

## Risk Factors for Suicidal Attempts Among Lower Socioeconomic Rural Population of Telangana Region

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### ABSTRACT

**Background:** Suicide is an act of intentionally causing one's own death. Number of suicidal incidences is proportional to attempted suicide cases hence if attempt cases are reduced, number of suicidal death can also be decreased and for that purpose risk factors should be identified and reduced. Therefore, this study is planned to identify risk factors among lower socioeconomic rural population of surrounding areas of Hyderabad in India. **Materials and Methods:** This was a prospective study in which all the suicide attempt cases reported at Bhaskar Medical College and General Hospital were included. The study period was from January 2013 to July 2013. They were undergone a detailed psychiatric interview, including their demographic details, and complete suicide risk assessment was done using Beck's suicide intent scale. **Results:** It was found that females in the age group of 20-30 years, uneducated, married and daily laborers by occupation had higher incidence of suicidal attempts. Depressive disorder is the most common associated psychiatric disorder in both the genders, followed by alcohol use related problems. Family disputes are the other major risk factors. Most common mode for attempt was organophosphorous poisoning followed by ingestion of calotropis. **Conclusion:** Risk of suicide attempt is almost equal in terms of medium and high category of suicide assessment scale in both genders. We suggest that all individuals with alcohol related disorders must be screened for suicidal ideation so that appropriate methods can be adopted to reduce the risk.

**Key words:** Alcoholism, Beck's suicide intent scale, depression, suicide

### INTRODUCTION

Suicide of which the literal meaning is "to kill oneself" is an act of intentionally causing one's own death. It is usually committed out of despair. The reasons are mostly related with some mental disorders such as depression, bipolar disorder, schizophrenia, alcoholism, or sometime drug abuse.<sup>[1]</sup> The triggering

factor is stress which is many times related with either financial difficulties or troubles within their personal relationships. It is 10<sup>th</sup> leading cause of death worldwide in which around 800,000 to a million people die every year and an estimated 10-20 million nonfatal attempted suicides occur each year.<sup>[1-3]</sup>

In India, most suicides are under-reported and very little data is available about attempted suicides. Indian Union Health Ministry estimated that around 1.2 lakh people commit suicide, and over 4 lakhs people attempt suicide in India. Unfortunately, 11% of these cases are reported from Andhra Pradesh state of India.<sup>[4]</sup> National Crime Record Bureau of India reported that in last three and half decades an increase in 175% of suicidal rate is observed and one suicide occurs in every 5 min in India although the suicidal act is made illegal

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in the country under the section 309 and 306 Indian Penal Code (IPC) and even attempt to commit suicide is part of criminal activity under section 309 of IPC.<sup>[5]</sup>

Number of suicidal incidences is proportional to attempted suicide cases hence if attempt cases reduced number of suicidal death can also be decreased and for that purpose risk factors should be identified and reduced. There are number of risk factors for suicide which varies according to country, culture, religion, gender, age, and social values.<sup>[5]</sup> Hence, the present study is planned to identify risk factors among lower socioeconomic rural population of both genders of surrounding areas of Hyderabad region of India as little data is available. Moreover, Hyderabad is a very important densely populated metropolitan city of South India. Surrounding rural population including rural population of adjoining districts also faces the socioeconomic stress of the city. Most of the cases in our institute hail from lower socioeconomic background. Therefore, it is important to properly understand the risk factors for attempted suicide cases of little studied lower socioeconomic class rural population so that suitable policies and programs can be initiated for prevention.

## MATERIALS AND METHODS

This was a prospective study in which all the suicide attempt cases reported at Bhaskar Medical College and General Hospital were included. It was conducted during the period of January 2013 to July 2013. Studied population belongs to surrounding rural areas of Hyderabad region of India. All the cases were diagnosed and managed by emergency and General Medicine Department of the Institute and as per the routine standard protocol, were referred to psychiatric outpatient department for further evaluation and intervention, once the patients were medically became fit for the psychiatric interview.

All the patients clearly making an attempt on their life by themselves or assisted by someone were included, and accidental cases of poisoning were excluded from the study. These patients have undergone a detailed psychiatric interview including their demographic details and complete suicide risk assessment was done using Beck's suicide intent scale. The end point of the psychiatric management was counseling and treatment in the form of medication and follow-up for further management. Permission was granted by Institutional Ethics Committee and Institutional Authorities for the study.

## RESULTS

In this study, a total of 36 patients were studied in

which 20 were females, while 16 were males. Mean age was 25 years for female, and 34 years for males, the age difference was statistically significant ( $P < 0.05$ ) in them. Minimum age of the female was 16 years and the maximum was 40 years, while in the male it was 18 years and 70 years respectively. In both the groups, most of the cases were in between the age group of 21 and 30 years [Table 1].

More than 50% subjects were uneducated in both groups. In females majority of the subjects (75%) were in the category of uneducated to secondary education while in males same trend is seen, but the numbers were much higher (93.75%). Moreover, in the female group, substantial number of subjects (20%) was intermediate passed, while in males, no intermediate qualified subject was seen. As far as a profession is concerned the subjects were housewife, laborer, students, and low income self-employed or were farmers. About 25% male subjects were farmers and 50% were laborer, while in the female group 35% were housewife and 45% were laborer [Table 2].

In both groups majority of subjects were married. Their married life ranged in between <1 and >10 years of

**Table 1: Age group distribution — female (n=20), male (n=16)**

Age in years	Female		Male	
	Number	%	Number	%
16-20	4	20	2	12.5
21-30	13	65	7	43.75
31-40	3	15	4	25
41-50	0	0	1	6.25
>50	0	0	2	12.5
Mean	25*		34*	
Standard deviation	4.03		16.11	
Standard error of mean	1.34		5.99	
P value	P=0.029			

\*P value significant

**Table 2: Education and profession**

Variables	Female		Male	
	Number	%	Number	%
Education				
Uneducated	10	50	9	56.25
Up to secondary school	5	25	6	37.50
Intermediate	4	20	0	0
Undergraduate	1	5	1	6.25
Work				
Housewife	7	35	NA	NA
Laborer	9	45	8	50
Student	2	10	0	0
Low income self-employed	2	10	3	18.75
Unemployed	0	0	1	6.25
Farmer	0	0	4	25

NA – Not applicable

marriage. In the male group almost 40% subjects were in the category of >10 years of married life. 15% females were pregnant at the time of suicide attempt. Majority of females (75%) and males (56.25%) subjects had dependent children between 1 and 3 kids [Table 3].

Majority of subjects attempted suicide 1<sup>st</sup> time although 10% female and 6.25% male attempted 2<sup>nd</sup> time. Most of the females (75%) were free from any kind of substance use, and only 25% of them occasionally took toddy. In case of males, most of them (62.5%) were consuming alcohol regularly, although 25% of males are nonalcoholics and the rest (12.5%) were occasional users. Apart from alcohol and toddy, subjects in both groups were not involved in any kind of drug or substance use. At the time of attempt, 31.25% males were under the influence of alcohol [Table 4].

Most of the males took organophosphorus (87.5%) for suicide attempt followed by calotropis (12.5%) while the majority of females also took organophosphorus (45%) followed by rat poison (15%), known/unknown tablets (15%), phenyl (10%), animal/plant energy mix (10%) and calotropis (5%) [Table 5].

Among the study population, 10 individuals met the criteria for alcohol dependence syndrome and 14 had depression. Five of them met the criteria for both alcohol dependence and depression.

Psychiatric disorders accounted to 66.7% of the total study group. Most of them had depressive disorder (38.9%), followed by alcohol dependence syndrome (27.8%). Both of them together were present in 13.8% of the individuals [Table 6].

On the suicide assessment scale in isolation parameter, Score 2 was predominantly observed in females (70%), while in males Scores 2 and 3 was equal (43.8% each). On timing parameter, Score 2 was mainly seen in both the genders (65% females and 56.3% males), while in precautions against discovery/intervention parameter, Score 1 was predominant in both the genders (70% females and 68.8% males). Score 2 was also common in acting to get help during/after attempt parameters in both the groups [Tables 7 and 11].

Score 1 was mainly observed in final acts in anticipation of death (female 95%, male 93.8%), active preparation for attempt (female 90%, male 56.3%) and a suicide note (100% in both groups) parameters although 31.3% males Scored 2 on active preparation for attempt parameter. Most of the female and male subjects Score 2 on overt communication of intent before attempt parameter (female 80%, male 75%). On alleged purpose or intent parameter, Score 3 was common in females (70%) while

in males Score 3 was observed in 50% subjects and Score 2 in 43.8% individuals [Tables 8 and 11].

On expectations of fatality parameter, Score 3 was more common in females (60%) while in males Score 2 was common (68.8%). On the conception of method's

**Table 3: Marital status and children**

Variables	Female		Male	
	Number	%	Number	%
Marital status				
Married	16	80	14	87.50
Unmarried	4	20	2	12.50
Married life in years				
<1 year	0	0	2	12.50
2-5 years	6	30	3	18.75
6-10 years	5	25	2	12.50
>10 years	5	25	7	43.75
Not applicable	4	20	2	12.50
Dependent children				
Nil	1	5	3	18.75
1	5	25	2	12.50
2-3	8	40	7	43.75
4-6	2	10	2	12.50
Not applicable	4	20	2	12.50

**Table 4: Attempts, substance use, substance influence**

Variables	Female		Male	
	Number	%	Number	%
Number of attempts				
1 <sup>st</sup>	18	90	15	93.75
2 <sup>nd</sup>	2	10	1	6.25
Alcohol use pattern				
Nil	15	75	4	25
Occasional	5	25	2	12.5
Regular	0	0	10	62.5
Under influence of alcohol				
Yes	0	0	5	31.25
No	20	100	11	68.75

**Table 5: Methods/substances for suicide attempt**

Methods/substances	Female		Male	
	Number	%	Number	%
Organophosphorus/pesticides	9	45	14	87.5
Calotropis	1	5	2	12.5
Rat poison	3	15	0	0
Known/unknown tablets	3	15	0	0
Phenyl	2	10	0	0
Animal/plant energy mix	2	10	0	0

**Table 6: Prevalence of psychiatric disorders**

Psychiatric illness	Number	Percentage
Alcohol dependence	10	27.8
Depressive disorder	14	38.9
Comorbidity	5	13.8
Total	24	66.7

lethality parameter, Score 2 was common in both the genders (females 65%, males 68.8%) and also in seriousness of attempt parameter Score 3 was more common in both the genders (females 60%, males 68.8%). We observed Score 3 predominantly in females (60%) and males (60%) on the attitude toward living/dying parameter although Score 2 was also seen in the high number of subjects (females 40%, males 43.8%). Score 2 was the predominant in both the genders (females 80%, males 68.6%) although the number of female subjects were higher in comparison to their male counterparts on the parameter of conception of medical rescuability. Most of the subjects of both the genders (females 75%, males 68.6%) Scored 1 on the degree of premeditation parameter [Tables 9 and 11].

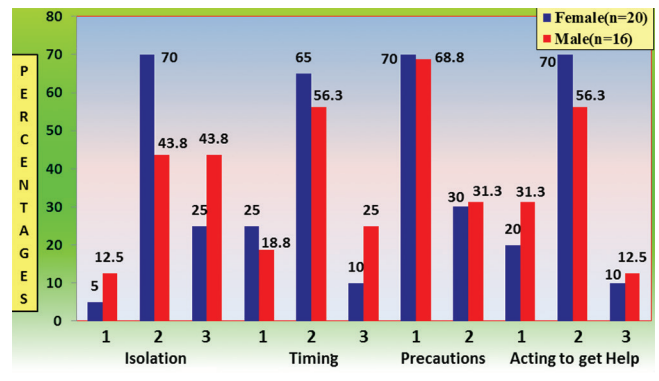
When we assessed total score of all the parameters of suicide assessment scale it was found that in the female group equal number of (50% each) cases were in medium (total score between 20 and 28) and high risk (>28) categories. In the male group, number of males with medium risk were slightly more (56.3%) in comparison to high risk group (43.8%). In both groups, not a single case was found to be in low risk category [Tables 10 and 12].

## DISCUSSION

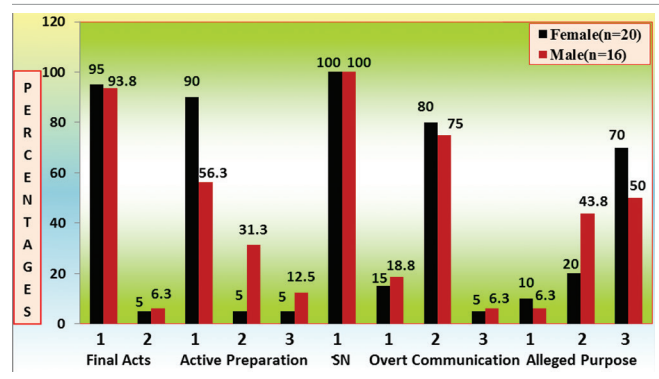
This prospective study was conducted to explore the sociodemographic variables in individuals with suicidal attempt in which females ( $n = 20$ ) have outnumbered males ( $n = 16$ ). Kessler *et al.*,<sup>[6]</sup> also found female in dominance in their study, but Das *et al.*,<sup>[7]</sup> have reported a higher incidence of suicide attempts in males when compared to females in Indian population, which is contrast to our finding in South India. Das *et al.*,<sup>[7]</sup> suggested that the trend might be because of higher responsibility of males in the family financial issues that contributes to increased exposure to stressful events. Bashir *et al.*,<sup>[8]</sup> and Kiran *et al.*,<sup>[9]</sup> also observed male dominance in their respective studies in tribal and urban regions of India. But in our study, this difference could be because of the study population considered. Most of our study population is from the rural background and both husband and wife work as daily laborers, sharing equal amount of stress at work. Besides this females have additional family responsibilities at home which in fact make them more prone for stress than males. Joseph *et al.*,<sup>[10]</sup> also found female dominance in rural regions of India.

With increasing age, there was a decline in the number of the individuals who attempted suicide. People in 21-30 years age group had more suicidal rate than those belonging to other age groups. With the increasing age, individuals develop more adaptability to the stressful conditions, helping them to encounter challenging

**Table 7: Scores on suicide assessment scale**

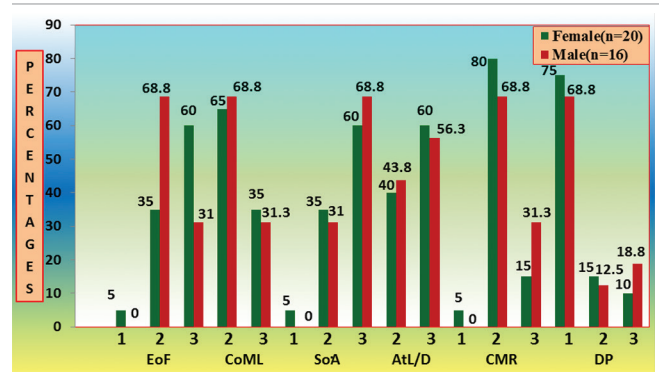


**Table 8: Scores on suicide assessment scale**



SN – Suicide note

**Table 9: Scores on suicide assessment scale**

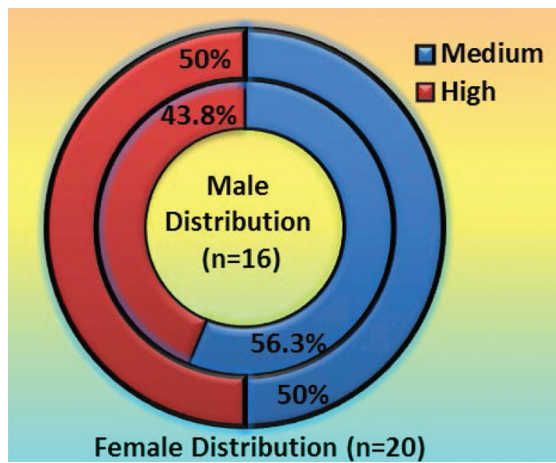


\*EoF – Expectations of fatality, CoML – Conception of method’s lethality, SoA – Seriousness of attempt, AtL/D – Attitude towards living/dying, CoMR – Conception of medical rescuability, DP – Degree of premeditation

situations in a better way, thus contributing to lesser incidence of suicides. This finding is in accordance with the study done by Nandi *et al.*,<sup>[11]</sup> on incidence rates of suicide in West Bengal, which concluded that the vulnerable age group being those between the ages of 18 and 30 years. Bashir *et al.*,<sup>[8]</sup> and Kanchan and Menezes<sup>[12]</sup> also observed a similar trend.

High proportion (87.5%) of the individuals who

**Table 10: Total score on suicide assessment scale**



**Table 11: Scores on suicide assessment scale**

Suicide intent scale question	Score 1		Score 2		Score 3	
	Female	Male	Female	Male	Female	Male
Isolation	1	2	14	7	5	7
Timing	5	3	13	9	2	4
Precautions	14	11	6	5	0	0
Acting to get help	4	5	14	9	2	2
Final acts	19	15	1	1	0	0
Active preparation	18	9	1	5	1	2
Suicide note	20	16	0	0	0	0
Overt communication	3	3	16	12	1	1
Alleged purpose	2	1	4	7	14	8
Expectations of fatality	1	0	7	11	12	5
Conception of method's lethality	0	0	13	11	7	5
Seriousness of attempt	1	0	7	5	12	11
Attitude towards living/dying	0	0	8	7	12	9
Conception of medical reusability	1	0	16	11	3	5
Degree of premeditation	15	11	3	2	2	3

**Table 12: Total score on suicide assessment scale**

Categories of risk of suicide intent	Female	Male
Low risk	0	0
Medium risk	10	9
High risk	10	7
Total	20	16

committed suicide was married and out of total married females 15% were pregnant at the time of the attempt. Marital conflicts, family stress and financial issues would have contributed to the increased number of suicides in married group. Ramdurg *et al.*,<sup>[13]</sup> also found predominance of married individuals in their study of which was conducted to find out sociodemographic profile clinical factors and mode of attempt of suicide attempt.

Majority of the study group attempted suicide by

pesticide consumption. Eddleston *et al.*,<sup>[14]</sup> observed that most of people of developing countries live in rural regions and they are involved in agriculture and farm small areas of land. These farmers keep all their agriculture materials including pesticides, commonly within, or close to, the household. The easy availability of these pesticides when the individual is impulsive would have contributed to the high number of them attempting by this method.

Most of the individuals (62.5%) had regular intake of alcohol and 31.25% of the study population attempted suicide under the influence of alcohol. This could be probably because of the impulsivity, lack of ability to think logically during the intoxicated state. Hufford,<sup>[15]</sup> in his study found that alcohol intoxication increases suicide risk up to 90 times, in comparison with abstinence. Mann *et al.*,<sup>[16]</sup> also reported that, constructs related to aggression and impulsivity confers additional risk for suicidal behavior among persons with alcohol dependence.

About 25% of the females in study population had the habit of taking alcohol. This is in accordance with the study conducted by Potukuchi and Rao<sup>[17]</sup> in which there was a high prevalence of alcohol intake in the females of rural population of this region.

In this study, diverse precipitating factors for suicide attempt were observed. Including quarrel with close relatives, husbands or fathers were alcoholic and abusive, over all family disputes stand as a major reason for the suicidal attempt. This finding is in harmony with the findings of Siwach and Gupta, who reported that marital disharmony, economic hard ships and disagreement with other family members as the major precipitating factors for suicide.<sup>[18]</sup> Depressive disorders were diagnosed in 38.9% of individuals and stands as the most common associated disorder. Parkar *et al.*,<sup>[19]</sup> in Mumbai region of Indian also observed similar trend, as in their studied population 40% of individuals with intentional self-harm were suffering from depression and significant number of them also had alcohol use related disorders. Increased risk of suicide with alcohol intake has been reported in many other studies also.<sup>[20,21]</sup>

## LIMITATIONS

The individuals included in the study were referred from other departments of the institute. Therefore, this may not represent all the individuals who had attempted suicide as there is a chance of people not consulting Psychiatry Department. A few individuals were referred to other health care institutes or expired during the medical management were not included in the study. Our sample size is low, which may not be

generalized to greater population. No scales were used to assess the severity of precipitating factors.

## CONCLUSIONS

We conclude that in the studied population risk of suicide attempt is almost equal in terms of medium and high category of suicide assessment scale in both the genders. Females in between the age group of 20 and 30 years, uneducated, married and daily laborers by occupation are involved more than males and thus such category of females have greater risk for suicide attempt. Depressive disorders are most common associated psychiatric disorders in both the genders, followed by alcohol use related problems. Family disputes are the other major risk factors in this population. Most common mode for attempt is organophosphorous poisoning followed by ingestion of calotropis. We suggest that all the individuals with alcohol related disorders must be screened for suicidal ideation, so that appropriate methods can be adopted to reduce the risk.

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