Original Article

Profile of Young Suicide Attempt Survivors in a Tertiary Care Hospital in Puducherry

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ABSTRACT

Context: Puducherry has the highest suicide prevalence rate in India by 2014, predominantly among the 14-30 years age group. **Aims:** The aim of the present study is to study the characteristics of adolescent and youth suicide attempters in Puducherry and measure the suicide intent. **Settings and Design:** An observational study of 6 months duration was conducted in the Department of Psychiatry, at Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India. **Materials and Methods:** Modified version of World Health Organizations SUicide PREvention Multisite Intervention Study on Suicidal questionnaire was used to collect sociodemographic data and Beck's suicide intent scale was used to measure the suicide intent scores. International Classification of Diseases-10 was used for diagnosis. **Statistical Analysis:** Statistical Package for the Social Sciences version 13 was used for descriptive analysis and correlation statistics. *P* value was set as <0.05. **Results:** Of 56 eligible participants, 40 formed the sample, their mean age was 18. 13 ($\pm$2.50), more females (1.1:1), rural, literate, lower socioeconomic status (67.5%), mostly single (90%), living in nuclear (95%), and Hindu (87.5%). One hundred percent had psychosocial stressors before suicide attempt. Acute stress disorder/adjustment disorder was the most common diagnosis. Emotionally unstable and anankastic personality traits were seen in 12%. Pesticide ingestion (45%) was the most common suicide method. Sixty percent attempted suicide within <30 min of suicidal contemplation. Statistical associations were found between the alleged purpose, seriousness, attitude toward living/dying, conception about medical rescuability, and the overall suicide intent. **Conclusions:** Adolescent and youth suicide attempts occur due to psychosocial stressors rather than due to the past or on-going mental health disorders with above personality traits suggest poor coping skills and resilience taken to deal with stressful situations by younger people.

Key words: *Mental disorder, personality, pesticides, suicide*

INTRODUCTION

Suicide has been a multifactorial cause of morbidity and mortality observed across all stages of a person's life across all regions of the world irrespective of diversity in ethnicity, culture, race, religion, health practices, and attitudes. According to data from the World Health

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Organization, every year, more than 800,000 people die from suicide worldwide.[1] Most concerning observation has been the increasing rate of adolescent and youth suicide attempts and deaths in the past two decades in many regions of the world, including India.[2] Eighty-five percent of suicides in the world occur in low and middle income countries. India being one among them suffers considerably from this burden.

In India, suicide falls only second to road traffic accidents which happen to be the number one reason for death among individuals falling under the age group of 10-24 years. Worldwide suicide understandably has become a health burden on a country's overall growth as the future workforce, namely, the youth, resort to suicide. Indian scenario seems to be more or less the same. The National Crime Records Bureau (NCRB) of India found that the annual incidence of suicide is 11/100,000. As per the latest census reports, major proportion of individuals in India fall under 30 years of age. Considering the current suicide rate in India, a significant number of individuals who attempt suicide would fall under the age of 30 years which would account for 37.8%.[3] Such a loss of resource would lead to a heavy burden in the family, society, and eventually the nation.

The union territory of Puducherry (previously "Puducherry") located in Southern coast of India has consistently continued to report higher suicide rates since last 4 years. Puducherry has recorded suicide rates more than 3-4 times of the national average during the last 3 years according to the authentic statistics of the NCRB New Delhi, India. At a national level, over a lakh persons have committed suicides every from 2003 to 2013 which equates to an increase of 21.6% (134,799 in 2013 from 110,851 in 2003).

In 2010, the suicide rate in Puducherry was 45.5 per 100,000 population (11.4 per 100,000 population) during the same year. While the All India rate of suicides was 11.0 during the year 2013, Puducherry still reported the highest rate of suicide (35.6) followed by Sikkim (29.3), Andaman and Nicobar Islands (28.8), Tripura (25.9), and Kerala (24.6), which has given Puducherry the label of "suicide capital of India." In Puducherry, 35.4% of adolescents, young adults (15-29 years), and 33.3% of lower middle-aged people (30-44 years) were reported to die due to suicides.[3] Adolescent suicides have been increasing in the past decades in many regions of the world.

Despite such robust data being available about suicide in Puducherry, very little research has been conducted on epidemiological correlates, gender differences, and other major social and clinical determinants of adolescent and young suicide attempters in India. While there have been a few studies on suicide that included all age groups, no single study in the 15-30 years age group which consists of the future generation of our country's financial, educational, and overall growth. In this background, we aimed to study the profile of suicide in Puducherry across different age groups, especially in adolescents and young adults.

MATERIALS AND METHODS

Sample (n)

The sample consisted of 40 cases of suicide attempt survivors who had attended Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India, between March 2014 and August 2014, 6 months duration. No *a priori* sample calculation was undertaken due to the absolute lack of similar research data available from the multicultural Indian subcontinent.

Inclusion criteria

1. All patients aged 10-30 years, referred for psychiatric evaluation following admission in other departments after a suicidal attempt.
2. Availability of informed consent.

Exclusion criteria

1. Patients below the age of 10 or above the age of 30 years.
2. Death following the attempt.

Assessment

A semi-structured proforma was prepared by modifying few components of the open access supremiss,[4] to collect the sociodemographic information, details of the index suicide attempt, history of suicidal behavior, family history of suicide, presence of stress, and attempted suicide. Initial evaluation consisted of a thorough clinical interviewing and risk assessment was conducted by a consultant psychiatrist to make diagnosis based on the International Classification of Diseases-10 clinical description and diagnostic guidelines.[5]

Suicide intent scale

The suicide intent scale (SIS) (Beck *et al*., 1974) was used to measure the intent of the suicidal attempt. SIS has 15 items, with an item score of 0-2, giving a total score range of 0-30. The questionnaire is divided into two sections: The first 8 items constitute the "circumstances" section (Part 1) and are concerned with the objective circumstances of the act of self-harm; the remaining 7 items, the "self-report" section (Part 2), are based on patients' own reconstruction of their feelings and thoughts at the time of the act. A score of 11 on the scale was used as a cut-off to divide the sample into high- and low-intent suicide attempts.[6-9]

Procedure

The study protocol was approved by the Institutional Human Ethics Committee. Consecutive cases referred for psychiatric evaluation following admission in other departments for a suicidal attempt, who had fulfilled the inclusion criteria, constituted the study sample. These patients were initially assessed in the emergency department and admitted to the medical or surgical wards for treatment. In keeping with the hospital practice, all patients were assessed by the psychiatrists when physical condition had been stabilized. Informed consent was taken before being enrolled into the study.

Statistical analysis

All the statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 13 (SPSS Inc., Chicago). Statistical analysis included analysis of sociodemographic data, suicide-related details, and lastly comparison of the high intent group and the low intent group. Chi-square test (Pearson) was utilized for the comparison of the two groups with regard to the categorical variables. Statistical significance (P) was set at a level of 0.05.

RESULTS

Of 56 cases identified, only 40 cases [Table1] provided informed consent for assessment due to reasons that they denied disclosure in any form.

Suicide-related information

A majority of suicide attempts were using pesticides and insecticides followed by ingestion of drugs, biological substances, unspecified chemical, and noxious substances [Table 2]. Most of them had no risk factors for suicide such as history/family history of suicide/previous psychiatric illness or alcohol/drug abuse and the duration of suicidal ideations was <30 min suggesting impulsive and not preplanned attempt. With regards to the alleged purpose of suicide attempt, 13 (32.5%) of the sample attempted suicide to manipulate environment/get attention/get revenge, 7 (17.5%) did so to escape/surcease/solve problem, and most of them 20 (50%) had a mixture of all these purposes.

Beck's suicide intent rating scale scores

The mean suicide intent score was 23.55 (±4.5) indicating medium range. The Majority of cases had medium level of suicide intent (n = 28; 70%) before their attempt, followed by low intent (n = 7; 17.5%) and few had high intent (n = 5; 12.5%).

Correlation analysis

Based on the level of suicide intent, there was no association found with age, sex, socioeconomic

Table 1: Socio-demographic data

Variable		Sample *n*	Percentage (%)	Mean (±Std. deviation)
Age in years		40	-	18.13 (2.50)
Age group in years	10-15	4	10	
	16-20	33	82.5	
	21-25	3	7.5	
Sex	Male	15	37.5	
	Female	25	62.5	
Month of suicide attempt	Jan-March	9	22.5	
	April-June	17	42.5	
	July-September	12	30	
	October-December	2	5	
Time of attempt	4 am-4pm	10	25	
	4pm-4am	30	75	
Urban vs. rural	Urban	2	5	
	Rural	28	95	
Education	Illiterate	1	2.5	
	Primary	1	2.5	
	High school	17	42.5	
	Higher Secondary	16	40	
	Undergraduate	5	12.5	
Occupation	Unemployed	5	12.5	
	Self	5	12.5	
	Housewife	2	5	
	Student	28	70	
Income	1521-4555	1	2.5	
	4556-7593	2	5	
	7594-11361	12	30	
	11362-15187	18	45	
	15188-30374	7	17.5	
Socioeconomic status	Lower	27	67.5	
	Lower middle	11	27.5	
	Upper middle	2	5	
Housing type	Katcha	1	2.5	
	Semi pucca	14	35	
	Pucca	24	60	
Marital status	Single	36	90	
	Married	4	10	
Family type	Nuclear	38	95	
	Joint	2	5	
Birth order	First	19	47.5	
	Second	13	32.5	
	Third	8	20	
Religion	Hindu	35	87.5	
	Christian	3	7.5	
	Muslim	2	5	
Stressors	Academic difficulties	7	17.5	
	Financial stress	1	2.5	
	Parenting issues	19	47.5	
	Marital discord only	1	2.5	
	Marital discord with alcohol dependent spouse	2	5	
	Parental discord	3	7.5	
	Romantic relationship issues	6	15	

Table 2: Suicide related information

Variables		Sample *n*	Percentage (%)
	x60-Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and anti-rheumatics	3	7.5
	x61-Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified.	2	5
	x64-Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances.	11	27.5
	x68-Intentional self-poisoning by and exposure to pesticides	18	45
	x69-Intentional self-poisoning by and exposure to other and unspecified chemicals and noxious substances	6	15
Previous attempts	yes	1	2.5
	no	39	97.5
Duration of suicidal ideations before attempt	Within 30 minutes	24	60
	30 minutes to 2 hours	14	35
	2 hours to 24 hours	1	2.5
	More than a day	1	2.5
Past history of psychiatric illness	yes	1	2.5
	no	39	97.5
Family history of suicide attempts	yes	4	10
	no	36	90
First degree relative using alcohol or other drugs	Yes	6	15
	no	34	85

Table 3: Suicide intent level and sociodemographic variables

Variable		Suicide Intent level			Pearson Chi Square	df	'*P*' value
		Low (15-19)	Medium (20-28)	High (>29)			
Age group in years	10-15	1	2	1	22.35	16	0.132
	16-20	6	24	3			
	21-25	0	2	1			
Sex	Male	2	11	2	0.29	2	0.86
	Female	5	17	3			
Socioeconomic status	Lower	1	0	1	5.68	4	0.22
	Lower Middle	1	9	1			
	Upper Middle	5	19	3			
marital status	Single	7	26	3	6.03	2	0.88
	married	0	2	2			
Birth order	First	3	13	1	3.63	4	0.45
	Second	4	8	1	–	–	–
	Third	0	7	1			
Stressors	Academic difficulties	1	6	0			
	Financial stress	0	0	1			
	Parenting issues	5	12	2			
	Marital discord only	0	1	0			
	Marital discord with alcohol dependent spouse	0	1	1			
	Parental discord	1	2	0			
	Romantic relationship issues	0	6	0			

status, marital status, and birth order of the sample [Table 3].

There was no association found between the age of the sample and the suicide intent ($P = 0.13$). However, there was strong association between the alleged purpose of the suicide attempt, the lethality/seriousness and the attitude toward living/dying and the suicidal intent ($P < 0.05$) [Table 4]. Within the Beck's SIS individual items, significant association was found between alleged purpose of the attempt, seriousness of the attempt, attitude toward living/dying, conception of medical rescuability, and overall suicide intent.

Clinical diagnosis

Twelve percent of the sample had personality traits consisting of a mixture of both emotionally unstable and anankastic personality traits in our sample and the most common psychiatric diagnosis made was acute stress disorder/adjustment order in all 40 cases.

Table 4: Suicide intent and risk variables

Item	Sample n	Pearson Chi-Square	df	Significance (*P*)
Mode of attempt	40	6.71	8	0.56
Previous attempt	40	7.17	2	0.11
Family history of suicide attempt/death	40	1.90	2	0.38
Family history of alcohol dependence	40	1.57	2	0.454
Past history of psychiatric illness	40	4.83	2	0.089
Time of attempt	40	1.02	2	0.59
Alleged purpose of attempt and intent	40	20.33	4	0.000*
Seriousness of attempt and intent	40	17.03	4	0.002*
Attitude towards living/dying and intent	40	19.66	4	0.000*
Conception of medical rescuability	40	10.97	4	0.027*
Expectations of fatality	40	7.02	4	0.13
Isolation	40	34.08	30	0.27
Timing	40	30.60	30	0.43
Precautions taken	40	36.17	30	0.20
Acting to get help	40	32.8	30	0.33
Final acts in anticipation	40	15.16	15	0.44
Active preparation	40	24.34	30	0.75
Suicide note	40	23.15	15	0.08
Overt communication of intent before the attempt	40	24.21	15	0.062
Conceptions of methods lethality	40	35.31	30	0.23

*$p<0.05$

DISCUSSION

Youth has been identified as a high-risk age for suicide[10] and deaths due to suicide has been highest among the youth in India.[11] In this background, our study findings do resonate with the local Indian cultural and environmental factors that an adolescent growing up in such a place would have to face. Moreover, due to the gross lack of similar studies except for one,[12] we have used evidence base of the NCRB 2014 report on suicides in India and few other relevant literature for critical analysis of our findings.[3] The majority of the studies have been on completed suicides and not on suicide attempters. We had chosen the survivors of suicide attempt to develop better understanding of higher suicidal deaths in the younger age group and identify clues toward primary prevention.

Sociodemographic factors

The most significant finding of this study was that all the 40 cases (100%) interviewed had reported presence of a psychosocial stressor before the suicide attempt, and absolute absence of any previous or on-going psychiatric diagnosis in the entire sample. Otherwise, most of the other findings were in keeping with already reported literature on this topic. The mean age in our study was 18.13 years (±2.5) and the rate was highest in the 16-20 years group (82.5%) which was less than the same in similar studies.[12] Surprisingly, 10% in the 10-15 years age group attempted suicide indicating influence of psychosocial stressors across such young population. The sample was predominantly a rural sample with surprisingly low (2.5%) of illiteracy, majority being students (n = 28; 70%), lower socioeconomic status (n = 27; 67.5%), and of Hindu religion (n = 35; 87.5%). Although urban areas where stressors are rampant[13] have reported higher rates of suicide, in this case, the lack of a comparison group provides little knowledge to explain the presence of stressors and suicide in our rural sample.

The male:female ratio (1:1.10) was similar to the other study with female preponderance. This finding is in keeping with the global data on attempted suicide[14] and in India too, sociocultural issues such as early arranged marriages, abusive relationship, and dowry demands which increase suicide risk in young females.[15,16] Our study had two new findings of more of problems of how adolescents had to be parented, and higher academic problems possibly due to predominant rural, socioeconomically disadvantaged sample. Other findings such as romantic relationship issues, parental discord, and abusive marital interactions were in keeping with established data.

Another interesting finding was the higher number (n = 17; 42.5%) attempting suicide during the months of April to June, possibly could be speculated to the stressful times when the outcome of higher secondary school exams and entrance into preferred institutions for higher studies would be announced in the Indian system. Most of the suicide attempts were made between 4.00 pm and 4.00 am, possibly suggesting the intention to avoid anyone noticing or feeling more stressful in the home environment or any other unknown factors. Almost 95% of the sample lived in a nuclear family structure without the additional support provided by extended joint family system which has been gradually disappearing from the Indian lifestyle. Also, 90% of the sample were single in status and probably vulnerable to loneliness, isolation, and poor emotional support in the face of stressful life situations.

Clinical factors

Method of attempt

Hundred percent of the sample had resorted to ingestion of various noxious forms of various chemical substances, of which 45% had ingested pesticides, followed by unspecified chemicals, medicaments, drugs, nonopioid analgesics, antipyretic, anti-epileptic, anti-parkinsonism, and sedative-hypnotic medications. This finding is similar to many other previous studies.[17-20] Pesticide use was the most common

method observed in a few multinational studies[19] and other studies which were based in India[17,20] while ingestion of medications was the most common method noted in studies based outside India.[18,19] These methods possibly indicate no preplanning but more impulsiveness, considering the finding that 60% had attempted suicide within 30 min of contemplating some method of suicide.

Previous suicide attempt and family history of suicide and attempted suicide

Strangely, 97% had no previous attempts, history of psychiatric illness, and no family history of suicide attempts or suicidal deaths and the only positive finding of risk was 6% having a first-degree relative using alcohol or other substances of abuse/dependence. These findings match with that of Aghanwa[18] and Srivastava *et al*.[12] who had also observed lower rates of past suicide attempt, family history of suicide in their samples. Further, in terms of alleged purpose of suicide attempt, the majority of our sample had reported many reasons including suicide attempt as an escape mechanism, solution to the problem faced, ambivalence about dying/living.

Mental disorders

Almost all cases recorded only acute stress disorder/adjustment disorder in our sample reflecting the finding of Aghanwa[18] reported acute stress reaction/adjustment disorder as the most common psychiatric disorder while Srivastava *et al*.[12] found alcohol use disorders to be the most common psychiatric disorder, in their respective studies. Twelve percent of the sample had personality traits of the emotionally unstable personality cluster and anankastic personality traits, matching similar observations made by Haw *et al*.[21] and Hawton *et al*.[22] who had reported high rates of personality disorders (46%).

Comparison of sociodemographic and clinical factors based on level of suicide intent

There was no association found any of the sociodemographic variables and the level of suicide intent in our sample which was not surprising given the small sample size that was studied. In terms of individual suicide intent items, statistically significant association was found between the alleged purpose, seriousness, attitude toward living/dying, conception about medical rescuability, and the overall suicide intent.

One of the main limitations of this study was the relatively small size of the study sample. The small sample size limits the generalizability of the findings of this study. Applicability of these findings to the community is uncertain as this was a hospital-based cross-sectional study. Long-term follow-up of the study sample could not be done, and thus the predictive utility of suicide intent measure could not be studied.

CONCLUSIONS

Our study provides new insights into the sociodemographic and clinical profile of suicide attempters in the youth of Puducherry. Stronger legislation on the accessibility to pesticides has been a consistent observation. Estimation of suicide intention impresses the need for efficient risk assessment and specific preventive efforts. Based on our findings, measures such as focusing prevention strategies on the younger sections of the society, imparting strong life skills to deal with stress in life is highly essential.

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Conflicts of interest

There are no conflicts of interest.

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