

A Case Control Study on Factors Influencing Suicide Attempts

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ABSTRACT

Aim: We aim to study psychosocial, socio-demographic and personality related factors associated with suicide attempts. **Methods:** From 1st September 2018 to 28th February 2019, we conducted a hospital-based case control study in Department of Psychiatry, Government General Hospital, Guntur, India. One hundred forty-five cases and one hundred forty five age and sex matched controls were selected for study. Eysenck Personality Questionnaire, Modified kuppaswamy scale, Presumptive Stressful Life Event Scale, Suicide Intent Scale were used. Statistical analysis was done using computerized software. **Results:** Majority (n=69, 47.58%) of the suicide attempters were between 21-30 years of age. The number of suicide attempters are more in rural areas than in urban areas and it is statistically significant with an Odds Ratio 2.39. The risk of suicide attempts is more in people who are uneducated (OR – 1.51). It was observed that being an alcoholic will increase the risk of suicide attempt (OR-1.73). The average of PSLES score of individuals is more in case group (166.8) than control group (111.386). Having a family history of suicide attempts will increase the risk of suicide attempt (OR -2.28). **Conclusion:** Residing in rural areas, alcoholism, having no support from family members and having more stress full life events emerged as predominant risk factors for attempting suicide.

Key words: Suicide attempt, Socio-demographic factors, Personality traits, Stressful life events, Suicide intent, Psychiatric illnesses.

INTRODUCTION

Suicide can be defined as death caused by self-directed injurious behaviour with an intent to die as a result of the behaviour whereas Suicide attempt is a non-fatal, self-directed, behaviour with an intent to die as a result of the behaviour; might not result in injury.¹ Suicide attempt may occur up to 20 times more frequently than completed suicide. Suicide attempt is mostly associated with adverse long-term situations like psychiatric and medical comorbidity, hospitalization, repeated suicide attempts, poverty, chronic stress and stigma.² India's contribution to global suicides increased about 11.3% from 1990 to 2016. India comprised about 17.8% of world population but accounted for 36.6% of suicides among women and 24.3% among men in 2016.³ A total number of 6226 suicides were reported in Andhra Pradesh in the year 2015 among them 1916 that is 30%

of the suicides were due to illness which is the 3rd highest percentage share in all India average of suicides due to illness. Rate of suicides in Andhra Pradesh during the year 2105 is 12.1 per one lakh population.⁴ Suicidal behaviour has a large number of hidden (under) causes. The factors that place people at risk for suicide are complex and interact with one another. Identifying these factors and understanding their roles in suicidal behaviour are central to prevent suicides.⁵ People with a diagnosed mental health condition are shown to be at a higher risk of attempting and completing suicide,⁶ with more than 90% of suicides and suicide attempts having been found to be associated with a psychiatric disorder. Across the globe, the highest rates of suicide were associated with depressive disorders across the globe.⁷ In order to clearly understood the role of

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various factors in promoting an individual to attempt suicide will help the clinicians, psychologists, family member and social health activists working on prevention of suicide and reducing stigmatization about suicide in predicting those people who are vulnerable to attempt suicide and also keep the individuals away from those risk factors that promotes suicidal ideation. Understanding the relationship between various psychiatric illnesses (depression, stress, alcohol withdrawal syndrome, bipolar disorder, schizophrenia) and suicide attempts will help clinicians to take proper preventive care in order to prevent suicide attempts and also to counsel the victims. Understanding various frequent modes of suicide attempt will help in taking precautionary measures in order prevent those types of attempts? Associating Level of intent of suicide attempt with mode of attempt will help to know whether the victim made the suicide attempt in order to die or it is an attention drawing gambit. It will also help to counsel the survived victims in order to prevent further attacks.

MATERIALS AND METHODS

This is a hospital-based case control study conducted at Department of Psychiatry, Government General Hospital, Guntur. A total number of 290 individuals, 145 cases and 145 controls were interviewed in 6 months of duration i.e. 1st September 2018 to 28th February 2019. Ethical approval was obtained prior conducting the study from institutional review board. Information was collected from all the individuals in case group and control group only after getting proper informed consent. In the case group data was collected from the suicide attempted individuals who were referred to psychiatry department for psychological assessment and from psychiatric inpatients with a history of suicide attempt. Information was collected from the individuals only after getting proper informed consent. Age and gender matched controls were included in the study who were either family members or friends of other inpatients who were admitted with other illnesses in the psychiatry department. Socio-economic status of subjects was categorized based on modified Kuppaswamy socio-economic status scale, to measure the intensity with which a person attempted a suicide “suicide intent scale” was used. Eysenck’s personality questionnaire with 90 questions on extraversion, neuroticism and psychoticism was used to assess the personality traits in both case group and control group later the mean average scores of each trait was compared between both the groups. Average number of stressful events in a person’s life was measured using Presumptive stressful life events scale. Statistical analysis was done using computerized software. Descriptive statistics like percentages, means,

odd ratio and confidence intervals was computed. *t*-tests for independence and correlation tests was done for different variables and parameters.

RESULTS

Gender ratio is equal in both cases and controls and as a whole female population is a more than male population in our study. Majority of subjects who have attempted suicide are in the age group 21 to 30 (Table 1).

The number of suicide attempts is more in rural areas than in urban areas and it is statistically significant with an odds ratio 2.39. When marital status of individuals was taken into consideration the risk of suicide attempt is more in those who are living away from his partner (OR -7.3) and who are widowed (OR - 2.4). The risk of suicide attempts is more in people who are uneducated (OR – 1.51). Education can be considered as protective factor against attempting suicides having an odds ratio of <1 (Table 2).

Unskilled manual workers are at risk of attempting suicide (OR- 1.18). The odds ratios of upper lower and lower class are indicating the increased risk of attempting suicide. These results are not significant as the odds ratio includes 1. A total of 49 subjects among case group and 33 subjects among control group were alcoholics. It is observed that being an alcoholic will increase the risk of suicide attempt (OR-1.73) (Table 3).

Having a family history of suicide attempt may increase the risk of suicide attempt (OR - 2.28). Individuals without any social support are more in case group than control group. Having no support from family members significantly increases the risk of attempting suicide attempt (OR- 2.76) (Table 4).

The average mean score of PSLES score of individuals

Table 1: Gender and age wise distribution among cases and controls.

	Case group (n=145)	Control group (n=145)
Gender		
Male	64(44.13%)	64(44.13%)
Female	81(55.86%)	81(55.86%)
Age Group		
18-20	22(15.17%)	22(15.17%)
21-30	69(47.58%)	69(47.58%)
31-40	35(24.13%)	35(24.13%)
41-50	12(8.27%)	12(8.27%)
51-60	5(3.44%)	5(3.44%)
61-70	2(0.133%)	2(0.133%)

is more in case group when compared to control group and the mean average scores of extraversion is more in control group whereas mean average score of neuroticism and psychoticism is more in case group (Table 5).

Among individuals with psychiatric illnesses more number of individuals with major depressive disorder have attempted a suicide or had a history of suicide attempt. Highest reported reason for attempting a suicide

among individuals in case group is marital conflicts followed by financial problems (Table 6).

Suicide attempts made by insecticide and pesticide poisoning are more in number when compared to other modes of suicide attempts. Majority of individuals made a suicide attempt with medium intent. Individuals who have past history of suicide attempts are very less in number (Table 7).

Table 2: Comparison of residential status, marital status and level of education of cases and controls.

	Case group (n=145)	Control group (n=145)	Odds ratio (95% CI)	P value
Residential status				
Rural	93(64.13%)	62(42.75%)	2.39 (1.49- 3.84)*	<0.05*
Urban	52(35.86%)	83(57.24%)		
Marital status				
Married living together	92(63.4%)	98(67.58%)	0.83(0.51-1.35)	0.52
Married but living separately	7(4.82%)	1(0.068%)	7.3(0.89-60.14)	1.78
Married and separated legally	2(0.13%)	1(0.068%)	2.01(0.18-2.46)	2.30
Single	37(25.5%)	42(29.65%)	0.84(0.5-1.41)	0.58
Widowed	7(4.82%)	3(0.20%)	2.4(0.61- 9.47)	1.69
Level of education				
Primary	35(24.13%)	39(26.89%)	0.84(0.49-1.41)	0.56
Secondary	24(16.55%)	25(17.24%)	0.91(0.49-1.67)	0.23
Higher secondary	17(11.72%)	23(15.86%)	0.72(0.38-1.38)	0.71
Uneducated	62(42.75%)	49(33.79%)	1.51(0.94-2.42)	0.89
Undergraduate	7(4.82%)	9(6.20%)	0.79(0.21-3.02)	0.41

Table 3: Comparison of occupation, socioeconomic status and alcohol intake between case group and control group.

Occupation	Case group (n=145)	Control group (n=145)	Odds ratio (95% CI)	P value
Unskilled manual work	82(56.55%)	76(52.41%)	1.18(0.74-1.88)	1
Skilled	18(12.41%)	23(15.86%)	0.75(0.39-1.46)	1.29
Business	8(5.51%)	8(5.51%)	1(0.36-2.74)	0.71
Unemployed	35(24.13%)	36(24.82%)	0.96(0.56-1.65)	0.26
Professional	2(1.37%)	2(1.37%)	1(0.14-7.2)	0.08
Socio-economic status				
Upper	2(0.13%)	3(0.20%)	0.66(0.11-4.02)	0.81
Upper middle	21(14.48%)	29(20%)	0.68(0.37-1.25)	0.09
Lower middle	38(26.2%)	44(30.34%)	0.82(0.49-1.36)	0.89
Upper lower	73(50.34%)	60(41.3%)	1.44(0.9-2.28)	1.21
Lower	11(7.58%)	9(6.20%)	1.24(0.5-3.09)	1.42
Alcohol intake				
Alcoholics	49(33.79%)	33(22.75%)	1.73(1.03-2.91)*	<0.05*
Non-alcoholics	96(66.20%)	112(77.24%)		

Table 4: Comparison of family history of suicide attempt and social support between case group and control group.

Family history	Case group(n=145)	Control group(n=145)	Odds ratio (CI)	
Yes	13(8.96%)	6(4.13%)	2.28 (0.84-6.18)	
No	132(91.03%)	139(95.86%)		
Social support				P value
Parents	55(37.93%)	69(47.58%)	0.67(0.42-1.07)	0.78
Relatives	55(37.93%)	61(42.06%)	0.84(0.53-1.35)	0.56
No support	35(24.13%)	15(10.34%)	2.76(1.43-5.31)*	<0.05*

Table 5: Comparison of average mean score of presumptive stressful life events scale between cases and controls.

Average mean score	Case group (n=145)	Control group(n=145)
PSLES		
Case group	166.8	111.386
EPQ		
Extrovert	9.593103	11.93793
Neurotic	11.17931	7.917241
Psychotic	3.758621	1.986207

Table 6: Presence or absence of Psychiatric illnesses and reason for suicide attempts in the case group.

Psychiatric disorder	Case group (n=145)
Major depressive disorder	11(7.58%)
Schizophrenia	4(2.75%)
Alcohol dependence syndrome	4(2.75%)
Bipolar disorder	4(2.75%)
Borderline personality disorder	2(0.137%)
Antisocial personality	1(0.068%)
Psychosis	2(0.137%)
Reason for suicide attempt	
Marital conflicts	42(28.96%)
Family conflicts	26(17.93%)
Under alcohol influence	7(4.82%)
Office conflict	2(0.137%)
Financial problems	38(26.20%)
Love failure	6(4.13%)
Loneliness and lack of support	6(4.13%)
HIV discrimination	1(0.68%)
Death of child	1(0.68%)
Unwanted marriage	3(0.20%)
Health problems and/or psychiatric illness	13(8.96%)

Table 7: Different modes of suicide attempts, suicide intent of subjects and number of previous attempts in case group.

Mode of suicide attempt	
Pesticide or insecticide poisoning	53(36.55%)
Rodenticide poisoning	46(31.72%)
Tablets ingestion	22(15.17%)
Household products ingestion	8(5.51%)
Cuts	9(6.20%)
Burns	1(0.068%)
Unknown poison	5(3.44%)
Gas leak	1(0.068%)
Suicide intent	
Low intent	43(29.65%)
Medium intent	67(46.20%)
High intent	35(24.13%)
Previous suicide attempts	
None	124(85.51%)
One attempt	12(8.27%)
Two attempts	2(0.137%)
More than two attempts	7(4.827%)

DISCUSSION

The present study is an attempt to find out socio-demographic, personality and psychological factors associated with suicide attempt. In our study suicide females who have attempted a suicide are more than males similar results were observed in other studies also.^{8,9} Majority of subjects who have attempted suicide are in the age group 21 to 30. Which is in agreement with other studies as well where majority of suicide attempted individuals falls under age group 20 to 29⁹ the number of suicide attempts were observed to be more in rural areas than in urban areas. An Odds Ratio 2.39 indicates the risk of suicide attempt is more in population residing in

rural areas is more than urban areas and it is statistically significant. The risk of suicide attempt is more in those women who are married and living separately (OR -7.3), married and separated legally (OR-2.01) and widowed (OR - 2.4) These results are in agreement with other studies as well where they stated that suicides were more in widowed population.¹⁰ The number of subjects who are uneducated in case group is more than control group. The risk of suicide attempts is more in people who are uneducated (OR – 1.51). These findings from our study are in agreement with other researches where uneducated individuals are more in case group who made a suicide attempt as well as literate individuals are more in control group.⁹ It is observed that being an alcoholic will increase the risk of suicide attempt (OR-1.73). Similar results were observed in other studies also where more number of alcoholics were present in case group.⁸ Among individuals with psychiatric illnesses more number of individuals with major depressive disorder have attempted a suicide or had a history of suicide attempt. Similar correlation was observed in other studies also.¹¹ Having a family history of suicide attempts will increase the risk of suicide attempt (OR -2.28) similar results were observed in other studies as well where individuals with positive family history of suicide attempt are present in case group.⁹ The mean PSLES score of case group (166.8) is more than the score of control group (111.386) similar results were observed in other studies also.¹² Suicide attempts made by individuals using pesticide or insecticide and rodenticide poisoning were more in case group. Oral poisoning with insecticides and pesticides is the commonest mode adopted due to their easy availability.¹³ More number of subjects in case group attempted suicide with medium intent which is contrary to the results of some studies.¹¹

CONCLUSION

Findings from the study indicate that being residing in rural areas, alcoholism, having no support from family members and having more stress full life events are the risk factors for attempting suicide. Providing moral support in the form of family and friends, helping the individuals to avoid alcohol will prevent the suicidal ideations and attempting suicide.

Limitations

1. Small sample size
2. Lesser duration of study
3. This study was limited by potential biases due to self-report measures as well as the case control study design.
4. This study was conducted in a tertiary care teaching

govt. Hospital where more number of people will come from rural areas with poor economic status.

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CONFLICT OF INTEREST

The authors declare no conflict of interest

ABBREVIATIONS

EPQ: Eysenck's Personality Questionnaire; **HIV:** Human Immune Deficiency Virus; **PSLES:** Presumptive Stressful Life Events Scale; **WHO:** World Health Organisation.

SUMMARY

This study aims to determine psychosocial, socio-demographic and personality related factors associated with suicide attempts. This is a hospital-based case control study conducted for 6 months in the Department of Psychiatry, Government General Hospital, Guntur, India. One hundred forty-five cases and one hundred forty five age and sex matched controls were selected for study. Ethical approval was obtained prior conducting the study from institutional review board. Majority ($n=69$, 47.58%) of the suicide attempters were between 21-30 years of age. The number of suicide attempters are more in rural areas than in urban areas. The risk of suicide attempts is more in people who are uneducated (OR – 1.51). It was observed that being an alcoholic will increase the risk of suicide attempt (OR-1.73). The average of PSLES score of individuals is more in case group (166.8) than control group (111.386). Having a family history of suicide attempts will increase the risk of suicide attempt (OR -2.28). Findings from the study indicate that being residing in rural areas, alcoholism, having no support from family members and having more stress full life events are the risk factors for attempting suicide.

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