



## Prevalence of Suicidal Behavior in Patients with Depressive Episode

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### Abstract

**Objectives:** This research was conducted to study prevalence of suicidal behavior in patients with depressive episode.

**Background:** There is a high risk of suicidal attempt in patients with depression. This risk varies according to the socio-economic status and severity of depression.

**Material and Methods:** This was a hospital based cross sectional descriptive study. Fifty patients with the depressive episode having suicidal ideation or attempt were recruited. Socio-demographic details were evaluated and the Hamilton Rating Scale for Depression (HAM-D) was administered to assess severity of depression and SSI (Scale for Suicidal Ideation) was administered to evaluate severity of suicidal ideation.

**Results:** The prevalence of suicidal ideation was 76% (38) and suicidal attempt was 8% (4) in depressive episode. Male were 54% (27) and female 46% (23). Higher risk of suicidal attempt was found in individuals less than 30 years of age. Married women and farmers were more likely to attempt suicide; lower education, unemployment, financial crisis, relationship problems and history of previous suicidal ideation were the main vulnerability factors. Attempters scored significantly higher in severity of suicidal ideation and degree of depression in comparison to suicidal ideators.

**Conclusion:** Suicidal ideation is prevalent and appears to be a precondition for suicide attempts. The risk factors for suicidal ideation and attempts locate in several clinical and psychosocial domains which are largely overlapped.

**Keywords:** Depression; HAM-D; Risk Factors; SSI; Suicidal Behaviour

### Introduction

Approximately one million people worldwide commit suicide annually. Every 40 seconds a person commits suicide somewhere in the world. It is estimated that every suicide has serious impact on at least six other people. The psychological, social and financial impact on the family and community is immeasurable. Suicidal behaviour includes suicidal ideation, suicide attempt and completed suicide. As a concept it is the tendency, thoughts or acts of self-harming behaviour. It represents considerable psychological distress which is often linked to long-standing adversity and acute life-events [1]. Studies have revealed that suicide is a multifactorial act. The importance of social factors, stressors, familial factors etc has been recognized. The majority of people who commit suicide have a diagnosable mental disorder [2]. Depression is the most important risk factors for all suicidal behavior [3]. According to

World Health Organization (WHO) assessed Global Burden of Disease analysis; depressive has ranked as the fourth leading cause of burden among all diseases [4].

### Methods

It was a hospital based descriptive cross-sectional study that was conducted in National Academy of Medical Science (NAMS), Mental Hospital Lagankhel, Lalitpur among those patients attending for out-patient, emergency and inpatient services from September 2015 to March 2017. This study was conducted after approval from Institutional Review Board (IRB) of National Academy of medical sciences (NAMS), study subjects were enrolled after taking the written informed consents. Clinical diagnosis of depression was made according to the ICD-10 DCR criteria which were verified independently by two psychiatrists. The severity of

the depressive episode was measured objectively using 17 item Hamilton Rating Scale for Depression (HAM-D), scores between 0 and 7 do not indicate the presence of depression, scores between 8 and 13 indicate mild depression, scores between 14 and 18 indicate moderate depression, 19 and 22 indicate severe depression and score over 23 indicate very severe depression [19]. The severity of suicidal ideation was assessed by using Beck scale for suicidal ideation (SSI). It consists of 19 items that evaluate three dimensions of suicide ideation: active suicidal desire, specific plans for suicide, and passive suicidal desire. Each item is rated on a 3-point scale from 0 to 2. The higher the total score, the greater the severity of suicide ideation [20]. Patients included in the study were with the diagnosis of depressive episode having suicidal behavior, age ranging between 20-60 years with drug naïve profile. Patients excluded were with the diagnosis of bipolar disorder with current episode depression, schizoaffective disorder, post schizophrenic depression or another non-affective psychosis, organic or substance-induced mood disorder and those who refused to participate in the study.

Sample size included the initial 50 consecutive patients. The data was obtained by direct interview with the patients and entered in a designed structured proforma. Data entry was done in Microsoft excel 2007 and analysis was done in SPSS version 23. Variables were given in the form of ratio (%). Fisher exact test and Chi-square test was applied to test the association between the socio-demographic variables and risk factors in appropriate situations. To test the statistical differences, mean values between various groups were compared using t-test if there were two groups and ANOVA if there were more than two. A p-value of less than 0.05 has been considered statistically significant.

## Results

### Socio-demographic profiles:

Among 50 patients, there were 54% (27) male and 46% (23) female, with mean age being  $36.6 \pm 12.2$ . Majority of them were married 76% (38) whereas 16% (8) were unmarried. Majority were found to have education up to the secondary level 32% (16), primary 26% (13), and illiterate 14% (7). Regarding occupation, most of them were farmers 24% (12), housewife 16% (8), businessman 14% (7), professionals 12% (6) and unemployed 10% (5). Regarding the socio-economic status most of them belong to the medium class being 58% (29) and low status 24% (12). Most of them 62% (31) were from the hilly region and remaining 38% (19) from Terai, with preponderance of Hindu being 88% (44) (Table 1).

Variables		Number of patients	Percentage
Age (mean $\pm$ SD)		36.6 $\pm$ 12.2	
Age group (year)	20 – 29	16	32.0
	30 – 39	15	30.0
	40 – 49	10	20.0
	50*	9	18.0
Sex	Male	27	54.0
	Female	23	46.0
Marital status	Married	38	76.0
	Widow	3	6.0
	Separated	1	2.0
	Unmarried	8	16.0
Educational status	Illiterate	7	14.0
	Primary	13	26.0
	Secondary	16	32.0
	Higher secondary	7	14.0
	Graduate	6	12.0
	PG and above	1	2.0
Occupational status	Farmer	12	24.0
	Laborer	3	6.0
	Student	5	10.0
	Business	7	14.0
	Housewife	8	16.0
	Unemployed	5	10.0
	Professionals	6	12.0
	Others	4	8.0
Socioeconomic status	Low	12	24.0
	Medium	29	58.0
	High	9	18.0
Place of residence	Terai	19	38.0
	Hill	31	62.0
Religion	Hindu	44	88.0
	Buddhist	5	10.0
	Others	1	2.0

**Table 1:** Demographic characteristics of patient.

### Prevalence of suicidal behavior in depressive episode:

The prevalence of depressive episode in male is 54% (27) and female 46% (23), with ratio being M:F=1.17:1. Similarly, suicidal ideation is 76% (38), with male 58% (22) and female 42% (16), sui-

cidal attempt is 8% (4) with preponderance of female 75% (3) and male 25% (1), non-suicidal being 16% (8) (Table 2).

	Non-suicidal N (%)	Suicidal Ideation N (%)	Suicidal Attempter N (%)	Total N (%)
Overall	8 (16)	38 (76)	4 (8)	50 (100)
Gender				
Male	4 (50)	22 (58)	1 (25)	27 (54)
Female	4 (50)	16 (42)	3 (75)	23 (46)

**Table 2:** Prevalence of Suicidal behavior (suicidal ideation and suicide attempts).

### Relationship between the suicidal behavior and severity of depression:

According to the HAM-D score used to delineate the severity of depression, 40% (20) had severe depression, 28% (12) moderate, 20% (10) very severe and 12% (6) mild depression. Among them majority had suicidal ideation followed by suicide attempter. This study have shown that majority of non suicidal patients were having mild to moderate depression, frequency being 50% (4) and 37.5% (3) respectively. Most of the patients with suicidal ideation were having severe depression 47.4% (18) followed by moderate 28.9% (11) and very severe depression 18.4% (7), implying that suicidal ideation can occur in any degree of depression irrespective of its severity whereas suicidal attempters were having severe degree of depression. Most of them were having very severe depression with 75% (3) of frequency followed by 25% (1) with severe depression, signifying that suicidal attempt is more common in severe depression in comparison to its milder form. This study have shown statistically significant differences between the degree of depression and suicidal behaviour ( $p < 0.001$ ). In comparison, suicidal ideators were found to have a significantly higher level of depression (HAM-D  $19.7 \pm 4.3$ ) than the non suicidal subjects (HAM-D  $12.3 \pm 4.4$ ). In addition, suicide attempters had a higher degree of depression (HAM-D  $23.5 \pm 2.6$ ) than the suicidal ideators (Table 3).

### Risk factors for suicidal behavior

This study have shown role of younger age group as a important risk factor for the suicidal behavior. Fifty percent (2) of attempters were below the age of 30 whereas it's less common in older adults. There are no significant differences in prevalence of suicidal ideation between the age groups though it's more common among younger groups. Higher prevalence of suicidal behavior is

	Non-suicidal N (%)	Suicidal Ideation N (%)	Suicidal Attempter N (%)	Total N (%)
Overall	8 (16)	38 (76)	4 (8)	50 (100)
Severity of depression				
Mild depression <sup>(a)</sup>	4 (50.0)	2 (5.3)	0 (0)	6 (12)
Moderate depression	3 (37.5)	11 (28.9)	0 (0)	14 (28)
Severe depression	1 (12.5)	18 (47.4)	1 (25)	20 (40)
Very severe depression	0 (0.0)	7 (18.4)	3 (75)	10 (20)
HAM-D score, (mean $\pm$ SD) <sup>(b)</sup>	12.3 $\pm$ 4.4	19.7 $\pm$ 4.3	23.5 $\pm$ 2.6	18.8 $\pm$ 5.2
SSI score, (mean $\pm$ SD) <sup>(c)</sup>	0.0 $\pm$ 0.0	8.9 $\pm$ 6.9	26.5 $\pm$ 3.9	8.9 $\pm$ 8.7

**Table 3:** Relationship between the severity of depression and suicidal behaviour.

- (a)  $\chi^2 = 22.885$ ,  $df = 6$ ,  $p = 0.001$  (Significant)
- (b) HAM-D = Hamilton Depression Rating Scale,  $F = 12.884$ ,  $p < 0.001$ , ANOVA
- (c) SSI = Scale for Suicidal Ideation,  $F = 24.441$ ,  $p < 0.001$ , ANOVA

seen in married subjects 76% (32) in comparison to unmarried 14% (6). Seventy nine percent (30) of married people have suicidal ideas whereas 50% (2) of suicidal attempters were married. Both the suicidal ideation and attempt were found to be high in subjects with lower level of education status. Among suicidal ideators 32% (12) had secondary, 29% (11) had primary level of education. Also among suicide attempters, 50% (2) had secondary and 25% (1) had primary level of education. This signifies that suicide attempt was slightly higher among the lower education status. Suicidal ideation being common among farmers 22% (9), housewives 16% (6), with suicidal attempt being more prevalent among farmers 25% (1), housewife 25% (1) and labourer 25% (1), unemployed 25% (1), whereas people with high socioeconomic status have low rate of attempt (Table 4.A).

Different negative life events were found to play important role in suicidal behavior. Among suicidal ideators 42% (10) had financial crisis, 37% (9) relationship problems, 17% (4) demise of loved ones whereas among suicide attempter 50% (2) had relationship problem and other 50% (2) had demise of loved ones, signifying

	Suicidal Ideation N (%)	Suicidal Attempter N (%)	Total N (%)
Overall	38 (76)	4 (8)	50 (100)
Gender			
Male <sup>(a)</sup>	22 (58)	1 (25)	23 (55)
Female	16 (42)	3 (75)	19 (45)
Age (mean ± SD)	37.3 ± 12.6	31.0 ± 9.6	36.6 ± 12.2
Age Group			
20 - 29 <sup>(b)</sup>	12 (32)	2 (50)	14 (33)
30 - 39	12 (32)	1 (25)	13 (31)
40 - 49	6 (15)	1 (25)	7 (17)
50+	8 (21)	0 (0)	8 (19)
Marital status			
Married <sup>(c)</sup>	30 (79)	2 (50)	32 (76)
Widow	3 (8)	0 (0)	3 (7)
Separated	0 (0)	1 (25)	1 (3)
Unmarried	5 (13)	1 (25)	6 (14)
<b>Education</b>			
Illiterate <sup>(d)</sup>	7 (18)	0 (0)	7 (17)
Primary	11 (29)	1 (25)	12 (28)
Secondary	12 (32)	2 (50)	14 (33)
Higher secondary	3 (8)	1 (25)	4 (10)
Graduate	4 (11)	0 (0)	4 (10)
PG and above	1 (3)	0 (0)	1 (2)
<b>Employment status</b>			
Farmer <sup>(e)</sup>	9(22)	1 (25)	10 (24)
Laborer	2 (6)	1 (25)	3 (7)
Student	3 (8)	0 (0)	3 (7)
Business	5 (13)	0 (0)	5 (12)
Housewife	6 (16)	1 (25)	7 (16)
Unemployed	4 (11)	1 (25)	5 (12)
Professionals	5 (13)	0 (0)	5 (12)
Others	4 (11)	0 (0)	4 (10)

**Table 4.A:** Risk factors for suicidal behavior.

- a) Fisher’s Exact, p= 0.313(NS)
- b)  $\chi^2 = 1.445$ , df = 3, p = 0.695(NS)
- c)  $\chi^2 = 10.569$ , df = 3, p = 0.014 < 0.05 (Significant)
- d)  $\chi^2 = 2.763$ , df = 5, p = 0.736 (NS)
- e)  $\chi^2 = 4.587$ , df = 7, p = 0.710 (NS)

that suicidal behavior is high among the relationship issues and financial crisis. Lack of social support was associated with 3% (1) of suicidal ideation, without any relation with suicidal attempt. Child abuse was associated with 3% (1) of suicidal ideation and 25% (1) of suicidal attempt. Chronic physical illness was associated with 16% (6) of suicidal ideation without any relation with suicidal attempt (Table 4.B).

	Suicidal Ideation N (%)	Suicidal Attempter N (%)	Total N (%)
Negative life events			
Financial crisis <sup>(f)</sup>	10 (42)	0 (0)	10 (36)
Demise of loved ones	4 (17)	2 (50)	6 (21)
Relationship problem	9 (37)	2 (50)	11 (39)
Academic problem	1 (4)	0 (0)	1 (4)
Lack of Social support			
Positive <sup>(g)</sup>	1 (3)	0 (0)	1 (2)
Negative	37 (97)	4 (100)	41 (98)
Childhood abuse			
Positive <sup>(h)</sup>	1 (3)	1 (25)	2 (5)
Negative	37 (97)	3 (75)	40 (95)
Chronic physical illness			
Positive <sup>(i)</sup>	6 (16)	0 (0)	6 (14)
Negative	32 (84)	4 (100)	36 (86)

**Table 4.B.** Risk factors for suicidal behavior.

- f)  $\chi^2 = 3.747$ , df = 3, p = 0.290(NS)
- g) Fisher’ Exact, p= 1.000(NS)
- h) Fisher’ Exact, p= 0.184(NS)i) Fisher’s Exact, p = 1.000 (NS)

Thirty two percent (12) of current suicidal ideation was associated with the previous suicidal ideation at some point of time during the current episode whereas 50% (2) of suicide attempters have previous suicidal ideation signifying that suicidal attempt has been found to be strongly related with previous suicidal ideation in comparison to current suicidal ideation. Twenty five percent (1) of current suicidal attempters have history of previous suicidal attempt in the past. This study has shown 3% (1) of suicidal ideators having family history of suicide whereas no relationship with suicidal attempt (Table 4.C).

This study have shown statistically significant differences between the degree of suicidal ideation and suicidal attempt

Suicidal behavior in the past:			
Previous suicidal ideation			
Positive <sup>(i)</sup>	12 (32)	2 (50)	14 (33)
Negative	26 (68)	2 (50)	28 (67)
Previous suicidal attempt			
Positive <sup>(k)</sup>	1 (3)	1 (25)	2 (5)
Negative	37 (97)	3 (75)	40 (95)
Family history of suicide			
Positive <sup>(l)</sup>	1 (3)	0 (0)	1 (2)
Negative	37 (97)	4 (100)	41 (98)

**Table 4.C:** Risk factors for suicidal behavior.

j) Fisher' Exact, p= 1.000(NS)

k) Fisher' Exact, p= 0.590(NS)

l) Fisher' Exact, p= 1.000(NS)

(p<0.001). In comparison, suicidal attempters were found to have a significantly higher level of intent (SSI 26.5 ± 3.9) than the subjects with suicidal ideation (SSI 8.9 ± 6.9). In addition, suicide attempters had a higher degree of depression (HAM-D 23.5 ± 2.6) than the suicidal ideators (HAM-D 19.7 ± 4.3) (Table 4.D).

Severity of depression			
Mild depression <sup>(m)</sup>	2 (5)	0 (0)	2 (5)
Moderate depression	11 (29)	0 (0)	11 (26)
Severe depression	18 (47)	1 (25)	19 (45)
Very severe depression	7 (19)	3 (75)	10 (24)
HAM-D score, (Mean ± SD) <sup>(n)</sup>	19.7 ± 4.3	23.5 ± 2.6	18.8 ± 5.2
SSI score, (Mean ± SD) <sup>(o)</sup>	8.9 ± 6.9	26.5 ± 3.9	8.9 ± 8.7

**Table 4.D.** Risk factors for suicidal behavior.

m)  $\chi^2 = 6.634$ , df = 3, p = 0.085 (NS)

n) HAM-D, t = 1.699, df = 40; p = 0.097(NS), Student's t-test

o) SSI = Scale for Suicidal Ideation, t = 4.992, df = 40, p < 0.001, Student's t-test

## Discussion

This study evaluated the prevalence of suicidal ideation and suicidal attempt among the patients with depressive episode along with the socio-demographic profiles, relationship between the severity of depression and suicidal behavior. We also examined the risk factors associated with depression and its different role in between the patients with suicidal ideations and suicidal attempts.

Patients with suicidal ideation or suicide attempts clearly had a higher level of overall psychopathology in comparison with the non suicidal. Prevalence of suicidal ideation is higher than suicidal attempt, 76% (38) of the patients reported suicidal ideation during the current episode. Comparable findings were shown by the studies done by Zisook, *et al.* where the prevalence of suicidal ideation was 69% in patients with MDD, 21.8% (4) had attempted suicide at the baseline, whereas non suicidal were 16% (8). This study signifies that the higher level of depression is associated with increased risk of suicidal behavior. As the severity of depression is increased, individual is more prone towards suicidal attempt which is reflected by this study where 47.4% (18) of suicidal ideators had severe depression and 75% (3) of suicidal attempter had very severe depression followed by 25% (1) with severe depression. Accordingly, we have noted statistically significant differences between the degree of depression and suicidal behaviour (p<0.001).

The prevalence of depression is higher among the males 54% (27) in comparison with female 46% (23). Also the prevalence of suicidal ideation is higher among males 58% (22) in comparison with the females 42% (16). It is in contrast to the other studies, which commonly shows females preponderance. One reason could be that, in our cultural perspective male have dominant roles among the family members, as a main source of income and other safety measures. Any disturbances in their health matters could have a great negative impact. So they may seek early medical attention in comparison to female which may have played role for increased male number in this study. However, suicidal attempt is more common in female being 75% (3), followed by 25% (1) male, which is in contrast with the other studies that commonly shows higher rate of attempt in male. However, study done by Schmidtke, *et al.* 1996 shows comparable findings, with high incidence of female attempters (22). The higher rate of female suicidal attempt may be explained from situational, psychological and sociocultural perspectives. The situational problems of economic deprivation, financial insecurity and family discord could be the predisposing factor for a psychological conflict. This is accentuated by the low position of the women in the family with absolute dependence on men. Suicidal behavior is commonly seen among the young people in comparison to elderly. This study has shown the role of younger adult as an important risk factor for suicide attempt. Majority 50% (2) of attempters were below the age of 30, which shows congruency with the other studies. Narang, *et al.* in his study found 73% of the attempters were <30 years of age [23]. Whereas there is no significant differences in prevalence of suicidal ideation between

the age groups. As most of our study subjects fall within medium and low socio-economic status, further financial problems, difficulty with safe jobs, problem arising out of marriage take place increasingly during the early phase of life of young adults who have lesser tolerability of stress and may have relatively less coping abilities. That might have increased the risk of suicide. To get a more comprehensive trend in this area, a study with a much larger sample should be conducted.

This study have shown statistically significant difference in between the suicidal behavior and marital status with higher prevalence of suicidal behavior in married subjects 76% (32) in comparison to unmarried ones 14% (6). Fifty percent (2) of suicidal attempters and 79% (30) suicidal ideators were married. This finding was in concurrence with the study conducted by Srivastava, *et al.* where 73.3% of individuals with suicidal behavior were married (24, 25). The more number of married people may reflect the early age of marriage in Nepal, as compared to western countries. Patients with low education and medium to low income group were more likely to attempt suicide. This study have shown suicidal attempt being more common among farmers 25% (1), labourer 25% (1), housewife 25% (1) and unemployed 25% (1) whereas people with high socioeconomic status have lower rate. Suicidal ideation is also common in farmers 22% (9) and housewives 16% (6). However, Kessler, *et al.* also found that poorly educated subjects were more vulnerable to suicidal attempts probably due to low intelligence and coping abilities. Financial crisis 42% (10) is seen as the most important culprit for suicidal behaviour among the groups. Agriculture is the main occupation of living in Nepal. Farmers have been facing a number of socioeconomic problems, such as poverty, harassment by money lenders, inability to repay debts, crop loss, inability to get medical treatment and employment for the family, absence of adequate social support and infrastructure at the level of the village and district, lack of political will and insight in this region. Daily stressful life may act as some contributing factors. Other reason could be the setting of our study which is a government hospital, most of the people visiting here belong to medium to low socioeconomic status as it is cheaper in comparison to private hospital settings. Also the large sample size is required for finding deep information in this area.

The risk factors for suicidal ideation and attempts appeared largely to overlap (26, 27). Like demise of the loved ones and relationship problems have shown major contribution in suicide attempt 50% (2), along with suicidal ideation. History of previous suicidal ideation is an important risk factor for current suicidal attempt. Fifty percent (2) of suicide attempters have previous suicidal idea-

tion however; current suicidal ideators 32% (12) had previous suicidal ideation at some point of time during the current episode. Other risk factors like victim of childhood abuse, history of previous suicidal attempt 25% (1) have shown to play role in suicidal attempt. However study with larger sample in the future is required to know their distinct role in suicidal ideation and attempt.

This study has few limitations including, it's a cross sectional study with a small sample size which may be inadequate in terms of interpretation of the results. Being a hospital based study findings could not be generalized and applied on community [5-18,21-27].

## Conclusion

All patients expressing suicidal ideation do not attempt suicide. Young patients with severe degree of depression, especially married women, having low socioeconomic and education status, relationship problems and severe suicidal ideation are more likely to attempt suicide. Suicidal ideation is prevalent and appears to be a precondition for suicide attempts. The risk factors for suicidal ideation and attempts locate in several clinical and psychosocial domains which are largely overlapped. The overall level of psychopathology of suicide attempters is higher comparison with ideators. The severity of depression may be of particular importance in predicting suicide attempts.

Early recognition of suicidal behaviour and its risk factors among may improve the outcome. By reducing the severity and duration of the depressed state with more intensive treatment may be an effective measure for the prevention of suicidal acts.

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