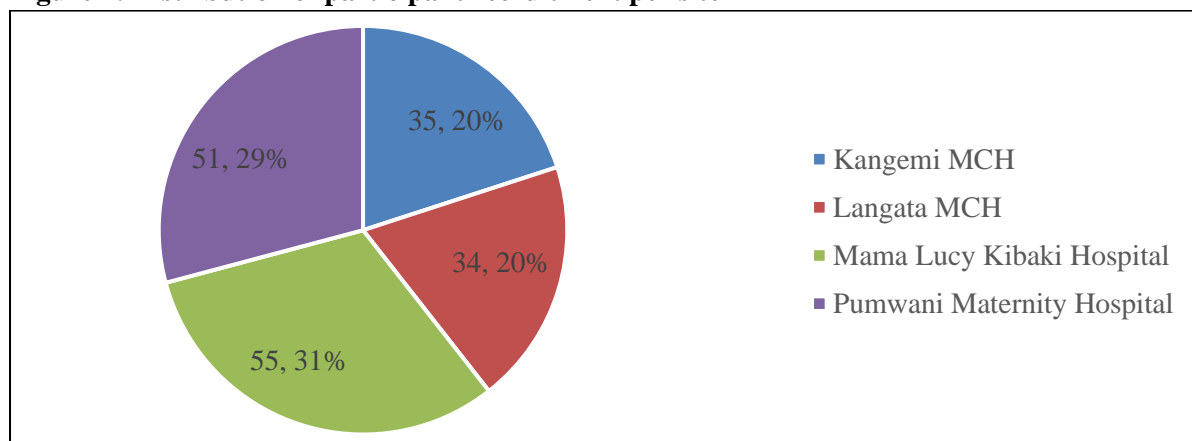
health situation or official report for teenage mothers [26]. Therefore, it is imperative to establish current evidence on true burden of mental health disorders among perinatal teenage girls in the Kenyan population. This Study aimed at identifying the prevalence of depression and anxiety in 10 – 19 years old perinatal girls attending selected MCH clinics in Nairobi County. This will be helpful in comparing the current study findings with previous studies and therefore provide an updated prevalence rate and disease burden for teenage perinatal depression in Nairobi, Kenya. This could be assisted in planning mitigation measures and resource mobilization for early and appropriate intervention.

## METHODOLOGY

### Study Design

The study utilized a quantitative method design and was conducted in four study sites. These were four public health facilities in Nairobi County that offer MCH services. Non-probability purposive sampling technique was used in selecting the study sites; Lang'ata Health Clinic, Pumwani Maternity Hospital, Mama Lucy Kibaki Hospital and Kangemi Health Centre. The researcher also employed purposive sampling to select respondents from the selected health care facilities [27]. The target population for this study was perinatal teenage girls between ages 10-19 years who were either pregnant or had given birth in the past one year. The participants were recruited from the selected health facilities where they were accessing antenatal and postnatal care services.

**Figure 1: Distribution of participant recruitment per site**



## Research Instruments

The data was collected through the use of three tools.

*Researcher designed socio-demographic questionnaire:* The researcher formulated a questionnaire for collecting demographic information which included; participant's age, highest level of education, religion, marital status, and current pregnancy status.

*Becks Depression Inventory-II (BDI-II):* This is a self-administered report which takes approximately 10 minutes to complete and it has demonstrated consistent psychometric properties. The internal consistency for the BDI-II ranges from 0.73 to 0.92 with a mean of 0.86 and 0.81 for psychiatric and non-psychiatric population, respectively [28]. It has items that reflect negative attitudes towards self, performance impairment and somatic disturbances, as well as general factors of depression [29]. Each item in the tool attempts to identify the presence of specific symptom(s) associated with depression in reference to how the patient has felt for the past two weeks. The total score in the BDI-II is arrived at by summing individual scores of the 21 questions making the highest possible score to be at sixty-three (63) and the lowest at zero (0). Total scores level of depression are as follows; 0-13 minimal depression, 14-19 mild Depression, 20-28 moderate depression, 29-63 severe depression [28]. Thee cut off point for presence of depression was a score of 14-63.

*The Beck Anxiety Inventory (BAI):* This is a self-report questionnaire used to assess the severity of anxiety symptoms. It consists of 21 items, each describing a common symptom of anxiety. The total scores for BAI are arrived at by adding up each individual score of the 21 questions, with higher scores indicating more severe anxiety symptoms [30]. Clinical cut-off points for the BAI have been established to help interpret the severity of anxiety symptoms based on the total score i.e., Minimal anxiety: Scores of 0-7, Mild anxiety: Scores of 8-15, Moderate anxiety: Scores of 16-

25 and Severe anxiety: Scores of 26-63 suggesting severe anxiety symptoms.

## Data Analysis

Data cleaning was done using Microsoft Excel commands like spell checker to clean up misspelled words in columns and to get rid of any duplicates. A clean dataset was stored in a computer hard disk with password accessible only to the researcher. This dataset was exported into Statistical Package for Social Sciences SPSS (SPSS®) Version 28 for analysis. Descriptive statistics which are coefficients that summarize a given data were used to determine the prevalence of depression and anxiety among the respondents. These included percentages, means and standard deviations.

## Ethical Considerations

Voluntary consenting process was conducted by researcher who explained to the participants about the objective of the study. Confidentiality was maintained by de-identifying the participants through use of unique numbers for anonymity. The researcher explained the study benefits, risk, and freedom to opt out of the study at any given point without attracting any penalty. Participants signed the consent forms voluntarily after being provided with information based on the ethical issues concerning human subjects. The research complied with the research ethics set by United States International University (USIU), the National Council for Science, Technology, and Innovation (NACOSTI), and the Children's Department.

## RESULTS

### Socio-demographic Characteristics of the Respondents

According to *Table 1*, Majority of the participants, 77.2% were in the age bracket of 18 and 19 years while 22.8% were aged 15 to 17 years. A majority 60% of the participants lived with their parents, 15.4% lived with other family member, 16% lived with husband/spouse, while 8.6 % lived alone. 58.9% were pregnant while 41.1% were less than one year post-delivery. The highest level of

education was secondary school with 81.7% with of school. A majority 80% of the participants were 33.7% currently in school while 66.3% were out Christians.

**Table 1: Participants socio demographic Characteristics**

Variable	Category	Frequency (N=175)	Percentage (%)
Age	15.00	2	1.1
	16.00	8	4.6
	17.00	30	17.1
	18.00	60	34.3
	19.00	75	42.9
Persons Living with	Alone	15	8.6
	Spouse/ Husband	28	16.0
	Parents/ Guardian	105	60.0
	Other Family Members	27	15.4
Currently Pregnant	Yes	72	41.1
	No	103	58.9
Highest Level of Education	None	4	2.3
	Primary	28	16.0
	Secondary	143	81.7
Currently in School	No	116	66.3
	Yes	59	33.7
Religion	None	7	4.0
	Christian	140	80.0
	Muslim	28	16.0

**Depression levels Disaggregated by Age**

According to *Table 2*, there was no significant statistical difference in relationship between age of the participant and depression symptoms.

**Anxiety levels Disaggregated by Age**

According to *Table 3*, there was no significant statistical difference in relationship between age of the participant and anxiety symptoms.

**Prevalence of Depression and Anxiety**

According to *Table 4*, the prevalence of depression was 70.9 % at differing severity levels

while that of anxiety was 33.7% at differing severity levels as well.

*Table 5 and 6* highlights that the prevalence of mild depression was 16.6% 95% C.I 10.9 to 22.3, Moderate depression was at 24.0% 95% C.I. 18.3 to 30.9 and severe depression was 30.3% 95% C.I 23.4 to 36.6. The Mean was 21.2, Median 21, SD 12, Minimum 0.0. Max 47 and interquartile range was 19. The prevalence of moderate anxiety was 26.3% 95% C.I 20.0 to 33.1, and high anxiety was 7.4% 95% C.I 3.4 to 11.4. The Mean was 17.5, Median 16, SD 11.6, Minimum 0.0, Maximum 49, and interquartile range was 18.

**Table 2: Depression levels Disaggregated by Age**

Variable	Category	Minimal	Mild	Moderate	Severe	Sig.
Age	15.00	1(50.0%)	0(0.0%)	1(50.0%)	0(0.0%)	0.259
	16.00	5(62.5%)	2(25.0%)	1(12.5%)	0(0.0%)	
	17.00	8(26.7%)	6(20.0%)	6(20.0%)	10(33.3%)	
	18.00	16(26.7%)	7(11.7%)	12(20.0%)	25(41.7%)	
	19.00	21(28.0%)	14(18.7%)	22(29.3%)	18(24.0%)	

**Table 3: Anxiety levels Disaggregated by Age**

Variable	Category	Low Anxiety	Moderate Anxiety	High Anxiety	Sig.
Age	15.00	2(100.0%)	0(0.0%)	0(0.0%)	0.203
	16.00	7(87.5%)	1(12.5%)	0(0.0%)	
	17.00	21(70.0%)	8(26.7%)	1(3.3%)	
	18.00	37(61.7%)	21(35.0%)	2(3.3%)	
	19.00	49(65.3%)	16(21.3%)	10(13.3%)	

**Table 4: Prevalence of depression and anxiety**

Variable	BDI Score	Category	Frequency (N= 175)	Percentage
Prevalence of Depression	0-13	No depression	51	29.1
	14-63	Depressive symptoms	124	70.9
	Total		175	100.0
Prevalence of anxiety	0-7	No anxiety symptoms	116	66.3
	8-63	Anxiety symptoms	59	33.7
	Total		175	100.0

**Table 5: Depression and anxiety Levels**

Measure	Category	Frequency (N=175)	Percentage	95% Confidence Interval	
				Lower	Upper
Depression Levels	Minimal	51	29.1	22.9	36.0
	Mild	29	16.6	10.9	22.3
	Moderate	42	24.0	18.3	30.9
	Severe	53	30.3	23.4	36.6
Anxiety Levels	Low Anxiety	116	66.3	59.4	73.1
	Moderate Anxiety	46	26.3	20.0	33.1
	High Anxiety	13	7.4	3.4	11.4

**Table 6: BDI II and BAI Measures**

Measure	BDI Scores	BAI Scores
Mean	21.2	17.5
Median	21.0	16.0
Std. Deviation	12.0	11.6
Minimum	0.0	0.0
Maximum	47.0	49.0
Interquartile Range	19.0	18.0

## DISCUSSION

The findings of this study are of importance in identifying the burden of perinatal depression and anxiety in teenage girls attending selected MCH clinics in Nairobi County, Kenya. This study corroborates evidence from different researchers who identified a significantly elevated prevalence of depression in perinatal teenage girls [12,15,16]. A previous study on depression in pregnant teenage girls concluded that depression symptoms levels was about 70% (almost three quarters of the study population) [13]. This concurs with the

evidence in this current study which found out that the prevalence of depression symptoms in perinatal teenage girls was quite high (about 70.9%) at varying severity levels. Other studies have also reported similar finding of high levels of depression and anxiety prevalence in teenage perinatal girls. One study that was previously conducted in Nairobi, Kenya concluded that the prevalence of depression symptoms was highly prevalent in perinatal teenage girls at about 43.1% [17].

Moderate to high levels of anxiety symptoms have also been identified in the perinatal teenage girls with potential effect of poor mental health and even poor obstetric outcomes [31]. The symptoms could negatively affect the health seeking behaviour to the detriment of the maternal and child health. Some previous studies have indicated varying prevalence levels of anxiety symptoms [20,32], which are lower than the finding of this study (33.7%).

Perinatal teenage girls are at a high risk of developing symptoms of depression and anxiety due to their challenging changing circumstances. Previous studies have pointed out that they probably lack adequate support system, they are unemployed and majority still live with their parents and therefore more vulnerable [33,34]. In this study, majority of the perinatal girls lived with their parent or guardian and not employed. The pregnancy and transitioning to early motherhood could be associated with heightened stress levels which may cause anxiety and depression symptoms.

## CONCLUSION

Prevalence of depression and anxiety symptoms among perinatal teenage girls was 70.9 % and 33.7% respectively, at differing severity levels. It is imperative to routinely screen for depression and anxiety symptoms in all the perinatal teenage girls presenting at the MCH clinic.

## Recommendation

Comparative analysis of depression and anxiety prevalence in different age brackets from urban, peri-urban, and rural settings could help to appreciate the prevalence in a larger scope. Future research should also scale up and investigate psychotherapies that could be effective for perinatal teenage girls in different settings. This could be achieved by conducting robust high powered controlled studies. Additionally, a mixed study method approach would explore the lived experiences and possibly generate some insight and contextual evidence on addressing perinatal teenage depression and anxiety.

## Limitations

This study was limited in scope. It only focused on the prevalence of anxiety and depression in perinatal teenagers in an urban setting.

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