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Perinatal suicidal ideation, suicidal attempt and its associated factors among ethiopian women: A cross-sectional study

Jemal Seid*

Department of Psychiatry, College of Health Science, Mekelle University, Ethiopia

Emam Mohammed

Department of Public Health, Kutaber District Administration Council, Kutaber, Ethiopia

Yimer Muktar

School of Veterinary Medicine, Woldia University, Woldia, Ethiopia

Bilal Mohammed aman

Department of Public Health, Amazon medium Clinic, Dessie, Ethiopia

ABSTRACT:

BACKGROUND: *Maternal suicidal ideation and attempt is a global health concern. The lack of suicide data, particularly among mothers in the perinatal period is concerning and needs to be addressed*

OBJECTIVE*: The study assessed suicidal ideation, attempt, and associated factors during pregnancy and the postpartum period amongst women with known psychiatric diagnoses.*

METHODS*: An institutional-based cross-sectional study was conducted among systematic random samples of 379 and a face-to-face interview was used. Suicidal ideation and attempt were assessed by using a composite International diagnostic interview (CIDI). Data were analyzed by using SPSS version 26. Bivariate and multivariate binary logistic analyses were done to identify associated factors to both suicidal ideation and attempt. P values less than 0.05 were considered statistically significant associations.*

RESULT*: Suicidal ideation and suicidal attempt were found to be 37.2 % and 17.9%, respectively. Divorced marital status, unknown monthly income, the presence of adverse life events, the presence of financial conflict and anxiety symptoms were variables associated with suicidal ideation. Marital conflict, lifetime adverse events, low level of social support, daytime sleepiness depression & stress symptoms were factors associated with suicidal attempts. Whereas monthly income and social support were protective factors of suicidal ideation and suicidal attempt respectively.*

KEYWORDS: Suicidal ideation, Suicidal attempt, Maternal mortality, Women health, Ethiopia.

INTRODUCTION

Globally, suicide is a public health concern and one of the leading causes of maternal death in perinatal period (Admon LK, 2021). Suicide is a final act of ending life and a complex entity, involving biological, genetic and environmental risk factors (Agerbo E, 2002). According to world health organization reported data suicide is the 2nd among the top cause of death in a population of 15–29-years age worldwide (Anbesaw T, 2021). A study in Uganda also indicated that 85% of the global suicides rates are known to happen in Low and Middle-Income Countries (LMICS), and annually, nearly 34,000 suicides are occurring among the general population of Africa (Auger N, 2003).

In fact, suicide is one of the leading causes of maternal deaths both in high-income countries (Belete H, 2021) and in low- and middle-income countries (Bitew H, 2016). A study in United States report that suicide is the second leading cause of death among women aged 25 to 34 years and has steadily increased in prevalence (Charalambous C, 2020). Different studies reveal that psychiatric disorders are a major public health issue in postnatal period (Chikezie UE,

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*Correspondence regarding this article should be directed to: jemals283@gmail.com

2012). If left unrecognized and untreated, the consequences of these disorders can cause significant impairment not only to the mothers but also the child, the family, and society at large (Dagnew B, 2020).

The costs of suicide among women are not only loss of life, but the mental, physical and emotional stress imposed on the bearing child, family members and friends (Damota MD, 2018). Other costs are to the public resources, as women who attempt suicide often require help from health care and psychiatric institutes (Deng Y, 2021). Although suicidal ideation is not always an automatic determinant for suicidal behavior, it is an important risk factor that requires early detection and a potential trigger for intervention (Du Toit E, 2020). For example, a study conducted among mother living with HIV shows that younger age, being unmarried, experienced moderate to severe hunger, had elevated parental stress, lack of social support, increased negative life event and depression symptoms were risk factor for suicidal wish and attempt (Egbe CO, 2017).

There is evidence in the literature that shows child development is affected by maternal mental health (Elbogen EB, 2020), with exposure to maternal depression and stress having a negative influence on child development and being associated with impaired cognitive performance (Gebremariam EH, 2017). Infants of depressed mothers tend to show fewer positive facial expressions and vocalization, more withdrawal, less attentiveness to the mother and decreased activity level (Gvion Y, 2012).

In Ethiopia, there is rarity of studies regarding suicidality among women in and no study was conducted among women in perinatal period (Iacobucci G, 2016). Therefore, the current study aimed to determine the magnitude of suicidal ideation, attempt and identifying predictor factors among women during perinatal period in the eastern part of Amhara, Ethiopia (Jones JE, 2003).

MATERIALS AND METHODS

STUDY DESIGN, PERIOD AND SETTING: This descriptive, cross-sectional study took place between May to June 2022 among systematically selected 379 women who attend perinatal care at one general hospital and 6 public health centers of eastern Amhara, Ethiopia (Kanner AM, 2009).

STUDY PARTICIPANTS: All women with age of ≥ 18 years, having regular ANC & PNC follow up as well as women they were come for delivery during the study period were included and the women those who are unable to hear and speak and severely ill were excluded from the study (Kleiman EM, 2013).

SAMPLE SIZE AND SAMPLING PROCEDURE: The sample size was determined using a single population proportion formula with the following assumptions; the magnitude of EDS (P = 31.07% (13), 95% CI, the margin of error (d) = 5% (Lee YL, 2022). The minimum sample size was 329 and after adding 10 % nonresponse rate, the final sample size was 379. A systematic random sampling technique was used to select study participants (Lega I, 2020). Every four clients were interviewed during the period from May to June 2022. Interviewer-administered questionnaire was used to collect data (Liu X, 2019).

DATA COLLECTION INSTRUMENTS AND PROCEDURE: We used a self-administered questionnaire to collect the data which comprised sociodemographic, obstetric, clinical and other related characteristics (Lysell H, 2018). To assess the prevalence of suicidal ideation and attempt, Composite International Diagnostic Interview (CIDI), which adopted by World Mental Health (WMH) Survey Initiative version of the World Health Organization (WHO) was used. Its internal consistence was high with Cronbach alpha, was 0.87 (Mebrahtu H, 2020).

In Ethiopia suicidal ideation and attempt is studied among patients with HIV/AIDS and Tuberculosis by using (CIDI) (Manzar MD, 2019). Suicidal ideation was recorded if the respondents respond with "yes" to the question: have you ever seriously thought about committing suicide? And suicidal attempt was recorded if the respondents respond with "yes" to the following question: have you ever attempted suicide? (Marttunen MJ, 1995).

The Epworth Sleepiness Scale was used to measure a subjective report of women daytime sleepiness and it is validated in Ethiopia (Molla A,2019). A person who scored 11 and above from the total score of 24 was considered as having EDS (Mortier P, 2018).

Depression, Anxiety and Stress Scale-21 was chosen for its established validity in perinatal period (Necho M, 2021). DASS-21 scale is a 7-question for each that does not provide a clinical diagnosis of a perinatal depression, Anxiety, and stress disorder but does identify patients at risk. Participant's experienced depression, anxiety, stress and daytime over sleepiness was advised to visit the psychiatric clinic and based on the will of the women they link to psychiatric outpatient department for better evaluation and treatment (Nepon J, 2010).

For screening of women substance use in perinatal period, a modified form of ASSIST, developed by WHO an international group of substance abuse researchers to detect and manage substance use and related problems in primary and general medical care settings was used. Social support was collected using Oslo-3 item social support scale. The sum score scale ranging from 3 to 14 which has 3 categories: poor support 3-8, moderate support 9-11, and strong support 12- 14 (Ogundipe OA, 2015).

STATISTICAL ANALYSIS: Data was analyzed by using Statistical Package for Social Science (SPSS) window software version 26. Bivariate binary logistic regression analysis was performed to determine each of explanatory

variables and variables with p value less than 0.2 during bivariate analysis were entered to multivariate analysis (Onah MN, 2017). Multivariate logistic regression analysis was conducted to determine the presence of a statistically significant association between explanatory variables and outcome variables (Peng EY, 2010). P values less than 0.05 were considered statistically significant and strength of the association was presented using adjusted odds ratio with 95% CI (Raschke N, 2022).

DATA QUALITY CONTROL: To produce quality data, the study utilized validated assessment tools and in a local language (Rukundo GZ, 2018). Data collectors and supervisor were trained on assessment tools and how to collect data using the tools. Pretest was also done before the actual study on 10% of the people who had similar characteristics with the study participants (Shittu RO, 2014).

ETHICAL APPROVAL: Ethical approval was obtained from the Ethical Review Committee of Wollo university before commencement of the study (Stevenson C, 2014). Official letter was written to the study area. Privacy and confidentiality of the study participants were maintained. Participants were fully informed about the aims of the study before the start of the interview and written informed consent was obtained from them (Womens A, 2016).

RESULTS

SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS: A total of 379 women were included in the study with the response rate of 100%. The mean age of the respondents was 30.2 (±5.45) with age ranging from 18 to 45 years. Majority, 255 (67.3%), were found under the age of 24-35 years, 231(60.9%) were live in rural area, and 360 (95.0 %) were Amhara in their ethnicity and 251(66.3%) were Muslim religion follower (Table 1).

PREGNANCY, CLINICAL, PSYCHOSOCIAL AND SUBSTANCE RELATED FACTORS OF THE RESPONDENTS: Regarding pregnancy related, 299 (78.9%) were had happy feeling of last pregnancy, 312(82.3%) were experience excessive pregnancy related concern, 282(74.4) were report last pregnancy was planned and 309 (81.5%) had live birth. Of the total respondent 120 (31.7%) were experience adverse life event. Clinically, 128 (33.8%) were live with other medical illness, 107 (28.2%), 159(42.0%), 69(18.2%) were experience depression, anxiety and stress symptoms respectively (Zhang T, 2021). (Table 2).

Table 1.
Sociodemographic characteristics of study subjects (n=418).

	Variables	Frequency	Percentage
Age	< 24	71	18.7
	24 -35	255	67.3
	> 35	53	14
Residency	Rural	231	60.9
	Urban	148	39.1
Ethnicity	Amhara	360	95
	Tigray	14	3.6
	Afar	4	1.1
	Others	1	0.3
Religion	Muslim	251	66.2
	Orthodox	113	29.8
	Catholic	6	1.7
	Protestant	8	2.1
	Others	1	0.3
Educational status	Unable to read and write	94	24.8
	Primary school	147	38.8
	Secondary school	78	20.6
	Diploma & above	60	15.8
Marital status	Married	297	78.4
	Single	48	12.7
	Divorced	22	5.8
	Widowed	12	3.2
Employment	Student	35	9.2
	Non employed	267	70.4
	Employed	77	20.3
Monthly income	Don't know	221	58.3
	Up to 1000	36	9.5
	>1001	122	32.2

Social support	High	90	23.8
	Medium	165	43.5
Marital conflict	Low	124	32.7
	Absent	193	50.9
	Present	185	48.8
Financial conflict	Hasn't husband Absent	1 182	0.3 48
	Present	197	52

Table 2.

Pregnancy and clinical characteristic of study subject (N= 418)

Variable	Response	Frequency	%
Feeling on current pregnancy	Unhappy	80	21.1
	Happy	299	78.9
current Pregnancy	Unplanned	97	25.6
	Planned	282	74.4
Excessive pregnancy related concern	Present	312	82.3
	Absent	67	17.7
Premarital pregnancy	No	312	82.3
	Yes	67	17.7
Past history of obstetric complication	Present	171	45.1
	Absent	208	54.9
Parity	nulliparous	106	28
	1-4 previous live birth	230	60.7
	> 4 previous live birth	43	11.3
Bad attitude towards current pregnancy	YES	86	22.7
	No	293	77.3
Number of children	No child	82	21.6
	1-3 children	236	62.3
	4 and above children	61	16.1
Delivery outcome (last birth)	live birth	309	81.5
	Stillbirth	64	16.9
	still pregnant	6	1.6
The presence of adverse life event	No	259	68.3
	Yes	120	31.7
Illness in the family member	Absent	289	76.3
	Present	90	23.7
Past psychiatric history	No	331	87.3
	yes	48	12.7
History of domestic violence?	No	328	86.5
	Yes	51	13.5
History of sexual abuse?	No	321	84.7
	Yes	58	15.3
Ever substance use	No	232	61.2
	yes	147	38.8
Current substance use	No	237	62.5
	Yes	142	37.5
History of physical abuse	No	320	84.4
	Yes	59	15.6
Depression	No	272	71.8
	Yes	107	28.2
Anxiety	No	220	58
	Yes	159	42
Stress	No	310	81.8
	Yes	69	18.2
Daytime sleep	have no oversleep	317	83.6
	have over sleep	62	16.4
Chronic medical illness?	No	251	66.2
	Yes	128	33.8

Table 3.

Factors associated with suicidal ideation of participants attending perinatal care at Kutaber District health institution & Boru Meda General Hospital, Ethiopia, 2022.

Variables	Suicidal wish		Bivariate analysis			Multivariate analysis		
	No	Yes	p-value	COI	95%CI	AOR	95% CI	P-value
Marital status								
Married	197	100	Ref.					
Single	30	18	0.604	1.182	0.628 - 2.224			
Divorced	7	15	0.002*	4.221	1.667-10.687	3.933	1.169 - 13.230	0.027**
Widowed	4	8	0.028*	3.94	1.158 - 9.345			
Monthly income								
Don't know	**149**	**72**	**0.010***	**0.551**	**0.350 - 0.867**	**0.149**	**0.042 - 0.524**	**0.003****
Up to 1000	24	12	0.157*	0.57	0.262 - 1.242			
>1001	65	57	Ref.					
The presence of adverse life event								
No	187	72	Ref.					
Yes	51	69	0.000*	3.514	2.235 - 5.525	2.281	1.236 - 4.211	0.008**
Financial conflict								
Absent	142	40	Ref.					
Present	96	101	0.000*	3.735	2.385 - 5.849	2.176	1.230 - 3.847	0.008**
Anxiety								
No	159	61	Ref.					
Yes	79	80	0.000*	2.64	1.719 - 4.052	2.395	1.258 - 4.559	0.008**

Note* :- P- value < 0.20 of bivariate logistic regression, **:- Statically significant at p < 0.05 & P-value of Hosmer and Lemeshow goodness of fit test was = 0.166

Table 4.

Factors associated with suicidal attempt of participants attending perinatal care at Kutaber District health institution & Boru Meda General hospital, Ethiopia, 2022.

Variables	Suicidal attempt		Bivariate analysis			Multivariate analysis		
	No	Yes	p-value	COI	95%CI	AOR	95% CI	P-value
Marital conflict								
No	136	58	Ref.					
Yes	153	32	0.004*	0.487	0.298- 0.794	0.539	0.294 - 0.988	0.046**
The presence of adverse life event								
No	212	47	Ref.					
Yes	77	43	.000*	2.519	1.545 - 4.107	2.02	1.107 - 3.684	0.022**
Depression								
No	213	59	Ref.					
Yes	76	31	0.135*	1.473	0.886 - 2.446	4.502	2.114 – 9.572	0.038**
Stress								
No	250	60	Ref.					
Yes	39	30	0.000*	3.205	1.843 - 5.573	4.169	1.829 - 9.502	0.001**
Social support								
Low	71	19	0.192*	0.654	0.346 - 1.238	0.498	0.257 - 0.967	0.040**
Moderate	130	35	0.128*	0.658	0.384 - 1.127			
High	88	36	Ref.					
Daytime over sleep								
No	246	71	Ref.					
Yes	43	19	0.165*	1.531	0.839 - 2.792	1.808	0.323 - 0.917	0.021**

Note* :- P- value < 0.20 of bivariate logistic regression, **:- Statically significant at p < 0.05 & P-value of Hosmer and Lemeshow goodness of fit test was = 0.119

PREVALENCE OF SUICIDAL IDEATION AND ATTEMPT AMONG WOMEN IN PERINATAL PERIOD : Suicidal ideation and attempt were reported by 141 (37.2%) with 95% CI, 32.2- 42.1 and 68 (17.9%) with 95% CI, 14.1 – 21.8 respectively. As explained in the methods section we built bivariate & multivariate model of risk factors for suicidal ideation and attempt. In the final model divorced marital status, unknown monthly income, the presence of adverse life event, the presence of financial conflict and anxiety symptoms were variables associated suicidal ideation ($p < 0.05$) (Table 3). Whereas marital conflict, life time adverse event, , low level of social support, daytime over sleepiness depression & stress symptoms were factors associated with suicidal attempt at ($p < 0.05$). (Table 4).

DISCUSSION

The study aimed to determine the magnitude of suicidal ideation, attempt and identifying the determinant factors among women during perinatal period in the eastern part of Amhara, Ethiopia. Accordingly, the prevalence of perinatal suicidal ideation and attempt were (37.2%) with 95% CI, 32.2- 42.1 and (17.9%) with 95% CI, 14.1 – 21.8 respectively.

The prevalence of suicidal ideation in this study (37.2%) were in line with other studies in Nigeria 34.7% in Ethiopia 33.6% . The result of current study was higher than other study conducted in USA 12.2%, 12.5% & 22.3% in United Kingdom 13.6% in Mid-Atlantic region 22.9% in South Africa (24.3%) & 18% in Nigeria 2.9% in Ethiopia 21.7% & 13.3% . Whereas the result of current study was lower than other study conducted in Finland 63%.

The prevalence of suicidal attempt in this study (17.9%) were in line with other studies in Ethiopia among HIV/AIDS Patient 20.1% . The result of current study was higher than other study conducted in USA 20.8% 4.1% & 3.2% in Chicago 11.5% in Nigeria 2.3% & 9.3% . In contrast the result of the current study was lower when compared with other study conducted in Finland 30% (28) and in South Africa 27.5% . The variation might be due to difference in study design, sample size, use of different assessment tools, and social, economic and cultural difference of the study participants.

Regarding associated factor the odds of being divorced marital status were 3.9 times higher(AOR= 3.933, 95% CI:1.169 -13.230) than married women. Similar report was obtained from the study conducted in Denmark and in Ethiopia . This is due to women who undergo divorce face a variety of psychological issue like lower life satisfaction, highly stressed, family disturbance, depression and increased medical visit. All the above negative feeling can enforce a woman to develop suicidal ideation.

Similar with a study conducted in Denmark the odds of unknown monthly income were the protective factors of suicidal ideation in the perinatal period (AOR = 0.149, 95% CI: 0.042 - 0.524). This implies that additional increase of one stage in monthly income (from unknown to know monthly income) is associated with a decrease in the odds of having suicidal ideation. Women with fixed/known monthly income can solve different difficulties on their needs like paying rent, paying bills, being unable to fee educational, health care payments and not having money for emergency conditions. All or most of the above condition solved the women become less likely to have idea of suicidality.

The also revealed that those women who experienced adverse life event were 2 time more likely to have suicidal ideation (AOR= 2.281, 95%CI: 1.236 - 4.211) than those women who didn't experienced. The result is congruent with other studies in USA & in Ethiopia . This might be because life time adverse event creates insecure relationships with their intimates, darken future life, decrease her hopefulness and which also contributes to the development of Suicidal ideation.

Consistent with the study in Germany in US in Athens and in UK financial conflict is significantly associated with suicidal ideation (A= 2.176, 95%CI: 1.230 - 3.847). This might be due to financial conflict leads a psychological distress in the form of depressed mood or irritability to parents, which in turn increases family conflict and has a negative impact on the upbringing and adjustment of family members, which intern result in idea of suicidality.

This finding also revealed that women with anxiety in perinatal period were 2.3 times more likely to have suicidal ideation than their counterparts. This was supported by the study conducted in USA in Canada and in Ethiopia . The possible clarification is that perinatal period is more sensitive time for women and becomes distressing either physically or mentally pregnancy and previous experience of birth can situate women into conditions outside their comfort zones, which also cause anxiety; anxious concern will be about the health of their baby, fear or worry about weight gain, body shape, and being a responsible parent. Therefore, the anxiety might be a potential cause that leads to suicidal behaviors.

On suicidal attempt the odds of experienced adverse life event were 2 times (AOR = 2.020, 95% CI: 1.107 - 3.684) more likely to have suicidal attempt. The result was consistent with other studies in USA & in Ethiopia . This might be because life time adverse event creates different negative impacts on different domain of life like insecure relationships with their intimates, darken continuity of future life, decrease her hopefulness and which also contributes to the development of Suicidal attempt.

Women who had depression symptoms during perinatal period were 4.5 times more likely to experience suicidal attempt (AOR = 4.502, 95% CI: 2.114 - 9.572) than those who doesn't have depression. The result is supported by other study done in Italy in Taiwan in US in South Africa and

in Ethiopia . The fact that the majority of people who have depression don't die by suicide having major depression does increase suicidal risk. But the risk of suicidality may relate to severity nature of depression. This might be due to women live with depression experiences different chemical and emotional disturbance that can lead to the person not understand the available options to relive from their suffering. As a result, they perceive that suicidality is the only way that end up the pain.

Similar to the study conducted in China and in USA we found that social support has been a protective factor for suicidal attempt(AOR= 0.498, 95%CI: 0.257 - 0.967). This implies that additional increase of one stage in social support is associated with a decrease in the odds of having suicidal attempt. This might be higher social support can create many fruitful options and reduce and/or alleviate many distressing factors that increase suicidal activity. So, the finding shows that social support is a highly modifiable factor that can be used to improve existing suicide prevention programs among women.

Daytime sleepiness has been significantly associated with suicidal attempt (AOR= 1.808, 95% CI: 0.323 - 0.917). The result is supported by other study done in . This may be because of daytime overtime sleepiness affect day to day activity. Not only this but also day time over sleepiness result in loss of weight and loss of energy, becoming hopeless and finally they develop depression suicidality. So, These findings emphasize the importance of assessing and intervening daytime sleepiness for preventing suicide in women.

LIMITATION OF THE STUDY: First, the data are cross-sectional and therefore no causal relationships can be inferred. Second, the data are subject to social desirability bias; that is, the women may be less likely to report the outcome variables.

CONCLUSION

According to the results of this study, the prevalence of suicidal ideation and attempt was high in the study area among women who sought perinatal care. Divorced marital status, presence of adverse life event, financial conflict and anxiety symptoms were significantly associated with suicidal ideation. Life time adverse event, daytime over sleepiness, depression & stress symptoms were limiting factor of suicidal attempt. Whereas monthly income and social support were protective factor of suicidal ideation and suicidal attempt respectively. These findings emphasize on the importance of early assessing and intervening various form of factors for preventing suicidal ideation and attempt in women during perinatal period. Therefore, mental health services should be recommended within primary health care centers to prevent suicide ideation and attempt in people who visited obstetric outpatient department for perinatal care in resource - limited settings.

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