

A study of psychosocial factors in attempted suicides attending a tertiary care hospital in Kanchipuram, South India

Asgar Alam¹, Shailaja Bandla^{2*}, Srinivasa Gopalan³, Zubaida Sultana⁴, Sivachidambaram B⁵

^{1,5}Psychiatrist, ²Associate Professor, ³Emeritus Professor, ⁴Assistant Professor, Dept. of Psychiatry, ¹VS Hospitals And Chennai National Hospitals, Chennai, Tamil Nadu, ²Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research foundation Chinoutpalli, ^{3,4}Meenakshi Medical College and Research Institute, Kanchipuram, Tamil Nadu

***Corresponding Author: Shailaja Bandla**

Email: sailajachoudhury@gmail.com

Abstract

Introduction: Suicide attempt is a self-injurious behavior with a non-fatal outcome. An insight into psychosocial factors and methods used can be used to device effective preventive strategies.

Aims: The aim is to study the psycho-social factors and to find the frequency of different methods used in attempted suicides.

Materials and Methods: This study is a descriptive, cross-sectional, hospital-based analysis of attempted suicides. 44 consecutive attempted suicides admitted in the emergency ward and referred to the Psychiatry department were taken into the study. A Semi-structured intake Performa consisting of socio-demographic data, detailed history of current suicide attempt, and access to means were noted. MINI (Mini International Neuropsychiatric Interview), Hamilton Depression rating scale, Beck's suicide intent scale, and Barratt's impulsiveness scale were used to screen the patients. SPSS 20 was used for statistical analysis.

Results: In the study it was found that majority of people who attempted suicide were of young age, females, married, fully employed, belonged to class IV socioeconomic status and attempts were made equally during day and night. The most common method was drug-overdose followed by poisoning with Organo-Phosphorous compounds. Mental illness was found only in 34% individuals, of which most common was depression. And one-fourth of the individuals had contact with General Practitioner within one month of the suicide attempt.

Conclusion: The need for psycho-education and social skills training in adolescents and young adults is implicated in the study. Awareness among the general physicians about suicide prevention would help in bringing down the number of attempts as would strict control of, over the counter drugs and storage of organo-phosphorous compounds.

Keywords: Suicide, Methods, Depression, Drug overdose.

Introduction

Suicide is one of the biggest killers in the world. In the last 2 decades suicide rate in India has increased from 7.9 to 10.3 per 1,00,000¹ and continues to rise each year. According to the National Crime Records Bureau (2013) data Tamil Nadu reported the highest number of suicidal deaths in 2012 and second highest in 2013 and 2014.²

The word suicide is derived from Latin, meaning "self-murder". If successful, it is a fatal act that fulfills the person's wish to die. Interest in "attempted suicide" as distinct from suicide arose with the observation, amongst others of Stelzner (1906),³ Dahlgren (1945),⁴ and Stengel (1952).⁵ Until then, workers on 'self-murder' either did not recognize or ignored the difference between suicide and suicidal attempt. Suicide attempt is a self-injurious behavior with a non-fatal outcome accompanied by evidence that the person intended to die.

Patients at risk for suicide and those who harm themselves and attempt suicide are frequently brought to hospitals for help and treatment. The assessment includes the evaluation of the circumstances, stress, planning, and the method employed. The examination of potential factors which increase the risk of suicide is mandatory. The medical consequences of suicide will have to be managed.

Acknowledging distress, elicitation of patient perspective, understanding the context and stress, provision of support and education, discussion of general and specific measures of coping, negotiating a treatment plan, and regular review and follow up is necessary. Psychotropic medication,

psychiatric referral, and hospitalization are required for those with persistent and high risk.

Suicide is an event that is contributed to by a variety of factors. One of the most common is the distress a person experiences as a result of various problems in his or her life. These may include conflicts and problematic relationships, financial hardship, failure in examinations and in love, difficulties at workplace, humiliation, and shame. These problems may be acute or may be long-standing and chronic.⁶

The presence of psychiatric illness, substance use disorders, severe medical illness (such as cancer, head injury, peptic ulcer disease, HIV/AIDS and chronic pain), and an individual's personality structures are some of the other factors that result in suicidal ideation.

The most common psychiatric conditions seen in primary care that can lead to suicidal ideation include depression, psychosis, personality disorders, and substance abuse. The presence of a psychiatric disorder increases a person's risk of attempting suicide. Studies have found that more than 90% of suicide victims had a psychiatric disorder at the time of suicide.^{7,8}

Keeping these factors under consideration, the present study aims to document the various psycho-social factors and to find the frequency of different methods used for attempting suicide in the rural population in and around Kanchipuram, a town in south India. An insight into psychosocial factors and methods used can be used to device effective strategies to prevent suicide to some extent.

Materials and Methods

44 consecutive subjects who attempted suicide, admitted in the emergency ward and referred to the psychiatry department were enrolled into the study after taking written informed consent.

Inclusion Criteria

1. All patients above 18 years of age.
2. Both sexes.

Exclusion Criteria

1. Patients who did not give their consent.
2. Patients who had a severe medical illness or those who sustained a severe injury during suicide that interfered with history taking.

Tools

A Semi-structured intake Performa consisting of socio-demographic data, detailed history of current suicide attempt, and access to means was used. The Performa consisted of various queries like employment, socioeconomic status, urban or rural area, method of attempt and lethality of attempt, any previous suicide attempt or any past psychiatric illness, any family history of suicide and the support system of the family.

Mini (mini international neuropsychiatric interview) 5.0:⁹

It is a structured diagnostic interview for the diagnostic evaluation of common mental disorders. It provides diagnosis according to ICD-10 and DSM-IV criteria and thus could be used internationally. It is a brief and comprehensive screening tool to help look for underlying conditions.

HAM-D (Hamilton Depression Rating Scale) rating scale:¹⁰ It is a clinician-rated scale aimed at assessing depression severity among patients.

Beck’s suicide intent scale:¹¹ The Suicide Intent Scale is an interview-administered measure of the seriousness of the intent to commit suicide among patients who have actually attempted suicide. The SIS consists of 15 items that quantify an attempter’s verbal and nonverbal behavior prior to and during the most recent suicide attempt.

Barratt’s impulsiveness scale: (BIS-11)¹²

The BIS-11 was developed to assess impulsivity. The BIS-11 provides 3 sub-dimensional scores of impulsivity.

Motor impulsiveness, non-planning impulsiveness, and attentional impulsiveness. The 3 scores on these subtypes combined to provide a total impulsivity score. The BIS-11 is a self-administered questionnaire with 30 items total score of ≥ 75 could indicate an impulse-control disorder, whereas a total in the range of 70-75 could indicate pathological impulsivity. The study was approved by the institutional ethics committee. Appropriate ethical approval procedures were followed while taking consent from subjects and also in conducting the research.

Statistical Analysis

Data were analyzed using SPSS 20 version software. Continuous and categorical data were represented by frequencies and proportions. Chi-square test was used as a test of significance for qualitative data. p-value < 0.05 was considered as statistically significant.

Results

The socio-demographic details of the subjects who attempted suicide are presented in Table 1.

Table 1: Socio-demographic data

		Frequency	Percent
Age	15 to 20 yrs	13	29.5
	21 to 25 yrs	14	31.8
	26 to 30 yrs	8	18.2
	31 to 35 yrs	4	9.1
	36 to 40 yrs	4	9.1
	51 to 55 yrs	1	2.3
Sex	Male	21	47.7
	Female	23	52.3
Area	Rural	24	54.5
	Urban	20	45.5
Family	Alone	3	6.8
	Nuclear	26	59.1
	Joint	15	34.1
Marital status	Single	17	38.6
	Married	25	56.8
	Divorced	1	2.3
	Widowed	1	2.3
Education status	Primary school	4	9.1
	Middle school	8	18.2
	Secondary	15	34.1
	University	17	38.6
Currently student	No	34	77.3
	Yes	10	22.7
Religion	Hindu	36	81.8
	Christian	5	11.4
	Muslim	3	6.8
Religious	No	17	38.6
	Yes	27	61.4
Employment	No or Housewife	20	45.5
	Full time	24	54.5
Socio economic status	II	6	13.6
	III	16	36.4
	IV	18	40.9
	V	4	9.1

Table 2 shows data on attempted suicides

Table 2: Data on attempted suicides

		Frequency	Percent
Method of attempt	OPC Poisoning	12	27.3
	Other Poisoning	8	18.2
	Hanging	5	11.4
	Drug overdose	15	34.1
	Others	4	9.1
Suicide attempt Place	Home	31	70.5
	Others	13	29.5

Suicide attempt Time	7 to 12 pm	8	18.2
	12 to 4 pm	9	20.5
	4 to 7 pm	6	13.6
	7 pm to 7 am	21	47.7
Lethality	Low	6	13.6
	Medium	14	31.8
	High	24	54.5
Previous attempt	No	32	72.7
	Yes	12	27.3
Physical illness	None	40	90.9
	Acute	1	2.3
	Chronic	3	6.8
Last contact with GP	<1 month	10	22.7
	1 to 6 months	21	47.7
	6 months to 1 year	11	25.0
	> 1 year	2	4.5
Substance use disorders	None	32	72.7
	Alcohol	10	22.7
	Alcohol Plus Smoking	2	4.5
Physical disability	No	43	97.7
	Yes	1	2.3
Family History	None	28	63.6
	Suicide	7	15.9
	Suicide attempt	2	4.5
	Addiction	2	4.5
	Mental illness	5	11.4
	Total	44	100.0
Social support	None	2	4.5
	Family	41	93.2
	Friends	1	2.3

Table 3: Distribution of subjects according to mini and barratt's impulsivity scale

		Frequency	Percent
MINI	None	32	72.7
	MDD (Major depressive disorder)	9	20.5
	MDD + Melancholy	2	4.5
	BPAD (Bipolar affective disorder)	1	2.3
	Total	44	100.0
Barratt's Impulsivity Scale	NIL	29	65.9
	Pathological Impulsivity	14	31.8
	Impulse Control Disorder	1	2.3
	Total	44	100.0

In 73%, the MINI score was normal, 20.5% had Major depressive disorder, 4.5% had MDD + Melancholy and in our study, 2.3% had BPAD (Bipolar affective disorder). In the study, 31.8% had pathological impulsivity and 2.3% had Impulse control disorder as per BIS-11. (Table 3)

31.8% of subjects had moderate HAMD score and 29.5% had mild HAMD score. Among those screened as MDD using the MINI scale, HAM-D showed the majority had moderate and severe depression with 5(45.6%) each. 1(9%) had very severe depression.

Table 4 lists various reasons cited by the subjects for the suicidal attempt.

Table 4: Reasons for suicide attempts

		Frequency (n=44)	Percent
Physical reasons	None	42	95.5
	Illness	2	4.5
Psychological reasons	Impulsiveness	37	84.1
	Mental illness	7	15.9
Social reasons	None	2	4.5
	Family	10	22.7
	Interpersonal	13	29.5
	Marital	19	43.2
Financial Reasons	None	40	90.9
	Debt	4	9.1

Table 5 shows data on becks suicide intent scale. In the study, 59.1% had medium intent for suicide and 29% had low intent for suicides according to Beck's suicide intent score and 11.4% had high intent.

Table 5: Distribution of subjects according to beck's suicide intent scale

		Frequency	Percent
Beck's suicide intent	Low	13	29.5
	Medium	26	59.1
	High	5	11.4
	Total	44	100.0

In the study, it was observed that there was a significant association between gender and Beck's suicide intent i.e. suicide intent was high among males than females (p=0.03). (Table 6).

Table 6: Association between becks suicide intent and gender

		Gender		Total
		Male	Female	
Beck's suicide intent	Low	4	9	13
	Medium	12	14	26
	High	5	0	5
Total		21	23	44

$\chi^2 = 7.00$, $df = 2$, $p\text{-value} = 0.030^{**}$ ($p\text{-value} < 0.05$ was considered as statistically significant.)

It was observed that there was a significant association between Beck's score and age of the subjects. i.e., High suicide intent was found in 36 to 40yrs age group. (Table 7).

Discussion

In this study 14(31.8%) of the subjects were in the age group 21 to 25yrs, 31(29.5%) in 15 to 20 years age group and least subjects 1(2.3%) were in the age group of 51 to 55 years, this finding is similar with other studies.¹³⁻¹⁵

23(52.3%) of subjects were Females and 21(47.7%) were males, which is similar to the studies.¹⁶⁻¹⁹

25(56.8%) of subjects were married. Among the males, majority of the attempted suicides were single 11(52.9%), and in female's majority of the attempters were married 16(69.6%), which was similar to findings by Narang et al.²⁰

It was observed that Suicide attempts more were common in the rural population than urban, Majority 26(59.1%) were from a nuclear family which was also similar to various studies.²¹

Suicide attempt was common among Hindus (81.8%), as the sample was in the rural background in Kanchipuram and the majority of the population are Hindus, but it was associative with other studies.²²

17(38.6%) were educated up to university and 15(34.1%) had secondary education, which was similar to others. (21) Among the attempted suicides, 10(22.7%) were currently students owing to the young age.

Almost half of the people who attempted suicide had full-time employment 24(54.5%), contradictory to the study done by others,^{23,24} but was similar to Latha Ks et al.²¹ which showed more than 50% were employed. Work stress along with other factors could be one of the reasons for this finding. Suicide attempts were common in class IV of socioeconomic status 18(40.9%) and 16(36.4%) were from class III.

21(47.7%) suicide attempts were made between 7 pm to 7 am (night) and 23 (52.3%) during the day. There was no major difference in the finding of Venkoba Rao et al¹³ and Gururaj et al²⁵ who stated majority attempts were more during early morning and near to noon, our study also finds the same. Majority 31(70%) attempted suicide at home.

Most common suicide method was drug overdose 15 (34.1%) followed by OPC poisoning 12(27.3%). The least employed method was hanging. Due to the majority of the sample being young females drug overdose was found as the commonest method due to its easy availability, when compared to studies^{13,15} who found pesticides as commonest method and drug overdose was second most common. While some of them procured the drugs from over the counter like

benzodiazepines and painkillers, others overdosed drugs prescribed by physicians. In our sample majority of OPC poisoning was consumed by males than females, and females used majorly drug-overdose. A least common method employed was hanging.

Majority 24(54.5%) of suicides were highly lethal, 14(31.8%) had medium lethality and 6(13.6%) had low lethality, the lethality here in our study was based on patients conception of methods lethality and their belief about the certain death, which was a sub-item in Beck's suicide intent scale. Need for strict policies on procurement and storing of pesticides and issuing of medications without prescriptions by the pharmacies are implicated from the above findings.

In the study, only 12(27.3%) had previous attempts of suicide.

40 (90.9%) did not have any physical illness among the attempted suicides as the majority of them were young people and there was a lesser chance of chronic physical illness.

Among the attempted suicides 10(22.7%) had contacted the doctor within 1 month of the attempt, which was similar to the findings of Nilamadhabkhar.¹⁵ This finding stresses the need for suicidal assessment by physicians.

Only 1(2.3%) had a physical disability. None of the subjects had legal complications.

Majority 28(63.6%) had no family history of suicides and 7(15.9%) had a history of suicide in the family, 5(11.4%) had a history of mental illness in the family.

Among the subjects, 15(34%) had a mental illness. Out of which 8(18.2%) were currently diagnosed and 7(16%) were undiagnosed, which was similar to various studies.^{14,22}

The majority of people with the already established diagnosis were with Depression 11(75%)(ranging from moderate-severe) when compared to other studies where depression ranged from 37% to 64%.^{21,26,27} Rest of them had Bipolar Affective Disorder, adjustment disorder and personality disorder with 12.5% each.27% had a history of substance abuse, similar to another study.¹⁵

In our study for 93% individuals, the family was providing support, for 2.3% friends were supporting and for 4.5% they had no social support, the support in our study was concerned with whom the patient sought help during the times of despair.

In the study, 59.1% had medium intent for suicide and 29% had low intent for suicides according to Beck's suicide intent score and 11.4% had high intent. Along with mental illness, various psychosocial stressors, Interpersonal issues, and financial stress were found in the subjects which could have contributed for the above findings.

Table 7: Association between beck's suicide intent and age

		Age						Total
		15 to 20 yrs	21 to 25 yrs	26 to 30 yrs	31 to 35 yrs	36 to40 yrs	51 to 55 yrs	
Beck's suicide intent	Low	3	4	4	2	0	0	13
	Medium	9	9	4	2	1	1	26
	High	1	1	0	0	3	0	5
Total		13	14	8	4	4	1	44

$\chi^2 = 20.99$, $df = 10$, $p \text{ value} = 0.021^*$ ($p \text{ value} < 0.05$ was considered as statistically significant.)

Among the reasons for suicide attempt in our study, it was found that the majority (43.2%) had marital problems, 29.5% had interpersonal problems and 22.7% had family problems. It was found that 84.1% of attempts were not planned, which was similar to others.^{28,29} Financial reasons were found only in 9.1% of individuals. Physical reasons like pain and illness were found only in 4.5% of individuals.

It was observed that there was a significant association between Beck's score and age of the subjects. i.e., High suicide intent was found in 36 to 40yrs age group, medium intent was seen among 15 to 25yrs age group, which was not found in other studies. One study found no significance between age and SIS.³⁰

Conclusion

In the study, it was found that majority of people who attempted suicide are of young age, females, married, fully employed, belonged to class IV SES and attempts were made equally during day and night. And it was found that males had higher suicide intent which increases with age. And substance abuse was common in males. The major method was drug-overdose followed by OPC poisoning. Mental illness was found only in 34% individuals, of which most common was depression, most of the persons with attempted suicide did not have any mental illness and attempts were made impulsively with easily available means at home. And one-fourth of the individuals had contact with GP within one month of the suicide attempt.

The need for psycho-education both parents and young adolescents about suicidal behavior and social skills training in adolescents and young adults is implicated in the study, and need for increased awareness among the general physicians about the suicide prevention would help in bringing down the number of attempts. And strict control of over the counter drugs and storage of OPC compounds would be helpful in bringing down the suicide rates.

Limitations

It is a hospital-based study whose findings cannot be extrapolated to the general population and the sample size was less and the numbers of attempters who were not referred or who died in ICU/dead on arrival, were not collected. Those patients who were acutely ill were also not taken into the study.

Acknowledgment

We want to thank all the patients and their family members for participating in the study.

Source of Funding: Nil.

Conflict of Interest: Nil.

References

1. Saddichha S, Prasad MN, Saxena MK. Attempted suicides in India: A comprehensive look. *Arch Suicide Res* 2010;14(1):56-65.
2. National Crime Records Bureau, (2013). Suicides in India. Retrieved January 18, 2014.
3. <http://ncrb.nic.in/ADSI2013/Suicides13.pdf>.
4. Stelzner H., Analyse von 200 self-sword fallen, Krager .S, Berlin. (1906).
5. Dahlgren, K.G. On Suicide and Attempted Suicide, Lund 1945.
6. Stengel, E. (1964). Suicide and attempted suicide. Baltimore: Penguin Books
7. KS Jacob, Anju Kuruvilla. Psychiatric presentations in general Practice. A guide to holistic management. 1st Ed. Byword books private limited: 2010.
8. Barraclough B, Bunch J, Nelson B, Sainsbury P. A hundred cases of suicide: Clinical aspects. *Br J Psychiatry* 1974;125(0):355-73.
9. Dorpat TL, Ripley HS. The relationship between attempted suicide and committed suicide. *Compr Psychiatry* 1967;8(2):74-9.
10. Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD. *J Clin Psychiatry* 1998;59 Suppl 20:22-33;quiz 34-57.
11. Hamilton M: A rating scale for depression. *J Neurol, Neurosurg Psychiatry* 1960;23:56-62.
12. Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: The scale for suicide ideation. *J Consult Clin Psychol* 1979;47:343-52.
13. Barratt ES. Factor analysis of some psychometric measures of impulsiveness and anxiety. *Psychol Rep* 1965;16:547-54.
14. Venkoba Rao A. Attempted Suicides. *Indian J Psychiatry* 1965;7(4):253-64.
15. Veeraraghavan V. Suicides and attempted suicides in the Union Territory of Delhi. New Delhi: Concept Publishing Company.
16. Kar N. Profile of risk factors associated with suicide attempts: A study from Orissa, India. *Indian J Psychiatry* 2010;52:48-56.
17. Vijayakumar, L. Suicide and its prevention: The urgent need in India. *Indian J Psychiatry* 2007;49:81-4.
18. Mayer, P., & Ziaian, T. Suicide, gender, and age variations in India: Are women in Indian society protected from suicide? *Crisis*, 2002a;23:98-103.
19. Mayer, P., & Ziaian, T. Indian suicide and marriage: A Research Note. *J Comp Fam Stud* 2002b;33(2):297-305.
20. Jena S, Sidhartha T. Non-fatal suicidal behaviors in adolescents. *Indian J Psychiatry* 2004;46:(310-8).
21. Narang, R. L., Mishra, B. P., & Mohan, N. Attempted suicide in Ludhiana. [Electronic Version]. *Indian J Psychiatry* 2000;42:83-7.
22. Latha, K. S., Bhat, S. M., & D'Souza, P. Suicide attempters in a general hospital unit in India: their socio-demographic and clinical profile- emphasis on cross-cultural aspects. *Acta Psychiatrica Scandinavica* 1996;94(1):26-30.
23. Ram D, Darshan MS, Rao T, Honagodu AR. Suicide prevention is possible: A perception after suicide attempt. *Indian J Psychiatry* 2012;54:172-6.
24. M. Arun, K. Yoganarasimha, Nilamadhab Kar Vikram Palimar, Manoj Kumar Mohanty. Comparative analysis of suicide and parasuicide. *Sage J* 2007;47;4:335-40.
25. Platt, S. Unemployment and suicidal behavior: A review of the literature. *Soc Sci Med* 1984;19:93-115.
26. Gururaj G., Isaac G., Isaac M. K., Subbakrishna, D. K., & Ranjani, R. Risk factors for completed suicide: A case-control study from Bangalore, India. *Int J Inj Control Saf Promot* 2004;11:183-91.
27. Jain V, Singh H, Gupta SC, Kumar S. A study of hopelessness, suicidal intent and Depression in cases of attempted suicide. *Indian J Psychiatry* 1999;41(2):122-3.

28. Bhatia MS, Verma SK, Murty OP. Suicide notes: Psychological and clinical profile. *Int J Psychiatry Med* 2006;36:163-70.
29. Chandrasekaran R, J Gnanaseelan, Ajith Sahai, R. P Swaminathan, BojirPerme. Psychiatry and personality disorders in survivors following their first suicide attempt. *Indian J Psychiatry* 2003;45(2):45-8.
30. Madhavi Kodali, Kanakalakshmi Kilaru. Psychiatric Morbidity of Attempted Suicide Patients Admitted To A General Hospital In Rural Area Of South India: *IOSR J Dent Med Sci (IOSR-JDMS)*. 2013;4(3):46-50.
31. Megan Spokas, Amy Wenzel, Gregory K. Brown, Aaron T. Beck. Characteristics of individuals who make impulsive suicide attempts. <http://dx.doi.org/10.1016/j.jad.2011.10.034>