

Original Research Article

An epidemiological study into risk factors of suicidal ideation and attempt among young and adult population in rural Pondicherry, India

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ABSTRACT

Background: Suicide is one of the major public health problems in low and middle income countries. However, information about causes and risk factors are insufficient. Objectives of the study were to find out prevalence of suicidal ideation and attempt among young and adult population in rural Pondicherry and to analyse the risk factors qualitatively.

Methods: Community based cross-sectional study was conducted among 18-44 years' population in rural Pondicherry during January to June 2012. Total 200 subjects were interviewed by house to house visit. Information on socio-demographic characteristics, concurrent illness, family and personal history were obtained. Factors contributing to suicidal ideation and attempt were collected through FGDs, free listing and pile sorting exercise. Quantitative data was analyzed using SPSS version 17.0. Qualitative data analyzed using Anthropac 4.98.1/X software.

Results: 8% subjects had ever attempted and 7.5% had ideas of suicide. Suicidal ideation/ attempt were more among males and 36-45 years group. Physical disability, infertility/sterility and chronic illness were significantly associated with suicidal ideation or attempt. Family dispute, history of beaten by spouse and family history of suicide/attempt was significantly associated with ideation. Alcoholism, failed relationship, physical abuses were strongly associated with ideas of suicide or attempt. Risk factors for males include failed relationships, more than one wife, family dispute, alcoholism etc. Risk factors for females include failed relationship, poor performance in exam, quarrel with friends, unemployment, alcoholic husband, pressure for dowry, extramarital relationship by husband etc.

Conclusions: Suicidal attempt and ideation rates were high in study area and demand population based mental health interventions to reduce population suicide rates.

Keywords: Attempt, Ideation, Suicide

INTRODUCTION

Suicide is one of the major public health problems in low and middle income countries.¹ Inefficient civil

registration systems, variable standards in certifying death and the legal and social consequences of suicide are major obstacles to investigating suicide in the developing world.^{2,3} As a result, suicidal behavior that ranges in continuum from suicidal ideation, suicidal intent and

attempted suicide has not been studied in its entirety. Majority of suicide victims contact various levels of health care systems a few days, weeks and months prior to their deaths.⁴ However, their psychiatric morbidity remains grossly undertreated.⁵

Almost one million people die from suicide every year; a global mortality rate of 16 per one lakh, or one death every 40 seconds.⁶ India alone contributes to more than 10% of suicides in the world. The suicide rate in India has been increasing steadily and has reached 10.5 per one lakh population in 2006, registering a 67% increase compared to 1980.¹ Despite the gravity of the problem, information about the causes and risk factors is insufficient.

Objectives

- To find out the prevalence of suicidal ideation and attempt among young and adult population in rural Pondicherry and to analyse the risk factors of suicidal ideation and attempt among them.
- To explore the various factors contributing to suicidal ideation and attempt among young and adult population qualitatively.

METHODS

Present community based cross-sectional study was carried out in randomly selected two villages, namely Seliamedu and Kudiyirupupalayam, in Bahour commune, rural Pondicherry between January to June 2012. Individuals in the age group of 18 to 44 years (both male and female) irrespective of their marital status, previous history of suicidal attempts or history of chronic illness were included in the study. Total 50 male and 50 female respondents from Seliamedu and similar number of respondents from Kudiyirupupalayam village were interviewed, thus making total 200 respondents (considering a sensitive issue, quota sampling was feasible and practically possible in the present rural area). Individuals willing to participate and gave written consent were selected as study subjects.

Quantitative data collection

The quantitative data was collected by trained investigator using a pre-tested questionnaire by house-to-house visit. The first house in each village was selected randomly and subsequent alternate houses were selected. Information on socio-demographic characteristics, concurrent illness, family and personal history of study subjects were obtained. It took around 12-15 minutes to interview one subject.

Qualitative data collection

Qualitative data regarding various factors contributing to suicidal ideation and attempt among young and adult population were collected in a triangulated manner in the

form of Focus Group Discussion (FGD), free listing and pile sorting exercise.^{7,8} For this purpose two semi-structured FGDs (one with males and one with females) till point of exhaustion (around 40-45 minutes each) were conducted by investigator. FGDs included 8 (for FGD conducted with male participants) and 9 (FGD conducted with female participants) purposefully selected study subjects who talked freely and were willing to participate.

Data management and statistical analysis

The quantitative data was entered and analyzed using Microsoft Excel for Windows and Statistical Package for the Social Sciences software for Windows (SPSS Inc., Chicago, Illinois, USA) version 17.0. Chi-square test and Yates' correction was applied to assess the significance of study findings. $p < 0.05$ was considered as statistically significant. The analysis of FGDs and qualitative free list and pile sort data analysis (considering high Smith's S value) was undertaken using Anthropac 4.98.1/X software (Anthropac computer program 1998).⁹

Ethical consideration

Ethical permission to conduct the study was obtained from Medical College Institutional Ethical Committee. The purpose of the study was explained to study subjects and written consent was obtained before data collection. The subject confidentiality was assured and maintained during and after information collection. Information regarding subjects with suicidal ideation was communicated with responsible authorities and necessary psychiatric counselling was facilitated.

RESULTS

Out of 200 respondents, 23 (11.5%) had either suicidal ideation and/or had attempted in the past (7.5% ideation and 8% attempt). Among them, 15 (65.22%) were male and 8 (34.78%) were female. Among 23 subjects with ideation or history of attempt, 12 (52.17%) were from 36-45 years age group, as compared to 53 (29.94%) out of total 177 subjects belonging to same age group without such ideation or history of attempt (p value 0.03). Again, among these 23 subjects, 18 (78.26%) were educated upto 12th standard, while remaining 5 (21.74%) were educated upto graduate level or above. 16 (69.57%) subjects with suicidal ideation or history of attempt were married and 5 (21.74%) were unmarried; while 2 (8.69%) subjects were either widow or divorcee (Table 1).

In the study, 6 (26.09%) out of 23 respondents with history of suicidal ideation or attempt had physical deformity or disability, as compared to 7 (3.96%) out of 177 respondents without history of suicidal ideation or attempt (p value <0.001). 5 (21.74%) respondents with history of suicidal ideation or attempt gave history of infertility or sterility, as compared to 2 (1.13%) respondents without history of suicidal ideation or attempt (p value <0.001). 13 (56.52% subjects with

history of suicidal ideation or attempt were suffering from chronic illness, as compared to 34 (19.21%) subjects without history of suicidal ideation or attempt (p

value <0.001). Depression, anxiety and psychiatric comorbidity were not associated with suicidal ideation or attempt (Table 2).

Table 1: Individual characteristics and suicidal ideation/attempt among study subjects.

Characteristics	Suicidal ideation/attempt		Chi-square (p value)
	Yes=23 N (%)	No=177 N (%)	
Sex			
Male	15 (65.22)	86 (48.59)	2.25 (0.13)
Female	8 (34.78)	91 (51.41)	
Age (in years)			
18-35	11 (47.83)	124 (70.06)	4.59 (0.03)
36-45	12 (52.17)	53 (29.94)	
Education			
Upto 12 standard	18 (78.26)	131 (74.01)	0.19 (0.66)
Graduate and above	5 (21.74)	46 (25.99)	
Occupation			
House wife	5 (21.74)	59 (33.33)	1.26 (0.26)
Other	18 (78.26)	118 (66.67)	
Marital status			
Married/remarried	16 (69.57)	119 (67.23)	-
Unmarried	5 (21.74)	54 (30.51)	
Widow/divorcee	2 (8.69)	4 (2.26)	

Table 2: Concurrent illness and suicidal ideation/attempt among study subjects.

Characteristics	Suicidal ideation/attempt		Chi-square (p value)
	Yes=23 N (%)	No=177 N (%)	
Feel depressed most of the time (N=69)	9 (39.13)	60 (33.89)	0.25 (0.62)
Remain anxious all the time (N=44)	6 (26.09)	38 (21.47)	0.25 (0.62)
Presence of physical deformity/disability (N=13)	6 (26.09)	7 (3.96)	12.97 [†] (<0.001)
History of infertility or sterility (N=7)	5 (21.74)	2 (1.13)	19.86 [†] (<0.001)
Presence of psychiatric co-morbidity (N=6)	-	6 (3.39)	-
History of any other chronic illness (N=47)	13 (56.52)	34 (19.21)	15.76 (<0.001)

([†] Yates' correction).

Table 3: Family history and suicidal ideation/attempt among study subjects

Characteristics	Suicidal ideation/attempt		Chi-square (p value)
	Yes=23 N (%)	No=177 N (%)	
Family history of alcoholism (N=116)	16 (69.57)	100 (56.49)	1.43 (0.23)
Think family is financially instable (N=112)	11 (47.83)	101 (57.06)	0.7 (0.4)
History of family dispute (N=84)	16 (69.57)	68 (38.42)	8.11 (<0.01)
Abused by spouse verbally (N=75)	12 (52.17)	63 (35.59)	2.39 (0.12)
Beaten by spouse ever (N=42)	10 (43.48)	32 (18.08)	6.46 [†] (0.01)
Any death in the family in last one year (N=51)	7 (30.44)	44 (24.86)	0.33 (0.56)
Family history of suicide/attempt (N=36)	13 (56.52)	23 (12.99)	23.26 [†] (<0.001)
Family history of psychiatric illness (N=4)	-	4 (2.26)	-

([†] Yates' correction).

69.57% with suicidal ideation/attempt gave history of family dispute, as compared to 38.42% without such

ideation/attempt (p value <0.01). 43.48% respondents with history of suicidal ideation or attempt gave history of ever beaten by their spouse, as against 18.08% without

such suicidal ideation or attempt (p value <0.01). 56.52% participants with suicidal ideation or attempt gave family history of suicide or attempt, as compared to 12.99%

without suicidal ideation or attempt (p value <0.001) (Table 3).

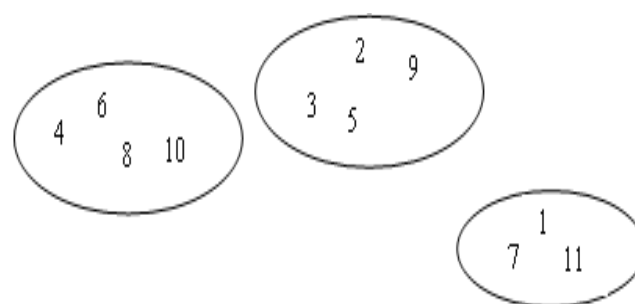
Table 4: Personal history and suicidal ideation/attempt among study subjects.

Characteristics	Suicidal ideation/attempt		Chi-square (p value)
	Yes=23 N (%)	No=177 N (%)	
History of drug/substances abuse (N=115)	10 (43.48)	105 (59.32)	2.09 (0.15)
Consume alcohol regularly (N=38)	11 (47.83)	27 (15.25)	12 [†] (<0.001)
Feeling of financial insecurity (N=102)	11 (47.83)	91 (51.41)	0.1 (0.75)
History of failed relationship (N=25)	8 (34.78)	17 (9.61)	9.61 [†] (<0.01)
History of physical abuse at home/outside (N=22)	9 (39.13)	13 (7.35)	17.89 [†] (<0.001)

([†] Yates' correction).

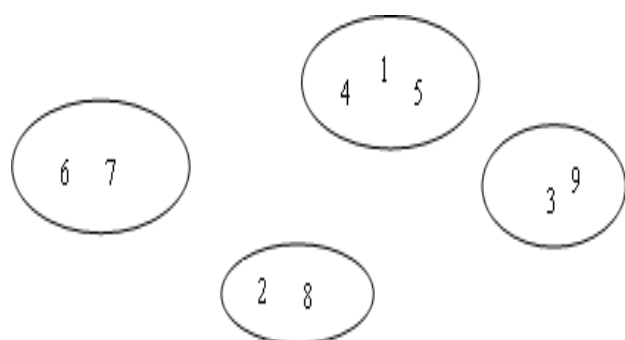
11 (47.83%) out of total 23 subjects with suicidal ideation or attempt were consuming alcohol regularly, as compared to 27 (15.25%) out of 177 subjects without suicidal ideation or attempt (p value <0.001). 8 (34.78%) subjects with suicidal ideation/attempt had a history of failed relationship, as against 17 (9.61%) subjects without suicidal ideation or attempt (p value <0.01). 9 (39.13%) subjects with suicidal ideation/attempt gave history of being ever physically abused at home or outside, as compared to 13 (7.35%) subjects without suicidal ideation or attempt (p value <0.001). History of substance abuse and feeling of financial insecurity were not associated with suicidal ideation or attempt by the study subjects (Table 4).

sorting exercise. FGDs were used as platform for free listing and pile sorting exercise and to discuss various factors and their role leading to suicidal ideation among study population.



4-Unemployment, 2-Alcoholic husband, 1-Depression, 6-Failed love relationship, 3-Pressure from in-laws, 7-Chronic physical illness, 8-Poor performance in exam, 5-Pressure for dowry, 11-Poverty, 10-Fight with peer group, 9-Extramarital/double relation by husband.

Figure 2: Factors responsible for suicidal ideation among young and adult females: Non-metric multi-dimensional scaling and hierarchical cluster analysis.



6-Failed teenage relationships, 2-Family dispute, 1-Alcoholism, 3-Loneliness, 7-Multiple wives, 8-Partner violence, 4-Poverty, 9-Depression, 5-Physical disability.

Figure 1: Factors responsible for suicidal ideation among young and adult males: Non-metric multi-dimensional scaling and hierarchical cluster analysis.

Qualitative findings

Factors contributing to and precipitating suicidal ideation and attempt among young and adult population were explored qualitatively in a triangulated manner in the form of two focus group discussions (2 with male participants and 2 with female participants), free listing and pile

Free listing

Two set of factors emerged as responsible towards suicidal ideation after FGDs. One set of factors for suicidal ideation among young and adult males were revealed from FGD with male participants. Another set of factors for suicidal ideation among young and adult females were explored from FGD with female participants.

Factors responsible for suicidal ideation among males as per discussion with male participants include (with descending Smith's S value): 1) alcoholism, 2) family dispute, 3) loneliness, 4) poverty, 5) physical disability, 6) failed teenage relationships, 7) multiple wives, 8) partner violence, and 9) depression.

Factors responsible for suicidal ideation among females as per discussion with female participants include (with descending Smith's S value): 1) depression, 2) alcoholic husband, 3) pressure from in-laws, 4) unemployment, 5) pressure for dowry, 6) failed love relationships, 7) chronic physical illness, 8) poor performance in examinations, 9) extramarital and double relation by husband, 10) fight with peer group, and 11) poverty.

Pile sort analysis

Male participants could identify 4 broad categories of factors responsible for suicidal ideation among young and adult males in the rural area. First broad category of factors responsible for suicidal ideation among young and young-adult males consisted of, failed teenage relationships and having more than one wife. Second group consisted of factors responsible for suicidal ideation among adult males included family dispute and partner violence. Third group consisted of factors responsible for suicidal ideation among middle aged males and these include alcoholism, poverty and physical disability. Fourth group consisted of factors responsible for suicidal ideation among old aged males included loneliness and depression (Figure 1). Thus, participants could enumerate different set of factors against males of different age group triggering suicidal ideation in the study area.

Similarly, female participants also identified 3 broad categories of factors responsible for suicidal ideation among young and adult females in the study area. First category consisted of factors responsible for suicidal ideation among young females include unemployment, failed love relationship, poor performance in examinations and quarrel with friends or peer group. Second group consisted of factors responsible for suicidal ideation among married women include a alcoholic husband, pressure in various ways from in-laws, pressure for dowry and extramarital relationship by her husband (most instances two wives). Third group comprised of factors responsible for suicidal ideation among old aged females include depression, chronic physical illness and poverty (Figure 2). Thus, like male participants, females also could specify different set of factors against females of different age group triggering suicidal ideation in the study area.

DISCUSSION

In the present study, 7.5% subjects had suicidal ideation during the study period and 8% had ever attempted suicide. This represents a very high rate of suicide attempts in the study population supported by previous research findings, and comparative less suicidal ideation.¹⁰ Fear of legal complications and hesitation to express may be the responsible factor for low ideation rates, when high rate of suicide attempt is considered. Suicidal ideation and attempt was more common among males and in the age group of 36-45 years. This is similar

to study conducted in Kerala, Tamil Nadu and also supported by nationally representative survey published in *Lancet*.^{2,11,12} Level of education, occupation, marital status, religion, caste or type of family was not associated with suicidal ideation or attempt in the present study. This is contrary to findings by Narang et al who reported that single men and married women were more at risk of committing suicide.¹³ However, they also could not find any role of education, occupation, economic status and type of family and attempted suicide.

Presence of physical disability, infertility/sterility and chronic illness was significantly associated with suicidal ideation or attempt in the present study. These findings are similar to Srivatsava et al who reported association of physical disorder and chronic idiopathic pain with suicide.¹⁴ On other hand, Khan, et al identified psychiatric illness and stressful life as important risk factors for suicide.¹⁵ Narang et al also reported mood and adjustment disorders to be significantly associated with suicidal attempts.¹³ However, we could not find any association between depression, anxiety or psychiatric co-morbidity and suicidal ideation or attempt.

Family dispute, partner violence in the form of abused by spouse and family history of suicide or attempt was significantly associated with suicidal ideation or attempt by study subjects in the present study. Pillai et al and Prasad et al also have shown the role of broken families, partner violence (verbal, physical or sexual) and family history of suicide to be strongly associated with suicide attempts by individuals.^{1,3}

In the present study, alcoholism, failed relationship and victim of physical abuse at home or outside have been observed to be significantly associated with suicidal ideation or attempt among study population. The role of alcohol, failed relationship and family dispute and suicide attempt by individuals has been reiterated time and again by various researchers' time and again from various parts of the country.^{16,17} The same has been reported from other countries also.¹⁸

Suicide prevention in India requires public health interventions. Present study findings revealed that suicide rates in this rural community were much higher than those reported by previous literature from South India and elsewhere in the country. However, the extent of suicidal ideation is still expected to be under reported. Though curative psychiatric services and individual counselling have the potential to relieve distress and prevent suicide, they are less likely to reduce population suicide rates. Jacob has argued various population based approaches (e.g. macroeconomic policies, social justice, schemes to meet basic human needs, organizing local support groups, addressing gender issues, and increasing public awareness) that focus on improving the general health of populations rather than medical, psychiatric, and other strategies that target individuals, in order to reduce high suicide rates in India.¹⁹ In addition, the role

of community awareness, community leaders and media can never be denied.

CONCLUSION

Suicidal attempt and ideation rates were quite high in the study area and demand immediate population based public and mental health interventions to reduce population suicide rates.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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