Assessing suicidality in patients with depressive disorder

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ABSTRACT
BACKGROUND
Depression is a major public health problem. Irrespective of socio-economic status, age, education, gender and it exists in every community. Suicidal risk is most common life-threatening situation among depressed individuals. According to World Health Organization (WHO), every year about 1 million people die from suicide and 20 times more people attempt suicide. Up to 50 % of persons with depressive disorder will make a suicide attempt at least once in their lifetime. There is a wide disparity in the rates of suicide across different countries and hence, a greater understanding of region-specific factors related to suicide would enable prevention strategies to be more culturally sensitive. We intended to study suicidal behaviour in depressive disorder in Indian population as understanding of region-specific factors related to suicide helps to plan culturally sensitive preventive strategies.
METHODS
130 subjects diagnosed as suffering from depressive disorder according to International Classification of Disease (ICD-10) diagnostic criteria for research, who were having suicidal ideation were selected. The subjects were divided into two groups as suicidal attempters and non-attempters, and analysed using the Hamilton Depression Rating Scale (HAMD) to rate the severity of depression and Hamilton Anxiety Rating Scale (HAMA) to assess severity of anxiety and Columbia Suicide Severity Rating Scale (C-SSRS) was used to assess severity of suicidal behaviour. Columbia risk assessment version was used to determine risk factors and protective factors and a semi-structured proforma was used to collect the socio-demographic details of the participants.
RESULTS
High HAMA and HAMD score, urban residence, unemployment and agitation were found to be significantly associated with the presence of suicidal attempt.
CONCLUSIONS
Urban residence, unemployment, severity of depression and anxiety, and agitation were found to be associated with increased risk of suicidal attempts. Responsibility to family or living
KEYWORDS *Suicidal Ideation, Agitation, Depression, Anxiety with family was found to be associated with decreased risk of suicidal attempts.*

I. BACKGROUND

Suicide has become an enormous public health problem around the world. According to WHO, every year about 1 million people die from suicide and 20 times more people attempt suicide.

Definitions of suicidal behaviour as per recent consensus, suicidal behaviours are classified into 3 categories.

1. Suicidal ideation: It refers to thoughts of engaging in behaviour intended to end one's life.

2. Suicidal plan: It refers to the formulation of a specific method through which one intends to die.

3. Suicidal attempt: It refers to engagement in potentially self-injurious behaviour in which there is at least some intent to die.

Risk factors for suicide include female gender, unemployment, low educational status, history of mood disorder, previous suicide attempts, hopelessness and with protective factors being religious beliefs and practices, social support, perception of social and family support. Suicidal behaviour is common in patients with depressive disorders, up to 50 % of persons with depressive disorder will make a suicide attempt at least once in their lifetime. Despite an increase in the treatment of patients with suicidal behaviour, still there is a raise in the incidence rates. According to WHO, suicide rate in India is 25.8 per 100000 population per year in males and 16.4 per 100000 population per year in females. There is a wide disparity in the rates of suicide across different

countries hence, a greater understanding of regional-specific factors related to suicide would enable prevention strategies to be more culturally sensitive. In India suicide rates are highest among older males and marital status is not a strong protective factor as 70 % of suicidal attempters in India are married at their attempt. Low educational status, unemployment and stressful events in life are risk factors. Holy sculptures condemn suicide and there were practices like 'Sati' and 'Johar'. In a psychological autopsy, 24 % of patients who committed suicide in India had unipolar depression or bipolar disorder. As the protective factors and risk factors for suicide in Indian population differs from that of Western studies, further studies are needed in this aspect. Not all patients who suffer from mood disorders attempt suicide despite of their major suffering. It is obvious that mood disorders alone don't contribute to suicidal behaviour, other factors also play a role. The main protective factors in Western context like religiosity, marital status may not be applied for developing countries as recent studies shows, 70.4 % of victims of suicide in India are married. An understanding of suicide in Indian context calls for understanding of literacy, religious and cultural aspects of the subcontinent. We intended to study suicidal behaviour in depressive disorder in Indian population as understanding of region specific factors related to suicide helps to plan culturally sensitive preventive strategies.

Objectives
1.   To estimate the proportion of suicidal attempters among the study subjects.
2.   To determine the risk factors and protective factors among study subjects.
3.   To assess the severity of depression and anxiety among the study subjects.

METHODS
This is a cross-sectional observational study conducted over a period of 1 year (September 2021 to August 2022). Subjects who participated in the study were recruited from the ASRAM medical college,Eluru, Andhra Pradesh. Sampling techinique used is random sampling. Study sample size was 130 subjects.

Inclusion Criteria
1. Subjects who were between 18 and 60 years of age.
2. Subjects who fulfilled the ICD-10 criteria for research of depressive disorder.
3. Subjects who had given written informed consent to the study.

Exclusion Criteria
1. Subjects who were diagnosed with schizoaffective disorders.
2. Subjects who were diagnosed with bipolar depression.
3. Subjects with known severe medical illness.

Operational Procedure
Informed and written consent was taken from all subjects and their caregivers. For diagnostic assessment, all subjects had undergone structured clinical interview for ICD-10 diagnostic criteria for research. Following diagnosis, rating scales were applied to know the severity of illness. Hamilton Depression Rating Scale was used to rate the severity of depression and Hamilton Anxiety Rating Scale was used to assess severity of anxiety and Columbia Suicide Severity Rating Scale was used to assess suicidal ideation, suicidal intent, suicidal behaviour and lethality of attempt (if any) and to differentiate between suicidal behaviour and non-suicidal self-injurious behaviour. Columbia risk assessment version was used to determine risk factors and protective factors. All the subjects were treated under naturalistic conditions with pharmacotherapy, psychoeducation and psychotherapy.

Statistical Analysis
        Data was entered in MS-Excel and analysed by using SPSS V26 trail version. Descriptive statistics are represented with percentages; mean with standard deviation (SD). Independent t-test was used to determine the difference between HAMA and HAMD scores and comparison of mean age between the two groups, chi-square test was performed to test the differences in proportions of categorical variables between two groups. The level of $P < 0.05$ was considered as the cut off value or significance.

II.   Results

        The study was conducted among 130 subjects who were diagnosed of having depression. Based on the suicidal attempt in the history, the study subjects were grouped as suicidal attempters (30) & suicidal non-attempters (100). The mean age of the suicidal attempters & suicidal non-attempters was found to be 35.1 ± 11.04 and 38.11 ± 9.99 respectively. Of the 30 suicidal attempters, 36.7 % (N = 11) were residing in rural and remaining 63.33 % (N = 19) were living in urban areas. Of the 100 suicidal non-attempters, 61.00 % (N = 61)

were residing in rural and remaining 39.00 % (N = 39) were living in urban areas. The P-value was 0.019, which was statistically significant. Of the 30 suicidal attempters, 80.00 % (N = 24) were unemployed and remaining 20.00 % (N = 6) were employed. Of the 100 suicidal non-attempters, 57.00 % (N = 57) were unemployed and remaining 43.00 % (N = 43) were employed. The P-value was 0.023, which was statistically significant.

Table1.ComparisonofSocio-DemographicParametersof SuicidalAttemptersandNon-Attempters					
Suicidal **Variables** **(N=30)** **Count**		**Attempters** **%**	**SuicidalNon-Attempters** **(N=100)** **Count**	**%**	**P-Value**
Age	18–30	12 40%	22	22%	
	31–45	14 47%	58	58%	0.13
	46–60	4 13%	20	20%	
Gender	Male	6 20%	39	39%	0.05
	Female	24 80%	61	61%	
Literacy	Literate	13 43%	42	42%	0.2
	Illiterate	17 57%	58	58%	
Maritalstatus	Married	23 77%	84	84%	0.35
	Unmarried	7 23%	16	16%	
Socioeconomic status	Middle	14 47%	30	30%	
	Lowermiddle	7 23%	40	40%	0.159
	Lower	9 30%	30	30%	
Domicile	Rural	11 37%	61	61%	0.019
	Urban	19 63%	39	39%	
Employment status	Unemployed	24 80%	57	57%	0.023
	Employed	6 20%	43	43%	

The mean HAMD score of the 30 suicidal attempters is 29.2 with a standard deviation of 6.07, whereas the mean HAMD score of the 100 suicidal non-attempters was 26.29 with a standard deviation of 3.82. In an independent sample t-test, the P-value was 0.002, which indicates that HAMD scores of suicidal attempters were significantly higher than that of suicidal non-attempters.

Table 2. HAMD Scores in Suicidal Attempters and Non-Attempters				
HAMDScore	**N**	**Mean**	**SD**	**PValue**
Suicidalnon-attempters	100	26.29	3.82	
				0.002*
Suicidalattempters	30	29.20	6.07	

The mean HAMA score of the 30 suicidal attempters was 22.26 with a standard deviation of 4.97, whereas the mean HAMA score of the 100 suicidal non-attempters was 19.01 with a standard deviation of 4.04. In an independent sample t-test, the P-value was 0.0004, which indicates that HAMA scores of suicidal attempters were significantly higher than that of suicidal non-attempters.

Table 3 HAMA Scores In Sucidal Attempters and Non-Attempters				
HAMAScore	**N**	**Mean**	**SD**	**PValue**
Suicidalnon-attempters	100	19.01	4.04	
				0.0004
Suicidalattempters	30	22.26	4.97	

60.00 % of suicidal attempters had agitation or severe anxiety compared to 24.00 % of suicidal non-attempters. The P-value was 0.019 which was statistically significant

Table4.ClinicalStatusRelatedRiskFactors

AttemptersNon-Attempters					P
Agitation orsevere anxiety	18	60.00%	24	24.0%	0.019*
Command hallucinations to hurt self	5	16.66%	2	2.0%	0.62
Aggressive behaviour towards others	11	36.70%	6	6.0%	0.18
Highly impulsivebehaviour	9	30.00%	1	1.0%	0.55
Methodofsuicideavailable	15	50.00%	4	4.0%	0.104
Substanceabuse or dependence	6	20.00%	1	1.0%	0.66
Familyhistoryofsuicide	6	20.00%	3	3.0%	0.51
Refuses or feels unable to agreetosafety plan	5	16.66%	3	3.0%	0.58
Perceived burden on family or others	3	10.00%	9	9.0%	0.94
Hopelessness	28	93.20%	94	94%	0.87

Of the suicidal attempters, 30.00 % were living with family / responsible towards family compared to 52.22 % in suicidal non-attempters. The P-value was 0.0001, which was statistically significant

Table 5. Protective Factors

AttemptersNon-Attempters N		%	N	%	P Value
Agitation orsevere anxiety	18	60.00%	24	6.94%	0.019*
Command hallucinations to hurt self	5	16.66%	2	2.70%	0.62
Aggressive behaviour towards others	11	36.70%	6	8.33%	0.18
Highly impulsivebehaviour	9	30.00%	1	1.38%	0.55
Methodofsuicideavailable	15	50.00%	4	4.16%	0.104
Substanceabuseordependence	6	20.00%	1	1.38%	0.66
Familyhistoryofsuicide	6	20.00%	3	1.38%	0.51
Refuses or feels unable to agree tosafety plan	5	16.66%	3	1.38%	0.58
Perceived burden on family or others	3	10.00%	9	9.00%	0.94
Hopelessness	28	93.20%	94	93%	0.87

III.   DISCUSSION

The mean age of the suicidal attempter's group was 35.10 years with SD 11.04 and that of suicidal non attempters was 38.11 years. In a study by Oquendo MA et al. on persons with depression and bipolar disorder, the mean age of suicidal attempters was 34.7 years with SD 10.7, among non-attempters, mean age was 32.7 with SD 11.1. In this study, among suicidal attempters group majority were females 80 % (N = 24) and 20 % (N = 6) were males. In suicidal non attempter group 39 % (N = 39) were males and females were 61 % (N = 61). In this study gender was not found to be significantly associated with suicidal attempts. This is in line with findings of Pompili M et al. who concluded that gender was not significantly associated. Among suicidal attempters' group, 76.66 % (N = 23) were married and 23.335 (N = 7) were unmarried. In suicidal non attempters' group 84 % (N = 84) were married and 16 % (N = 16) were unmarried. Marital status is not found to be significantly associated with suicidal attempts in this study, which is in line with review by Radhakrishnan R, et al. which concluded that marital status is not a strong protective factor for suicide in developing countries. Of the 30 suicidal attempters, 36.7 % (N = 11) were residing in rural and remaining 63.33 % (N = 19) were living in urban areas. Of the 100 suicidal non-attempters, 61.00 % (N = 61) were residing in rural and remaining 39.00 % (N = 9) were living in urban areas. The P-value was 0.019, which was statistically significant. In a review by

Radhakrishnan R et al. and study by Khan FA et al. suicides and suicidal attempts were reported higher in urban areas because of living and workplace related stressors. Of the 30 suicidal attempters, 80.00 % (N = 24) were unemployed and remaining 20.00 % (N = 6) were employed. Of the 100 suicidal non-attempters, 57.00 % (N = 57) were unemployed and remaining 43.00 % (N = 43) were employed. The study by Srivastava AS et al. and Oquendo MA et al. stated that employment status is not associated with risk of suicidal attempts in depression. The mean HAMD scores of suicidal attempters are significantly higher than that of suicidal non-attempters which is in line with Oquendo MA et al. study which stated that more severe depression is associated with an increased risk of suicidal attempts in patients with mood disorders. The mean HAMA score of the suicidal attempters are significantly higher than that of suicidal non-attempters in this study. This is in line with Balazs J et al. which stated that the comorbid anxiety symptoms and anxiety disorders were significantly associated with the risk of suicide attempts in persons with mood disorders. In this study there is a significant association between agitation or severe anxiety with suicidal attempts. This is in line with the study by Balazs J et al., who stated that the presence of agitation or anxiety increases all forms of suicidal behaviour in persons with mood disorders. This is because the presence of increased psychomotor activity increases the chance of acting over the suicidal ideas. In this study, responsibility to family and living with family had a protective role. These findings are in parallel with findings of Berecz R et al. who concluded that good family and social support seem to have a protective effect on suicidal attempts in mood disorders.

IV. CONCLUSIONS

Urban residence, unemployment, severity of depression, anxiety, and agitation were found to be associated with increased risk of suicidal attempters. Responsibility to family or living with family was found to be associated with decreased risk of suicidal attempts.

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