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Prevalence of Depression and Anxiety among Adolescent Mothers and Access to Counseling in Western Kenya

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Abstract

Purpose: There is still paucity of research exploring the prevalence of depression and anxiety among adolescent mothers aged 10-19 years and availability and access of support services in Kenya. This study therefore sought to (1) determine the prevalence of depression and anxiety and (2) examine access to counselling for depression and anxiety among adolescent mothers in Western Kenya during antenatal period.

Method: This was a cross-sectional design with a convergent parallel mixed approach conducted between January and August 2023 among a sample of 438 adolescent mothers aged 10-19 years attending maternal health services at level four health facilities in Kakamega, Kisumu and Siaya Counties in Western Kenya. Lottery method was used to select counties included in the study. On the other hand, participants were sequentially selected from out-patient departments, child welfare clinics, and postnatal wards and were screened for depression using Patient Health Questionnaire (PHQ-9) and General anxiety disorder (GAD-7) for anxiety. Cut-off points of 5 was used to identify participants with symptoms for both depression and anxiety.

Results: Out of 423 adolescent mothers, who completed the PHQ-9 screening tool, 398 (94.1%) had experienced depression while 424 (100%) adolescent mothers who completed GAD-7 screening tool experienced anxiety at varying degrees. Furthermore, 230 (54.2%) experienced severe anxiety followed by 163 (40.4%) who experienced moderate anxiety. Depression was more common among 15-19 age-group (n=349, 82.5%); those who depended on parents or guardians for financial support (n=223, 52.7%) and para 1 (n=328, 77.5%). In addition, religion, parity, source of financial support, education level were found to significantly contribute to both depression and anxiety as shown by $p < 0.05$. Out of 438 respondents, only 146 (33.3%, $p = 0.246$) received counseling on depression and anxiety.

Recommendations: Findings of this study, highlight pertinent need for inclusion of mental health care for adolescent mothers in the antenatal care policy. In addition, it recommends incorporation of screening for depression and anxiety, as well as counseling for adolescent mothers into the routine antenatal care and postnatal care programs so as to enhance the overall well-being of adolescent mothers.

Key words: *Adolescent motherhood, Anxiety, Depression, Access.*

INTRODUCTION

By 2019, the world health organization estimated that approximately twenty-one million pregnancies occurred annually among adolescent girls aged 15-19 years in low- and middle-income countries with about 50% being unintended. Unintended motherhood refers to pregnancy and childbearing that occurs when no children are wanted or earlier than planned or desired by the woman involved (Beyene, *et al*., 2019).

The unintended nature of motherhood among this vulnerable group is closely associated with anxiety and depression (Kumar *et al.*, 2018; Duby *et al*., 2021). According to World Health Organization (WHO), one in seven of 10-19-year-olds globally experience mental disorders accounting for 13% of the global burden of disease in this age group and are rated among the top causes of illness and disability. Furthermore, according to United nations children's fund (UNICEF, 2022) depression and anxiety occurs in 632 and 535 per 1000 adolescent mothers respectively globally, and are second and third causes of disability adjusted life years (DALYs) among adolescents aged 15-19 years respectively. Moreover, the two are said to cost the global economy one trillion US dollars annually (WHO, 2019a). In Africa, data remains grey, with recent aggregated estimated occurrence of maternal depression (including adolescents) being at 26.3% during the period between 2007 and 2018, which is equivalent to 1 in 4 pregnant women (Dadi, *et al*., 2020).

Recent systematic reviews (Al-Abri, *et al.*, 2023; Mutahi, *et al*., 2022; Palfreyman, & *Gazeley*., 2022) have shown that depression and anxiety are commonest mental health disorders among antenatal and perinatal adolescent mothers in low- and middle-income countries. This is largely attributed to psycho-physiological immaturity, poverty, lack of psychosocial support, stigma among other social challenges. Furthermore, adolescent mothers experience subtle, unpredictable as well as multi-layered decision challenges which not only pose complex coping challenges to the individual mothers and their caregivers but also, care constrains among health service providers. Also, availability of counselling services to identify and address mental health needs during the antenatal and postnatal clinics is not guaranteed (Mumah, *et al*., 2020). This exacerbates further the risk of severe forms of mental health among this sub-population group. In Western Kenya, African Institute for Development Policy (AFIDEP, 2020) reported that 48,989 adolescent mothers visited various ANC clinics yet there is no clear documentation of routine interventions or the identified depression and anxiety cases and linkage to care. In Kenya, there is paucity of and fragmented evidence on the burden of depression among younger adolescent mothers and the few studies available largely focus on postnatal depression (Kumar, *et al*., 2020), youths aged 18-24 years, urban settings (Odawa, *et al*., 2023) and more so, on poor-resource setting (Tele, *et al*., 2022; Wainaina, *et al*., 2021). Notwithstanding, the prevalence of depression and anxiety could be higher as they are not regularly screened in primary care setting in Kenya. Maternal depression and anxiety not only increase risk of adverse outcomes to the mother but also, the fetal outcomes. These impacts however, depend on how a mother reacts to the circumstances around the

occurrence of motherhood, and perceived self-esteem, self-efficacy, social norms and vulnerabilities as well as availability of counselling services (Hechler, *et al*., 2019). Whereas the presence of mental and social health support has been associated with improved mental health, its unavailability impacts negatively on adolescent mothers further aggravating risk for severe forms of depression and anxiety especially among those associated with unintended motherhood (Omidvar, Faramarzi, Hajian-Tilak, & Amiri, 2018).

According to Millman (1993), access entails timely provision of care to achieve the best possible health outcomes. Elements of access encompasses capacity, qualification and cultural competence of health care workforce, service provided, and technical skill employed, Timeliness, and coverage. Alternatively, other dimension of access includes: availability (services exist and meets clients' needs); geographic location / approachability (being congruent to clients' location); cost affordability; adequacy/ appropriateness (service organization and care meet clients; expectation) and; provider characteristics as well as range of services which correspond with expectations of the clients (Omondi Aduda, *et al.,* 2024). Whereas mental health promotion strategies and policies have gained popularity and momentum, majority have been skewed, dwelling on general population, leaving behind this most vulnerable group (Mutahi, *et al.*, 2022). Additionally, lack of recognition and quality management of depression and anxiety have been associated with grievous maternal health outcomes (Dadi, *et al*., 2020); poor neonatal health outcomes (Li, *et al*., 2021); physical effects and reduced overall functionality (Kumar, 2020); distorted relationships (Materu, *et al*., 2020; Dudy, *et al*., 2021) and; negative socio-economic status of a country (Laurenzi, *et al*., 2020). In view of the gaps in access to specific services that address depression and anxiety for adolescent mothers, majority of whom are diagnosed late with moderate to severe forms and dearth of evidence on the burden and outcomes, there is inevitable indication for studies whose findings would enable strengthening of the focused ante-natal and post-natal care for adolescent mothers.

In addition, while in Kenya, as elsewhere in many African countries, policies and documents that address sexual and reproductive health (SRH) needs of adolescents have been developed and implemented both at the national and subnational levels, they are less favorable to respond specifically to mental health needs of adolescent motherhood. For example, the national reproductive health policy (2022-2032) and of great importance, the WHO (2016) antenatal care policy which did not incorporate dynamics of depression and anxiety disorders experienced by adolescent mothers as demonstrated by absence of their routine screening and documentation and targeted counselling (WHO, 2016) The current study sought to assess the prevalence of depression and anxiety and dimensions of access to counseling among adolescent mothers aged 10-19 years in Western Kenya. The study sought to identify gaps in addressing access to prevention and management services for depression and anxiety among adolescent mothers, with a view of developing a blueprint for integrating psychosocial care within the antenatal care program and future research.

Methodology

This was a cross-sectional descriptive survey design with a convergent parallel mixed methods approach. It was carried out in three County referral hospitals namely, Kisumu, Kakamega, and Siaya in Western Kenya. According to Kenya Demographic Health Survey (KDHS, 2022), the prevalence of adolescent pregnancy (age 15-19 years) in the region ranges between 7.7% in Vihiga and 23.2% in Homabay county, while mean age at sexual debut is 16 years (Zulaika, *et al*., 2021).

A sample size of 438 adolescent mothers aged 10-19 years was determined using Yamane Taro's formula where calculated sample size was derived from 93,826 adolescent mothers who had presented to various antenatal care clinics in Western Kenya in 2019 according Kenya Health Information systems (KHIS), with an acceptable sampling error which is 0.05 as follows.

$n = N/ 1+ N + (e)^2$

where; n = calculated sample size; N= adolescent mothers' population size and "e" was acceptable sampling error.

$n=93826/1+93826(0.05)^2$

n= 398.

After adjustment by 10% to cover for attrition, 40 adolescent mothers were included 10% of 398 = 29.8

398 + 40

therefore, n = 438

Participants were included if one had attended ANC clinic at least ones during pregnancy, and; had given birth in a health care facility from Kakamega, Kisumu, Siaya County referral hospitals. Respondents' distribution was based on antenatal care caseload of adolescent mothers based on Kenya health information system (KHIS) as follows: Kakamega-216, Siaya- 136, Kisumu- 86. Sampling was done in various stages. First, simple random sampling was used to select the three counties out of ten counties in Western Kenya that were included in the study. Secondly, level-4 health facilities were purposively selected on the basis of the comprehensive maternal and child health services they provided. Finally, adolescent mothers were sequentially selected from the postnatal wards/clinics and outpatient departments. Health care workers (HCWs) from these departments identified eligible adolescent mothers and referred them to research assistants who obtained consent and collected relevant data. Three focused group discussions, each consisting of 12 adolescent mothers (a total of thirty-six – 36) and thirty key informant interviews (KIIs) consisting of health care workers from antenatal care, outpatient, and postnatal units (20 Nurses, 8 clinicians, and 2 gynaecologists) were included in the study to provide first-hand information on challenges witnessed in managing depression and anxiety among adolescent mothers

Quantitative data was collected electronically using Kobo-collect (version 2022-4.4) between February and August 2023. Data collected included; socio-demographics, depression (Patient Health questionnaire-9 (PHQ-9) and anxiety (General anxiety disorder (GAD-7). PHQ-9 is a 9-item tool used for screening, diagnosing, monitoring and measuring severity of depression. PHQ-scores of 5, 10, 15 and 20, represents mild, moderate, moderately severe and severe depression respectively. For this study, a cutoff point of 5 was used where 5-9 was classified as mild to borderline clinical depression 10-14 (moderate depression), 15-19 (moderately severe) and 20-27 (severe depression). GAD-7, on the other hand is a 7-item tool for measuring anxiety symptoms where respondents are asked to rate each item for occurrence using a 4-point Likert scale (0=not at all, 1= several days, 2= more than half the days and 3= nearly every day). Scores of 5, 10, and 15 represents cut-off points for mild, moderate and severe anxiety respectively. The responses are then summed up to calculate the total GAD=7 scores which range between 0-21 with higher scores indicating severity of anxiety symptoms. For this study, a cutoff-point of 5 was used and respondent who scored 5-9 was classified as having mild anxiety, 10-14: moderate anxiety and > 15: severe anxiety.

Access was measured based on availability of provider of counselling, that is, health care worker (HCW) and health care facility (HCF) attended; addressed depression and anxiety during counseling, and technical skills employed in delivery of counselling according to Roy's psychosocial adaptation model (1974). These skills included clarity on content communicated, responsiveness, assurance and empathy. On the other hand, psychosocial challenges included; depression, anxiety, social isolation, child irresponsiveness and school disruption. This was collected using structured and semi-structured questionnaires.

Quantitative data were analyzed descriptively to provide a picture of how depression and anxiety were distributed among the respondents. Frequency tables were used to describe the number of observations in each category with their respective percentages. In addition, respective *chi square* (*p* <0.05) analysis was performed to determine association of depression and anxiety with sociodemographic characteristics. Those variables found with *p*-values less than 0.05 were considered to have been statistically associated.

Moreover, access to counselling, was considered as an independent variable, at the level of; participants who received counselling; facility from which they received it, having received counseling that addressed depression and anxiety and the technical skills of counselling exhibited by HCWs during antenatal period from the clients' perspectives. These elements included; communication clarity, empathy, assurance, and responsiveness. On the other hand, PSCs included; depression, anxiety, social isolation, child irresponsiveness and school dropout. For quantitative data, descriptive analysis was conducted to equally describe distribution of access in each category. Frequency tables were used to describe number of observations with their respective percentages. Furthermore, respective *chi- square* analysis was performed to determine

associations of access to counselling with PSCs and those variables that were found with $p < 0.05$ were considered to have been statistically significant. In addition, correlation (*r*) was included to determine the effect size of counselling provided according to Cohen's guideline (1988) where 0.2, 0.5, and 0.8 were used as cut-off points for small effect, moderate/ medium effect and strong/ large effect respectively. Furthermore, thematic analysis was used to identify emerging themes from qualitative data, and involved reading through the set of data, to allow for well-defined description of text content, and defining themes to find patterns and themes.

Ethical approval was obtained from Jaramogi Oginga Odinga University of Science and Technology (JOOUST) ethical review board, National Commission for Science, Technology and Innovation (NACOSTI) and the participating health facility management.

Results

Sociodemographic characteristics

Table 1 shows sociodemographic characteristics of respondents in this study. In summary, Majority (87.9%) of respondents were in the late adolescent stage (15-19 years), 68.5% were not in any marital union, and 44.3% were from informal residences.

Table 1 Summary of Sociodemographic Characteristics

Sociodemographic variable		Count	Percentage
Age in years	10-14	53	12.1
	15-19	385	87.9
Marital status	Single	321	73.3
	Married	117	26.7
Residence	Formal	118	26.9
	Informal	194	44.3
	Rural	126	28.8
Financial provider	Guardian	60	13.7
	Parent	171	39.1
	Partner	115	26.3
	Self	85	19.4
	Other	7	1.6
Education level	None	13	3.0
	Primary	113	25.8
	Secondary	183	41.8
	Tertiary	129	29.4
Religion	Christian	271	61.9
	Muslim	53	12.1
	Traditional African	103	23.5
	Other	11	2.5

Prevalence of Depression

Of the 438 adolescent mothers, 398 (94.1%) reported to have experienced depression, with the most (n= 295, 69.7%) having experienced moderately severe (PHQ-9 score 15-19, n=174, 41.1%) to extremely severe depression (PHQ-9, 20-27scores, n=121, 28.6%). Adolescent mothers aged 15-19 years (late adolescence) formed the majority (82.5%) of those who experienced depression. The prevalence of depression among adolescent mothers aged 10-14 years was 49/53 (92.4%) whereas the prevalence of depression among adolescent mothers aged 15-19 years was 349/370 (94.3%) at varying severity levels as shown in figure 1.

Depression was commonest among adolescent mothers from informal residence (n=186, 43.9%), Christian religion (n=249, 58.9%), those of para 1 (n= 328, 77.5%), and in secondary school (n=160, 37.8%). Moreover, most of respondents who experienced extremely severe depression were those aged 15-19 years (n=157, 37.1%), single (n=136, 34.2%) and para 1 adolescent mothers (n= 163, 40.9%).

Additionally, age of motherhood, academic level, parity, religion, and source of financial support had significant contribution to depression as shown among respondents in this study as shown by $p< 0.05$ in table 2
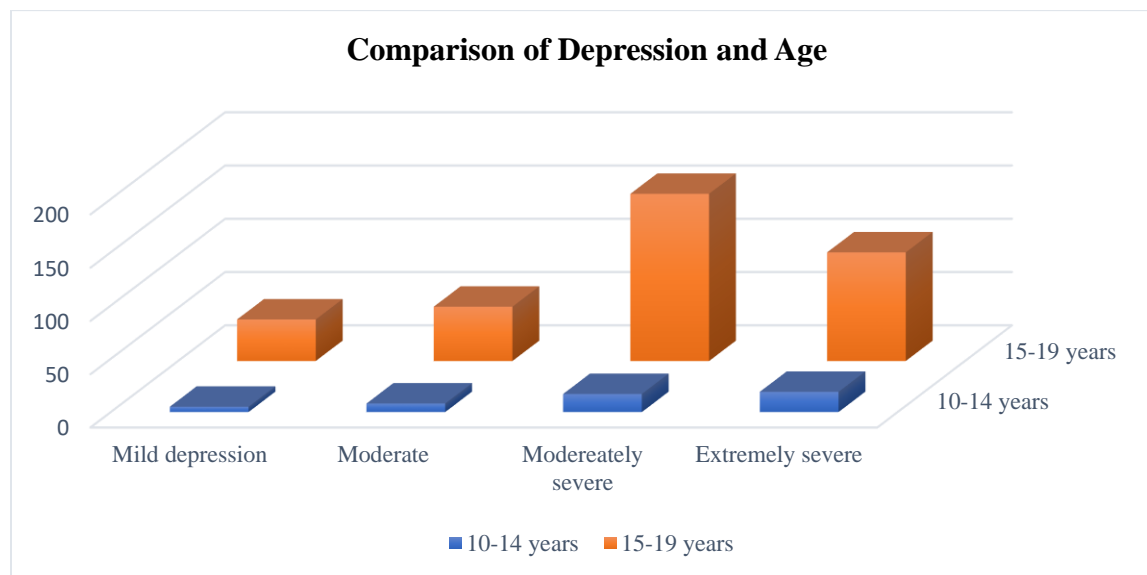

Figure 1 comparison in frequency of depression as per age group

Table 2: Frequency Distribution of Depression and Association with Sociodemographic Characteristics

Sociodemographic factors		Levels of depression as per PHQ-9 scores (N=423)					Actual depression (398)		
		1 (0-4)	2 (5-9)	3 (10-14)	4 (15-19)	5 (20-27)	2+3+4+5(n)	% **94.1**	P value
Age	10-14	4(0.9)	5(1.2%)	8(1.9%)	17(4.0%)	19(4.5%)	49	11.6	**<0.001**
	15-19	21(4.9%)	39(9.2%)	51(12.1%)	157(37.1%)	102(24.1%)	349	82.5	
Marital status	Single	14(3.3%)	28(7.0%)	44(11.0%)	136(34.2%)	84(21.1%)	292	69.1	
	Married	11(2.6%)	13(3.3%)	12(3.0%)	49(12.3%)	32(8.0%)	106	25.0	**<0.001**
Residence	Formal	12(2.8%)	14(3.5%)	13(3.3%)	46(11.6%)	21(5.2%)	94	22.2	
	Informal	10(2.3%)	21(5.5%)	28(7.1%)	84(21.1%)	53(13.2%)	186	43.9	0.073
	Rural	3(0.7%)	10(2.5%)	18(4.5%	51(12.8%)	39(9.8%)	118	27.9	
Religion	Christian	15(3.5%)	29(7.3%)	38(9.6%)	118(29.9%)	61(15.6%)	249	58.9	
	Muslim	4(0.9%)	7(1.7%)	5(1.3%)	11(2.8%)	10(2.5%)	33	7.8	**0.005**
	T/African	6(1.4%)	6(1.5%)	14(3.5%)	45(11.37%)	37(9.3%)	102	24.1	
	Other	0	0(0%)	5(1.3%)	7(1.7%)	2(0.5%)	14	3.3	
Parity	Para 1	24(5.7%)	27(6.8%)	41(10.3%	163(40.9%)	97(24.4%)	328	77.5	**<0.017**
	Para 1+	1(0.2%)	16(4.0%)	19(4.8%)	18(4.5%)	17(4.3%)	70	16.5	
Academic level	None	5(1.2%)	0(0%)	0(0%)	2(0.5%)	4(0.9%)	06	1.4	
	Primary	0	23(5.8%)	42(10.5%)	32(8.1%)	16(4.0%)	113	26.7	
	Second.	13(3.0%)	12(3.0%)	19(4.7%)	89(22.5%)	40(10%)	160	37.8	**<0.001**
	Tertiary	7(1.6%)	12(3.0%)	21(5.3%)	40(10.0%)	46(11.6%)	119	28.2	
Source of finance	Self	17(4.0%)	15(3.7%)	13(3.3%)	21(5.3%)	16(4.0%)	65	15.4	
	Parent & guardian	2(0.5%)	18(4.3%)	31(7.8%)	72(18.1%)	102(25.6%)	223	52.7	**0.0001**
	Partner	3(0.7%)	11(2.8%)	23(5.8%)	35(8.8%)	36(9.0%)	105	24.8	
	Other	3(0.7%)	2(0.5%)	2(0.5%)	1(0.3%)	0(0%)	5	1.18	
ANC facility	Public HFs	9(2.1%)	36(9.0%)	67(16.8%)	116(29.1%)	158(39.7%)	377	89.1	
	Faith-based	9(2.1%)	4(1.0%)	3(0.7%)	5(1.3%))	1(0.3%0	13	3.1	
	Private HF	7(1.6%)	3(0.7%)	2(0.5%)	2(0.5%)	1(0.3%)	8	1.9	**<0.013**

Key: *1. Not depressed 2. mild 3. moderate 4. moderately severe 5. Extremely severe depression*

Prevalence of Anxiety

The prevalence of anxiety was found to be 100% on General anxiety disorder (GAD-7) scale, as four hundred and twenty-four (100%) adolescent mothers who completed the questionnaire were all found to have experienced varying degrees of anxiety. About half of respondents experienced severe anxiety (54.2%). However, those aged 15-19 years were the majority at 87.5%.

In addition, the prevalence of anxiety was highest among single adolescent mothers (73.3%) those who depended on parents/ guardians for financial support (53.5%), Christian religion (61.3%); and those in secondary schools (40.6%). Moreover, most of respondents who experienced severe anxiety were adolescent mothers aged 15-19 years (n=198, 46.7%), single (n=170, 40.1%), and para 1 adolescent mothers (n=204, 49%).

This study findings equally showed that being an adolescent mother, marital status, religion, parity, academic level and source of financial support significantly contributed to adolescent mothers experiencing anxiety as shown by p values of less than 0.05 in table 3.

Table 3 Frequency distribution of anxiety and association with sociodemographic characteristics

Sociodemographic variables		Level of anxiety N=424					
		1 (5-9)	2 (10-14)	3 (>15)	1+2+3(424)	% 100	P value
Age	10-14	7(1.7%)	14(3.3%)	32(7.5%)	53	12.5	**0.002**
	15-19	24(5.7%)	149(35.1%)	**198(46.7%)**	371	87.5	
Marital status	Single	24(5.7%)	117(27.6%)	**170(40.1%)**	311	73.3	
	Married	7(1.7%)	46(10.8%)	60(14.2%)	113	26.7	**0.045**
Residence	Formal	12(2.8%)	42(9.9%)	57(13.4%)	111	26.2	
	Informal	15(3.5%)	66(15.5%)	107(25.2%)	188	44.3	0.142
	Rural	4(0.9%)	55(13%)	66(15.6%)	125	29.5	
Religion	Christian	20(4.7%)	103(24.3%)	**137(32.3%)**	260	61.3	
	Muslim	6(1.4%)	19(4.5%)	27(6.4%)	52	12.3	
	Traditional African	5(1.2%)	38(8.9%)	60(14.2%)	103	24.3	**0.002**
	Other	3(0.7%)	3(0.7%)	3(0.7%)	09	2.1	
Parity	Para 1	22(5.3%)	126(30.3%)	**204(49%)**	352	83	**0.016**
	Para 1+	9(2.1%)	24(5.7%)	29(6.8%)	72	17	
Academic level	None	1(0.2%0	2(0.5%)	10(2.4%	13	3.1	
	Primary	24(5.7%)	43(10.1%0	43(10.1%)	110	25.9	
	Secondary	12(2.8%)	69(16.3%)	**91(21.5%)**	172	40.6	**0.002**
	Tertiary	17(4.0%)	47(11.1%)	65(15.3%)	129	30.4	
Source of finance	Self	23(5.4%)	39(9.2%)	21(4.9%)	83	19.5	
	Parent & guardian	49(11.6%)	**101(23.8%)**	77(18.1%)	227	53.5	**<0.05**
	Partner	55(12.9%)	13(3.1%)	41(9.7%)	109	25.7	
	Other	1(0.2%)	2(0.5%)	3(0.7%)	5	1.2	
ANC facility	Public HFs	25(5.9%)	143(33.7%)	**213(50.2%)**	381	89.8	
	Faith-based	3(0.7%)	10(2.4%)	11(2.6%0	24	5.7	**0.020**
	Private HF	3(0.7%)	8(1.9%)	8(1.9%)	19	4.5	

Key: *1. Mild anxiety   2.   Moderate anxiety   3. Severe anxiety*

2.0 Access to counseling on depression and anxiety

This study equally sought to assess access to counselling on depression and anxiety during antenatal period for adolescent mothers. The respondents were asked to respond to a set of questions pertaining access to psychosocial adaptation counseling in terms provider (nurse/ OPD clinician/ other); Health care facility (Public, private/ Faith-based HCF); addressed depression and anxiety and technical skill of communication applied in counselling as perceived by adolescent mothers during antenatal period. They were empathy, assurance, responsiveness and clarity. The results are presented in table 4 to 5.

Of the 438 respondents, less than half reported to have received counselling addressing depression & anxiety (n=146, 33.3%), from health care workers of different cadres. Counselling received from nurses accounted for 46.4%, OPD clinician (12.4%) and other/ specialists (5.8%) as shown in table 4. Importantly, HCWs exhibited a good level of technical skills of communication while offering counselling to adolescent mothers on clarity (n=159, 86.9%), empathy (n=119, 65.7%), assurance (n=131, 72.4%) and responsiveness (n=129, 71.7%) as shown in table 4.

Table 4 Frequency Distribution of Access to Psychosocial Adaptation Counselling by Psychosocial Challenge Addressed and Technical skill applied in Communication

PSC addressed					
PSC addressed	Source of counselling	Frequency			
		Yes	No	I don't know	Total
Depression & anxiety	Nurse	105(46.4%)	196(44.7%)	2(0.9%)	303(69.2%)
	Clinician	28(6.4%)	77(17.6%)	0(0%)	105(23.9%)
	Other	13(3.0%)	15(3.4%)	2(0.9%)	30(6.8%)
	Total	*146(33.3%)*	*288(65.8%)*	*4(0.9%)*	*438(100%)*
Technical skills exhibited in delivery of counselling					
Variable	Source	Yes	No	Total	
Clarity	Nurse	116(63.4%)	19(10.4%)	135(73.8%)	
	Clinician	30(16.4%)	3(1.6%)	33(18.0%)	
	Other	13(7.1%)	2(1.1%)	15(8.2%)	
	Total	*159(86.9%)*	*24(13.1%)*	*183(100%)*	
Empathy	Nurse	82(45.3%)	52(28.7%)	134(74.0%)	
	Clinician	25(13.8%)	7(3.9%)	32(17.7%)	
	Other	12(6.6%)	3(1.7%)	15(8.3%)	
	Total	*119(65.7%)*	*62(34.3%)*	*181(100%)*	
Assurance	Nurse	96(53.0%)	39(21.5%)	135(74.6%)	
	Clinician	24(13.3%)	9(5.0%)	33(18.2%)	
	Other	11(6.1%)	2(1.1%)	13(7.2%)	
	Total	*131(72.4%)*	*50(27.6%)*	*181(100%)*	
Responsiveness	Nurse	86(50.6%)	41(22.8%)	132(73.4%)	
	Clinician	24(13.9%)	8(4.4%)	33(18.3%)	
	Other	13(7.2%)	2(1.1%)	15(8.3%)	
	Total	*125(71.7%)*	*51(28.3%)*	*174(100%)*	

Furthermore, on cross tabulation whereas 146 (33.3%) adolescent mothers received some counselling on depression and anxiety, it was found not to have significantly addressed these two

challenges as shown by been addressed to statistically significant level as shown by *p*> 0.246 in table 5. Similarly, whereas HCWs having exhibited technical skills (clarity, empathy, assurance and responsiveness) while delivering counselling, only empathy was found to have been provided at a statistically significant level (*p*= 0.039). Nonetheless, this statistical significance did not correlate with a shift in the dependent variables as shown by *r*= .153 in table 5

Table 5 Association Between Access to Counselling with Depression and Anxiety and Technical skills of Communication Applied

PSC addressed	Frequency					Cross tabulation		
	Yes	No	don't know	Total	*R*	χ	df	P value
Depression & anxiety	146(33.3%)	288(65.8%)	4(0.9%)	438(100%)	.078	17.207	4	0.246
	Elements of counselling received							
	Yes	No	Total	*r*	X	df		P value
Clarity	159(86.9%)	24(13.1%)	183(100%)	.033	0.579	2		0.660
Empathy	119(65.7%)	62(34.3%)	181(100%)	.153	4.764	2		**0.039**
Assurance	131(72.4%)	50(27.6%)	181(100%)	.068	1.084	2		0.366
Responsiveness	129(71.7%)	51(28.3%)	180(100%)	.115	2.418	2		0.125

Emerging themes aligned with quantitative data findings and were commonly reported across the three counties. Namely, depression, anxiety, disruption in academics and social isolation as shown in table 4.

Adolescent mothers reported to have encountered counterblast from family members, peers, and community whereas HCWs (key informants) confirmed existence of depression and anxiety among adolescent mothers which was associated with adolescent pregnancy. Being sidelined, harsh judgements, and open insults, were stated as factors which increased depression. In this regard, depression was reported in different forms including feeling of hopelessness, loss of motivation, disappointment, anger, pain, regret, loss of sleep and self-isolation.

In addition, anxiety was most verbalized theme among adolescent mothers. This was reported in forms of increased worry, fear, restlessness, increased tension, confusion and difficulty in getting sleep. Adolescent mothers reported distorted relationship with parents/ guardians, as well as peers, fear of loss of respect from siblings, and fear of pregnancy outcome such as their death and academic disruption as main reasons behind their anxiety.

 In conclusion, there was consistent finding across quantitative data and qualitative data in that all showed that psychosocial challenges were prevalent among adolescent mothers

Table 4: Emerging themes from verbatim expressions

Emerging theme	Forms of PSCs	Verbatim expressions
Depression expressed as: Feeling hopeless, lost motivation/ Extreme sadness	As expressed by adolescent mothers	*"The sadness I felt, was because I felt disappointed in myself"* (A1: 18 years, Kisumu). *"My spirit was so dampened. The rejection was too much to bear. I had never known that my mom would hate me till then"* (A2: 17years, Kisumu). *"I was discouraged and always low. I lost interest in everything. I even attempted suicide twice without success"* (B1: 19years, Kakamega)
Feeling stressed	As expressed by HCWs	*"They struggle to talk, and some just cry continuously"* (postnatal nurse, Kisumu). *"There was no day I attended to an antenatal adolescent mother who had hope in life. They visit both ANC and delivery clinics so frustrated and embarrassed"* (CWC nurse, Kakamega)
Anxiety expressed as: Confused Tense/ restless Troubled sleep, decision making	As expressed by adolescent mothers	*"The kind of fear I had is beyond description. I had fear of the pregnancy itself, and how the world around me would judge me or look at me, especially my siblings"* (B5; 14 years, Kakamega). *"I just did not know what to do with myself, it was a difficult time for me. I thought literally about everything. From suicide, abortion to running away from home. Unfortunately, I had nowhere to run to"* (B7; 18 years, Kakamega).
	As expressed by HCWs	*"Anxiety is so common among pregnant adolescents"* *"Most adolescent mothers present with severe stress, as a result of rejection they receive from family members"* (ANC; nurse, Kisumu)

Discussion

This study found the prevalence of depression and anxiety to be 94.1% and 100% among respondents respectively. This is much higher than the global prevalence of 10% during pregnancy and 13% after delivery among women of reproductive age group (WHO, 2022). Heightened prevalence of depression and anxiety was found among late adolescent mothers (15-19 years), those of para 1, those in secondary school, those dependent of parents and guardians for financial support and those affiliated to Christian religion using cut-off points of 5 for both PHQ-9 and GAD-7. In Uasin Gishu county, Kenya, the prevalence of depression and anxiety was found to be 16.2% and 6.6% respectively as measured by Edinburgh postnatal depression scale (EPDS) and GAD-7 (Adina, *et al.*, (2022) while in Kangemi slum, Nairobi, prevalence of depression was 32.9% (Osok, *et al.*, 2018). Depression and anxiety are common life-stressors in pregnancy but which might be exacerbated by adolescents' unique circumstances as well as multilevel barriers to accessing mental health services. In addition, these conditions are associated with adverse fetal

and maternal health and development outcomes. The observed high prevalence indicates high unmet needs for this sub-population and portends high risk for unfavorable health outcomes.

Depression and anxiety were more common among late adolescent mothers (15-19 years) as compared to their precocious counterparts (10-14 years). However, this phenomenon was not explored. Late adolescent mothers would be more aware of disruptions, cumbersomeness and complexities and additional responsibilities associated with early motherhood. On the contrary, in Ethiopia, for example, Duko, *et al.,* (2019) and Pereira, *et al.,* (2019) showed that mothers aged 15-19 years were less likely to experience depression using EPDS, Oslo Social support scale (OSS-3), hospital anxiety depression scale (HADS) and Beck depression inventory (BDI). Late adolescent motherhood has been shown as a predisposition to depression (Torres, *et al*., 2017).

Moderately severe and extremely severe forms of depression and anxiety in this study is comparable to a Nepal study by Pokharel, *et al*., (2023) where 25% of respondents had moderate to languishing mental health using Mental Health Continuum short form (MHC-SF) and EPDS. On the other hand, other previous studies, such as Tele, *et al.,* (2022) conducted in Kenya, Wan, *et al.,* (2020) in China and Ayamolowo, *et al*., (2019)-Nigeria have shown that adolescent mothers may experience varying levels of depression and anxiety simultaneously, ranging from none to moderate levels. Higher risks of forced sexual encounters (Tenaw, *et al*.,2022) absence of social support from important family members (Musyimi, *et al*., 2020) and difficulty in adjustments to demand of adolescent motherhood and teenage (Kumar, *et al*., 2021) have been identified as aggravating factors for both depression and anxiety and may be responsible for severe forms of depression in the current study.

Being an adolescent mother from informal residence, in secondary school and being dependent on parents and guardians for financial support was highly likely to be associated with depression in the current study, similar to other previous studies (Miriti, 2023; Musyimi, *et al*, 2020). Apprehension over community stigma, lost academic opportunity and parental support have been identified as risk factors for depression among adolescent mothers (Oladeji, *et al*., 2022; Kumar, *et al*., 2022). It was equally not surprising that the current study found motherhood in adolescent stage to be a significantly associated with depression and anxiety as the burden of dual transition in a toxic environment predisposes adolescents to diverse adverse mental health challenges (Agnafors, *et al*., 2019).

It is worth noting that adolescent mothers affiliated to Christian religion formed the majority of those who experienced depression and anxiety as compared to their counterparts. It is plausible that a significant association was observed as a result of skewed distribution, the region being predominantly Christian. The tool did not disaggregate nor probe the potential socio-religious nuances involved. However, strict religious guidelines and requirements have been linked to depression among pregnant adolescents either due to a sense of guilt, sick-role effects or stigmatizing treatment (Bomester, 2021). On the contrary, in Indonesia, Astuti, *et al*., (2020) found

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that pregnant adolescents found solace from religious affiliations among rape-related adolescent mothers. In Singapore, Vaingankar, *et al*., (2021) observed that, adolescents affiliated to Christian religion received significantly more emotional support which translated to positive mental health as compared to other religious affiliations among adults. Loss of social networks and fear of additional responsibilities has been associated with anxiety (Kazal, *et al*., 2021).

Though there is paucity of data specific to perinatal anxiety among adolescent mothers in the African context, the findings from the current study showing that adolescent motherhood was a risk factor for high anxiety levels is consistent with findings from qualitative studies in South Africa (Ditsobotla sub-district) by Ntshayintshayi, *et al.,* (2022) using WhatsApp method of data collection and Govender, *et al*., (2020).

Access to counselling

This study showed that adolescent motherhood was insidiously harmful to adolescent mental health, with adolescent mothers experiencing elevated prevalence of depression and anxiety. Notably, slightly more than half of the respondents received some counseling on psychosocial adaptation with majority having been provided by nurses. Furthermore, this service fell short, as depression and anxiety were sub-optimally addressed, and technical skills in communication were found to be insufficient. In addition, screening and counseling for depression and anxiety were found not be routinely provided in all primary clinical setting (Antenatal care clinics, Out-patient departments, in-patient departments) just like in United States of America (Gregory, *et al*., 2020) and South Africa (Mabila, *et al*., 2023). The latter studies however used secondary data and focused on depression and anxiety related with HIV respectively. On the other hand, in Uganda, counseling was provided for adolescent mothers. This study was however conducted in a non-governmental organization who intentionally provided mental care for adolescent mothers (Manhica, *et al*., (2021), In the current study however, HCWs provided some counseling based on empathy, albeit at sub-optimal level. This is contrary to WHO's blueprint for improving mental health for young people (Fusar-Poli, *et al.*, 2021), where screening and early diagnosis form part of selective prevention targeted for young people who are prone to risk of developing psychosocial disorders with aims of preventing incidences of disorders and lowering rates of established cases.

Shortage of staff and lack of capacity among HCWs contributed to unmet psychosocial counselling in this study. Similar studies including; Upadhaya, *et al*., (2020) in Nepal, Nakidde, *et al.,* (2023) and Webb, *et al.,* (2023) in Uganda have similarly reported lack of capacity as a major challenge. Previous studies including Upadhaya, *et al*., (2020); Dubik, *et al*., (2021), and Benerjee, *et al*., (2021 have reported the importance of adherence to treatment protocols, availability and use of guidelines and staff training in improving knowledge, skills and expertise needed and hence facilitated provision of mental health services and improved service quality and client satisfaction.

Past research has shown that empathy drives willingness to provide service (Bohns & Flynn, 2021). However, while this study found that HCWs exhibited empathy (technical skill) while attending to adolescent mothers during antenatal period, this did not translate to significant mitigation of psychosocial challenges. Similar finding was shown by Koschorke, *et al.*, (2021) in Italy, Nepal, India, Tunisia, Lebanon and Hungary where primary care providers had low empathy as demonstrated by wrong attitudes towards mental illnesses. Unlike the current study however, it focused on overall psychiatric mental illnesses. On the contrary however, a study conducted in United Kingdom by Heron, *et al.,* (2022), found that empathetic, safe environment and validation provided by where HCWs to victims of domestic violence further facilitated access to counselling and enhanced disclosure among clients.

Furthermore, while in the current study clarity and responsiveness to be exhibited at insignificant levels, previous research has shown that exhibition of clarity and responsiveness among HCWs has a wide variability on mental health issues as well as other non-mental issues. For example, Deiana, *et al*., (2023) found that enhanced comprehension among clients was linked to clear and exhaustive responses provided by artificial intelligence (AI) tools at 85.4%). The variations may be explained by mode of interaction. While the current employed one-on-one interaction with HCWs, the latter used AI tools. In addition, contrary to the current study, studies by Hannawa, *et al*., 2022 and Cherif, *et al*., (2020) showed that HCWs delivered reassuring counseling to cancer patients which was associated with high self-esteem and increased satisfaction with services. The variations may be explained by difference in respondents engaged. Notwithstanding, assurance has a critical role in providing comfort, allaying fears and enhancing confidence in times of PSCs (Akyirem, *et al*., 2022).

Conclusion

This study findings demonstrated that adolescent motherhood predisposed girls to significant and heightened depression and anxiety using PHQ-9 and GAD-7 screening tools respectively. Distinctly, late adolescent mothers (15-19 years), single adolescent mothers, those from informal residences, those who depended on their parents/ guardians and those affiliated to Christian religion were more prone to experience heightened depression and anxiety as compared to their counterparts.

Heightened depression and anxiety demonstrated that adolescent mothers lacked intrinsic capacity to overcome psychosocial challenges in a discriminatory and harsh environment they faced. Despite this, the psychosocial support services received from healthcare workers during antenatal period was inadequate, inconsistent, and non-impactful. Moreover HCWs, did not exhibit appropriate technical skills (empathy, assurance, clarity, and responsiveness) to significant levels and hence the unmet psychosocial needs. In addition, this study highlighted some barriers of access to psychosocial counseling which included; absence of supportive policy documents; inadequate capacity among health care workers in terms of training; Stigma from HCWs; and increased

workload among health care workers. Unmet psychosocial needs, which portend complex health and developmental challenges for the mother-baby pairs, allow continuity of poverty circus, affect the community in general.

Recommendations

In this regard, there is need for ministry of health to increase community, and stakeholders' awareness on depression and anxiety associated with adolescent motherhood and consider integrating screening of and counselling for depression and anxiety within routine antenatal and postnatal care program tailored to adolescent motherhood so as to improve quality of service in health systems and quality of life of adolescent mothers. Furthermore, findings of this study highlight pertinent need for inclusion of mental health care in the antenatal care policy to enhance overall well-being of adolescent mothers.

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