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## Prevalence of suicide risk and its associated factors in patients presenting in antenatal clinic

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### Abstract

**Introduction:** Suicide during the antenatal period is one of the major indirect causes of maternal death. This study aims to determine the prevalence of suicidal risk and its related factors among the patients attending the antenatal clinic of a tertiary care center.

**Method:** This is a cross-sectional study conducted in the antenatal clinic Patan Hospital, Lalitpur, Nepal among 124 pregnant patients using purposive sampling and face-to-face interviews applying a semi-structured proforma and P4 suicide screener. Ethical approval was obtained. The percentage of patients with suicide risk was calculated and stratified into minimal, lower, and higher risk of suicide. The association between suicide risk and different sociodemographic and clinical variables was done using the Chi-square test. A p-values  $\leq 0.05$  was considered statistically significant.

**Result:** The prevalence of suicide risk was 32 out of 124 patients (25.8%). When risk stratification was done a maximum of 22(17.7%) had a higher risk for suicide. The risk was associated the employment status ( $p=0.039$ ), history of previous suicide attempts ( $p=0.04$ ), and diagnosed mental disorder ( $p=0.027$ ).

**Conclusion:** Our study shows the suicide risk among antenatal females was 25.8% reaffirming the need for proper screening and referral.

**Keywords:** antenatal period, peripartum suicide, suicide, suicide screen

## Introduction

Pregnancy is related to significant physiological, social, and mental health changes in women's life. Suicide in antenatal period is a major public health concern worldwide and is included among the indirect causes of maternal death.<sup>1</sup> According to the low and middle-income countries studies, the prevalence of antenatal suicide ideation in pregnancy ranged from 5–20%.<sup>2</sup> Maternal Mortality Ratio (MMR) study of 2008/2009 done among women in Nepal has shown that suicide accounts for 16 % of total maternal mortality among 15-45 years of age and has highlighted that suicide among women in Nepal is on rise.<sup>3</sup>

The research has shown the factors like unemployment, low socioeconomic status, single parenting status, less educated, unwanted and unplanned pregnancy, previous suicide ideation and attempt, family history of suicide, presence of co-morbid mental disorder, and co-morbid chronic physical illness, having poor social support, intimate partner violence, and use of psychoactive substances are the main factors that increase the likelihood of suicide ideation and attempt among pregnant women in developing countries.<sup>2,4-6</sup>

It is important to study suicide ideation and attempt among pregnant women to identify mothers who are at the risk of suicide and help in developing intervention programs to reduce maternal mortality and morbidity. Hence, the aim of this study was to determine the prevalence of suicidal risk and its related factors among the patients attending antenatal clinic of Patan Hospital.

## Method

This was a cross-sectional descriptive study with purposive sampling conducted in antenatal clinic of Patan Hospital, Lalitpur, Nepal. Patient who were unable to communicate due to hearing/speech impairment were excluded. The information about the study was be given to the patients,

and an informed written consent was taken (signature; or thumbprint for those who couldn't read/write). The questionnaire was asked to the patients by the investigators, and appropriate response ticked/recorded. No prompting response was given but the doubts were clarified if needed. Informed consent was obtained from all participants or their informant when necessary (e.g. unable to comprehend). Participants were informed that their participation and non-participation or withdrawal from the study at any time without any reason would not hamper their treatment. Confidentiality of the participants was maintained by not including the name or any other information that can reveal their identity. No incentive was given to the participants for participating in the research. During the time of data collection if any patient was found to be suicide screen positive, she was referred to psychiatry OPD of Patan Hospital. Approval of the study was obtained from the Institutional Review Committee (IRC) of PAHS (reference number: drs2211221689)

The semi-structured proforma and P4 suicide screener were used. The proforma consisted of the questions on age, current trimester, employment status, socioeconomic status, single parenting status, education, unwanted, unplanned pregnancy, previous history of attempt, family history of suicide, co-morbid mental disorder, perceived social support, intimate partner violence, and diagnosed mental disorder, and use of psychoactive substances. The suicide risk was assessed using P4 suicide screener. This was originally developed for use by primary care physicians. The Four Ps indicate past suicide attempts, a plan, probability of completing suicide, and preventive factors. This tool has been used in multiple trials and has been regarded as a useful tool in assessing potential risks in clinical care and non-clinical research.<sup>7</sup> This tool has also been used in the studies of Nepalese context.<sup>8</sup> The risk from the tool is determined as minimal, lower and higher. The minimum sample was estimated ( $N = z^2 \times p \times (1-p)/e^2$ ) at 103. Calculated sample size 103 plus 10% extra for incomplete or missing data i.e.,

103+11=114; confidence level (z) of 95%, margin of error (e) of 5%, prevalence (p) of 7.2% from published data.<sup>9</sup>

The data analysis was done after data entry into MS-Excel. A descriptive analysis of the number and frequencies were done. The association between suicide risk (Yes/No) and unemployment, low socioeconomic status, single parenting status, less education, unwanted and unplanned pregnancy, previous suicide ideation and attempt, family history of suicide, presence of co-morbid mental disorder, having poor social support, intimate partner violence, and use of psychoactive substances was done using Chi square test. A p-values  $\leq 0.05$  was considered statistically significant.

## Result

The mean age of 124 patients attending antenatal clinic was 28.8 y (SD=4.6) with majority 97(78.2%) educated more than class eight. Only 9(7.3%) perceived having poor support and 6(4.8%) had single parenting status, Table 1.

The clinical profile showed majority of respondents 72(58.1%) in the third trimester of pregnancy. 5(4%) of the respondents had unwanted pregnancy and 19(15.3%) had unplanned pregnancy. The suicide attempt in past was present among 4(3.2%) of the respondents. 3(2.4%) had family history of suicide, 8(6.5%) had some diagnosed mental disorder. One respondent each had history of substance use and interpersonal violence, Table 2.

**Table 1. Sociodemographic profile of patients presenting in antenatal OPD**

Variables		Frequency	Percentage
Employment Status	Employed	64	51.6
	Unemployed	60	48.4
Age		28.8 years (SD=4.6 years)	
Perceived poor socio-economic status	Yes	9	7.3
	No	115	92.7
Education	None	9	7.30
	Up to class 8	18	14.5
	More than class 8	97	78.2
Single parenting	Yes	6	4.8
	No	118	95.2

**Table 2. Clinical Profile of patients presenting in antenatal OPD**

Variables		Frequency	Percentage
Current Trimester	First	5	4.0
	Second	47	37.9
	Third	72	58.1
Unwanted pregnancy	Yes	5	4.0
	No	119	96.0
Unplanned Pregnancy	Yes	19	15.3
	No	105	84.7
History of suicide attempt	Yes	4	3.2
	No	120	96.8
Family History of suicide	Yes	3	2.4
	No	121	97.6
History of Mental Disorder	Yes	8	6.5
	No	116	93.5
History of Substance Use	Yes	1	0.8
	No	123	98.2
Interpersonal violence	Yes	1	0.8
	No	123	99.2

**Table 3. Prevalence of suicide risk and risk stratification among patients presenting in antenatal OPD**

Variables	Frequency	Percentage
Suicide risk Screen		
Positive	32	25.8
Negative	92	74.2
Suicide Risk Stratification		
Minimal	10	8.1
Lower	1	0.8
Higher	22	17.7

**Table 4. Association of the factors for suicide risk among the patients attending antenatal OPD**

Variables		Suicide risk	No suicide risk	Chi Square/ Fisher's Exact Test
Employed	Yes	22	42	5.072, 1, p=0.039*
	No	10	50	
Perceived poor socioeconomic status	Yes	5	11	p=0.556
	No	27	81	
Single parenting status	Yes	0	6	p=0.337
	No	32	86	
Low Education Status	No education	1	8	p=0.10
	Up to class 8	2	16	
	More than class 8	29	68	
Unwanted Pregnancy	Yes	0	5	p =0.326
	No	32	87	
Unplanned pregnancy	Yes	4	15	p= 0.778
	No	28	77	
Perceived poor social support	Yes	4	28	p=0.235
	No	5	87	
Previous history of suicide attempt	Yes	4	0	p=0.04*
	No	28	92	
Family history of suicide	Yes	1	31	p=1.00
	No	2	91	
Diagnosed mental disorder	Yes	5	3	p=0.027*
	No	27	89	
Intimate partner violence	Yes	1	0	p=0.258
	No	31	92	
Current use of any psychoactive substances	Yes	0	1	p= 1.000
	No	32	91	

The suicide screen positive was among 32(25.8%) of the respondents and when risk stratification was maximum 22(17.7%) had higher risk for suicide, Table 3.

It was seen that the employment status ( $p=0.039$ ), history of previous suicide attempt ( $p=0.04$ ) and diagnosed mental disorder ( $p=0.027$ ) had a statistically significant association with suicide risk. Whereas other variables like perceived poor socio-economic status, single parenting status, education level, unwanted pregnancy, unplanned

pregnancy, perceived poor social support, family history of suicide, substance use and inter personal violence had no statistical significant association ( $p>0.05$ ) for the suicide risk, Table 4

### Discussion

The prevalence of suicide risk among the pregnant mothers attending antenatal clinic was 32 out of 124 patients (25.8%) and this risk was associated with employment status, previous history of suicide attempt and

diagnosed mental illness. This prevalence of suicide risk is higher than in the general population of Nepal i.e. 7.2% that was found in the National mental health survey of Nepal.<sup>9</sup> The prevalence in current study is higher than the prevalence found in the studies among pregnant mothers done in urban India where the prevalence was 7.6 %<sup>10</sup>, Ethiopia where the prevalence was 11.8 %<sup>4</sup>, and Thailand where the prevalence was 17.6%.<sup>11</sup> However, our finding is in line with an epidemiological review study which estimated the prevalence of suicide risk in a range of 13.1–33%.<sup>1</sup> A meta-analysis done among 71 studies with sample size ranging from 23 to 22118 showed the pooled prevalence of suicidal ideation among 10% antenatal mothers and this study has highlighted the variation of prevalence based on measuring tools, study design, study countries, and publication year, while prevalence was not conditional on the time-point assessment, sample size, and maternal age.<sup>12</sup> This variation seen when we compare our study to the studies done in India, Ethiopia and Thailand can be explained on the basis of different scales used in the study. It is a well-known fact that different scales have different psychometric properties and a single scale cannot be considered a gold standard.<sup>13</sup> We used P4 suicide screener whereas studies have used other scales. Also, when the risk stratification was done 22(17.7%) of the respondents had higher risk of suicide in the current study. This shows that there is a definitive risk for suicide in the study sample. Though the prevalence in the studies might vary there is a common consensus that suicide during the prenatal period is a public health concern and needs attention.<sup>5</sup> The Maternal Mortality and Morbidity Study 2008/2009 undertaken by the Family Health Division (FHD) of the Department of Health Services of Nepal did a study among 86,000 women of reproductive age group in eight districts concluded that suicide (16%) rather than maternal related issues (12%) was the single leading cause of death highlighting the problem statement in Nepal.<sup>6</sup> The suicide has been regarded as a major latent public health ailment among women of reproductive age

group in Nepal especially during the period of pregnancy and postpartum.<sup>3</sup>

The suicide risk was associated with employment status, history of previous attempt and history of mental disorder. This finding is in line with the available literature. The history of previous suicidal attempt and history of mental disorder was associated with suicide risk as shown by the meta-analysis of 59 studies sampled a total of 49,929 participants.<sup>14</sup> Also the role of these factors are shown in other studies.<sup>15 16 17</sup> The association of employment status with suicide risk shown in our study is similar to the multicentric study done among 1524 pregnant female in Spain.<sup>18</sup> Though the literature support the association of low socioeconomic status, single parenting status, low education, unwanted and unplanned pregnancy, family history of suicide, poor social support, intimate partner violence, and use of psychoactive substances with the suicide risk; the present study had no significant associations. One of the main reason could be the small sample size. The calculated sample size was based on the prevalence rather than the odds of having associated factors. These factors were taken as self-report; hence the bias might have occurred. Another plausible explanation is the factors in our cultural and social context might be different than evidenced in the western literature. It is important to note that the biopsychosocial risk factors for perinatal suicidal ideation are varied and complex and may need to be explored in a cultural and social context.<sup>19</sup> Hence, there is a need for further qualitative and quantitative research to be done among females experiencing perinatal suicidal ideation to get a deeper understanding of their experiences. There is also a need for further research to identify protective factors for perinatal suicidal ideation. The clinic visits for antenatal care offer important opportunity to screen for suicide risk.<sup>20</sup> Hence the obstetricians could also play important role in screening antenatal suicide risk. While screening is the important first step in early detection of suicide risk, it is imperative to establish a

referral mechanism whereby those who screen positive can be referred for further assessment and intervention in psychiatric clinic.

There are some limitations to this study. The interview was conducted along with the regular antenatal checkup in a busy clinic, under-reporting and providing socially palatable responses relating to suicide is common because of social desirability bias which makes it difficult to determine the accurate magnitude of suicide risk. This study only generates associations of suicide risk and socio-economic, obstetric, and clinical related factors that could not show the cause-effect relationships. Furthermore, as the current study was a cross-sectional study it is difficult to state if there are any changes in suicide risk in different stages of pregnancy.

### Conclusion

This study found the suicide risk to be present among 32(25.8%) of the mothers attending antenatal clinic and when risk stratification was maximum 22(17.7%) had higher risk. Also, the suicide risk was associated with employment status, history of previous suicide attempt and history of mental disorder. Our study reaffirm that the suicide risk is high during the antenatal period and screening with proper referral is must.

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### Conflict of Interest

None

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None

### Author Contribution

Concept, design, planning: RS, PS, SM, SL, PG, LRC, APM; Literature review: RS, PS, AG; Data collection: RS, SM, SL, PG, APM; Data analysis: PS, SG; Draft manuscript: RS, PS; Revision of draft: RS, PS, SM, SL, PG, LRC, AG APM; Final manuscript: RS, PS, SM, SL, PG, LRC, AG APM;

Accountability of the work: RS, PS, SM, SL, PG, LRC, AG APM.

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