

ORIGINAL ARTICLE

Risk factors for suicide in elderly in comparison to younger age groups

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ABSTRACT

Background: The elderly population has a significant risk of suicide when compared to any other age group. Despite this, suicide among the aged receives scant attention. Hence, identification of suicide risk factors specific to this population will help in the development of suitable prevention strategies for this group.

Aims: Comparison of risk factors for attempting the suicide in the elderly versus younger suicide attempters.

Materials and Methods: A total 1159 suicide attempters attended the suicide prevention clinic of IQRAA International Hospital and Research Centre. They were evaluated using a specially designed psycho-sociodemographic proforma. The group was divided into those above 65 years (elderly) and those below 65 years (younger) and all the risk factors were compared between these two groups.

Results: Most suicide attempters in the elderly category were found to be married, less educated, unemployed and hailed from a rural background and joint families. They had a higher rate of family history of psychiatric illness, past psychiatric illness, concurrent medical illness and history of medical contact in the three months prior to the attempt. A significant number in the elderly group had attempted suicide more than a week after a stressor.

Conclusion: The results from this study suggests that in suicide attempters from Indian geriatric population, co-morbid physical illness, mental illness (particularly depression) and family burden of psychiatric illness are important predictors in comparison to younger populations. Also, these attempters had contact with a medical professional in the three months prior to the attempt. Specific preventive interventions need to be tailored for this population to reduce the risk of suicide rather than adopting generalized suicide prevention strategies.

Key words: Elderly, geriatric, suicide

INTRODUCTION

Studies show that in many countries suicide rates among the elderly persons (>65 years of age) are higher than or as high as that of young people.^[1] Yet suicide in old age is a much neglected area. In fact, there is a lack of basic

knowledge about elderly suicide among clinicians.^[2] WHO estimated the suicide rate for men and women aged 75 and above to be 50/100,000 and 16/100,000 respectively.

^[3] A study from south India^[4] found that the suicide rate in the population above 55 years of age is 189/100,000. About one in five of all successful suicides are committed by individuals above the age of 65. Some predictors of suicide in old age have been described in previous studies.

^[5] Psychiatric disorders^[6] (particularly depression), physical

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illness,^[6] functional impairment,^[5] and stressful life events^[7] increases the risk for suicide in the elderly.

Considering that the proportion of the elderly age group in the population will markedly increase all over the world in the coming decades,^[8] the absolute number of suicides among the elder adults is expected to increase accordingly. So the successful identification of elderly at risk for early intervention is important due to the public health implications. But it is not clear whether the identified risk factors in elderly are relevant in the Indian context as there are significant sociocultural differences from the Western population.

The elderly mostly consult primary care givers rather than mental health professionals for their mental health problems. Knowledge about the suicide risk factors specific to elderly population is required for the early identification of those at risk. This could be considered as a first step in the formulation of suitable strategies for suicide prevention in the elderly with special reference to the Indian context.

Considering these issues, the present study was planned with the objective of comparing the suicide risk factors between the elderly and young populations and to identify the specific risk factors in the elderly.

MATERIALS AND METHODS

A non-experimental descriptive approach was used for this study. The study was conducted at IQRAA International Hospital and Research Centre, Calicut, Kerala. The hospital is situated in an urban area, but its patients consists predominantly of the rural population. Ethical approval was obtained from the Ethics Committee of the institution. This hospital has a well-established Psychiatry Department with an inpatient capacity of 60 beds. Psychiatry Department receives referrals from the various departments of this institute for management of approximately 10–20 suicide attempters in any given month. The institution has a written rule that any patient admitted for a suicide attempt has to be evaluated by the Psychiatry Department before his or her discharge from the hospital. Consecutive suicide attempters of all age groups referred for detailed psychiatric evaluation from various departments from the period 2002 to 2008 formed the study sample for the two comparison arms. Elderly were defined as those with the age above 65 years. Dr. P. N. Suresh carried out the assessments during the initial consultation. The information was obtained from both patient and caregiver. The assessments were completed within 1-day of receiving referral. All psychiatric diagnoses were made using International Classification of Diseases-10 criteria.

Inclusion and exclusion criteria

Suicide attempters who are willing to participate in this study after signing the written informed consent were included in the study. The subjects had to be inpatients

during the assessment and should be able to respond to the tools appropriately. Patients who had no accompanying family member for corroboration of information were excluded.

Tools

A self-designed sociodemographic proforma was used to document the sociodemographic details and life events. It consists of a total of 104 items covering various aspects of sociodemographic data, details of the suicide attempt, past medical and psychiatric history and psycho-social events. Initially a pilot assessment was conducted on 10 patients, and some modifications were done like removing the ambiguity of some items. Test-retest reliability of the prepared tool was established by Cronbach's alpha (0.714). Dr. P. N. Suresh and Dr. P. K. Anish were involved in the development of the questionnaire and design of the study. Dr. Biju George was involved in statistical analysis.

Detailed explanations were given to patients about the purpose of the study. Confidentiality of the information was assured, and informed consent was taken prior to enrolling patients. Rapport was established, and the explanation was given about the study tool. Total time taken for data collection was approximately one hour for each patient.

Analysis of data

Data was analyzed by SPSS-10 PC software system. Sociodemographic data and psychological factors were analyzed by the percentage of frequencies. Association between the socio-demographic and selected psychological factors was analyzed using *t*-test and Chi-square test.

RESULTS

A total of 1159 attempters referred for psychiatric evaluation formed the study sample. They were divided into two study groups. Group 1 consisted of subjects with age below 65 years ($n = 1122$) while Group 2 had subjects with age above 65 years ($n = 37$). The demographic characteristics of the sample are shown in Table 1. Gender and proportion of different religious affiliations were comparable in both the groups. In the elderly group, a significant number were married, unemployed and hailed from a rural area and extended families. Also, total years of education were significantly less in the elderly in comparison to the young subjects (3.49 ± 3.10 vs. 8.10 ± 3.44) ($P = 0.00$).

Psycho-social profile [Table 2] shows that a family history of psychiatric illness among the first degree relatives was significantly higher in the elderly age group. Also, the elderly group had a significantly higher proportion of past psychiatric illness. There were no significant differences in the past history of treatment for psychiatric illness. Medical issues were also higher in the elderly age group. Results show that the concurrent medical

illness and history of medical contact within three months prior to the suicide attempt are higher in the elderly age group.

A significant proportion of both the elderly and young groups (83.8% and 86.2% respectively) had a stressor leading to the suicide attempt [Table 3]. Significant stressors in the elderly group were psychiatric illness and physical problems while that in the younger group were interpersonal issues with spouse and other family members. Other stressors did not show a significant difference between the groups.

There were no significant differences in terms of past suicidal attempts, suicidal threats, treatment for past suicidal attempts, alcohol use during attempt or methods

adopted for the attempt. A significant number of elderly had attempted suicide after more than one week after a stressor [Table 4]. A significant number in the elderly group had a current psychiatric diagnosis of depression where as in the younger group, adjustment disorder was the most common diagnosis [Table 5].

DISCUSSION

Overall, this study gives us some interesting insights into suicidal attempts in the elderly and the associated risk factors. Most of the risk factors operating for elderly suicides identified in the Western studies were found to be relevant to the Indian population also.

Demographic factors

Comparison of education reveals that most of the elderly attempters were less educated than their younger counterparts. This may be due to for the comparative lack of emphasis on education and scarcity of resources in previous decades. In the present study, even though married subjects predominates both the groups, they are significantly more in the elderly group of suicide attempters. But previous studies have shown a protective role of married status in the elderly.^[8] It is possible that there are intermediate factors (such as interpersonal

Table 1: Sociodemographic characteristics

Variable	Above 65 years (n=37) (%)	Below 65 years (n=1122) (%)	χ^2	P
Age	68.89±4.74	29.34±10.70	22.40	0.00
Sex				
Male	21 (56.8)	556 (49.6)	0.74	0.39
Female	16 (43.2)	566 (50.4)		
Married	30 (81.1)	635 (56.6)	38.60	0.00
Religion				
Hindu	31 (83.8)	867 (77.3)	0.91	0.82
Muslim	5 (13.5)	210 (18.7)		
Christian	1 (2.7)	43 (3.8)		
Domicile				
Rural	36 (97.3)	921 (85.1)	4.16	0.04
Urban	1 (2.7)	164 (14.6)		
Employed	9 (24.3)	533 (47.5)	7.73	0.01
Family type				
Joint/extended	23 (62.2)	452 (40.3)	38.18	0.00
Nuclear	14 (37.8)	670 (59.7)		

Table 2: Psychosocial characteristics

Variable	Above 65 years (n=37) (%)	Below 65 years (n=1122) (%)	χ^2	P
Family history of psychiatric illness in 1 st degree relative	20 (54.1)	452 (40.3)	38.18	0.00
Past psychiatric illness	15 (40.5)	256 (22.8)	6.28	0.01
Past history of treatment for psychiatric illness	8 (21.6)	158 (14.1)	1.66	0.20
Medical illness	22 (59.5)	313 (27.9)	17.37	0.00
History of medical contact				
Nil	18 (48.6)	829 (73.9)	11.91	0.01
Within 1-month	13 (35.1)	196 (17.5)		
Within 3 months	6 (16.2)	110 (9.8)		

Table 3: Details regarding stressors

Variable	Above 65 years (n=37) (%)	Below 65 years (n=1122) (%)	χ^2	P
Specific cause for attempt	31 (83.8)	967 (86.2)	0.17	0.68
Psychiatric illness	16 (43.2)	243 (21.7)	9.62	0.00
Quarrel with spouse	0 (0.0)	161 (14.3)	6.17	0.01
Quarrel with other family members	0 (0.0)	204 (18.2)	8.16	0.00
Physical problems	7 (18.9)	66 (5.9)	10.32	0.00

Table 4: Details regarding suicide attempt

Variable	Above 65 years (n=37) (%)	Below 65 years (n=1122) (%)	χ^2	P
Past suicide attempts	6 (16.2)	211 (18.8)	0.16	0.69
Treatment for past suicide attempt	37 (100)	1049 (93.5)	2.57	0.11
Suicidal threats	20 (54.1)	502 (44.7)	1.26	0.26
Time difference between stressor and attempt				
Within 24 h	0 (0)	277 (24.7)	25.80	0.00
24 h - 1-week	1 (2.7)	137 (12.2)		
More than 1-week	30 (81.1)	619 (55.1)		
Not known	6 (16.2)	89 (7.9)		
Type of attempt				
Poisoning	29 (80.6)	856 (77.5)	0.52	0.92
Cutting/jumping/ burning/others	4 (11.1)	121 (11.0)		
Hanging	3 (8.3)	118 (10.7)		
Drowning	0 (0)	9 (0.8)		
Alcohol intake at the time of attempt	5 (13.5)	217 (19.3)	1.12	0.89

Table 5: Current psychiatric diagnosis

Variable	Above 65 years (n=37) (%)	Below 65 years (n=1122) (%)	χ^2	P
Diagnosis present	32 (86.5)	852 (75.9)	2.20	0.14
Depression	21 (56.8)	262 (23.4)	21.66	0.00
Mania	1 (2.7)	30 (2.7)	0.0	0.99
Schizophrenia	4 (10.8)	51 (4.5)	3.11	0.08
Substance abuse	2 (5.4)	122 (10.9)	1.12	0.29
Adjustment disorder	4 (10.8)	401 (35.7)	9.79	0.00
Others	0 (0)	86 (7.7)	3.06	0.08

stressors, perceived burden on spouse due to subjects' mental and physical illness) influencing these findings. So, this finding need to be further explored in future studies.

The significant level of unemployment in the elderly attempters is understandable as many of them would be retirees. Unemployment and lack of stable income are reported to be the risk factors for suicide in the elderly.^[9] Though both the groups had predominance of attempters from the rural areas (reflecting the catchment area of the hospital), there was a significant difference between the groups with the elderly group having larger proportion of attempters from the rural areas. This may reflect the fact that the elderly are left behind in rural areas making them vulnerable to social isolation while the youth move to urban areas for better job opportunities. Social isolation is considered as a contributing factor for the rising rate of suicide with an increase in age.^[10] A sample survey of rural India found a greater degree of insecurity among the aged than younger populations.^[11] With issues of dependency and insecurity, the chance of contemplating suicide will be high.

There is a significant predominance of joint and extended family backgrounds in elderly suicide attempters in our study. This finding needs exploration in future studies. Again in the current age, a rural joint family background does not provide a guarantee against the social isolation. Often the elderly are left behind in disintegrating rural social systems as the youth migrate to urban areas. It is also possible that even though these subjects stay in joint family setting, they are not getting enough emotional and physical support from their immediate caregivers. The current rural joint families (which the subjects claim to be part of) needs to be evaluated regarding their self-sufficiency and integrity of the structure. Also, further studies are required to explore the psychiatric morbidity and suicide ideation among the elderly living in different social settings such as rural joint families and urban nuclear families.

Physical comorbidities

There was a significant association between physical illness and suicide in the elderly. Previous studies have found an association between poor physical health and suicide.^[12] There is evidence that the link between physical illness and suicide is mediated by depression and a sense of hopelessness^[13] which, of course, is significantly more common in elderly attempters. Physical illness generates stress in life, increases the burden on care givers, causes family discord and drains financial resources.^[14] Physical illness robs one's independence which causes a huge dent in self-esteem in societies that place a high premium on autonomy.^[15]

Previous studies have found that suicidal elderly people frequently consult medical services, usually a primary care physician, shortly before the suicidal act, sometime in the last few days or hours prior to the suicidal act.^[16] In the present study, significant number of elderly had consulted a physician in the three months prior to the suicidal act. Even though the information is not available from the current questionnaire whether these subjects had suicidal ideation during these consultations, considering the predominance of physical and psychiatric illness in the elderly in the current study, it is a strong possibility having grave implications. One investigation found that 41% of 1397 persons who committed suicide had contact with a health care professional within 28 days of death, 47% within one week, and 18% on the day of death. The suicidal intent was discussed in only 22% of these meetings.^[17]

Psychiatric illness

It has been shown that unipolar depression is usually the most common Axis-I diagnosis associated with suicide among the elderly.^[18] In the present study, elderly attempters had significantly higher rate of current diagnosis of depression. In contrast, the younger attempters predominantly had adjustment disorder with emotional disturbance and their attempts were impulsive occurring within 24 hours after the stressor. Many physicians miss or dismiss the telltale signs of depression in the elderly as normal complaints associated with aging. This lack of recognition is compounded by the fact that the depression often presents differently in the elderly and can be confused with other coexisting medical conditions.^[19] Elderly persons suffering from depression often present with fewer mood symptoms and instead complains of fatigue, concentration deficits, diminished memory, and lack of initiative. They are also less likely to report the suicidal ideation and intent compared to young people.^[18] Often, establishing the diagnosis and initiating treatment in elderly is difficult given that the diagnostic systems require a critical number of symptoms to make the diagnosis of depressive disorder.^[20] The problem is compounded by the lack of sensitization among the primary care givers regarding the geriatric mental health problems.

Also, the elderly group had higher rates of past psychiatric illness and family history of psychiatric illness in first degree relatives than the younger age group. This suggests that the most suicide attempters in the elderly group suffer from co-morbid psychiatric disorder compared to the young age group where attempts are more likely to be related to immediate life events. These findings have important implications in relation to developing suicide prevention strategies. The adequate focus in screening for mental illness in elderly seeking treatment for physical illness would be important while, in young age groups, availability of support for handling psycho-social stressors should be given due importance.

In contrast to the younger attempters where majority attempted suicide within 24 hour after a stressor, the majority of the elders attempted suicide more than a week after a stressor. This may suggest that the suicide attempts in the elderly group are planned and less impulsive. This again ties up with the fact that elderly suicides appear to be related more with mental and physical ill health and associated concerns about dependency.

Limitations

Our study does have certain limitations. Cross-sectional nature of the study, the possibility of retrospective bias especially in the aftermath of the suicide attempt, lack of scales for assessing psychiatric morbidity (especially depression and stressors) could be the important ones. Considering that the study is a nonpurposive comparison study, any rater bias appears to be unlikely. Another issue would be the comparatively smaller sample size in the elderly age group. But the strength of our study is that all the evaluations have been done by a trained psychiatrist with more than 10 years of postgraduate experience in psychiatry on a consecutive sample.

CONCLUSION

The results from this study suggest that in suicide attempters from Indian geriatric population, co-morbid physical illness, mental illness (particularly depression), and family burden of psychiatric illness are important predictors in comparison to younger populations. Also, these attempters had contact with a medical professional within three months prior to the attempt. The suicide attempts are more planned, and less impulsive compared to young attempters.

Most of these findings are consistent with the findings from Western studies.^[21] This suggests that despite cultural and social differences, co-morbid conditions remain important predictors of suicide in Indian geriatric population. Also, preventive interventions could have been possible in a major proportion of these attempters, if the primary care health professionals have been adequately sensitized.

Poor educational status and unemployment also appear to be significantly more in elderly suicide attempters. Married status and a rural joint family background appear to be overrepresented in this group. Further studies are required to evaluate the nature of these associations. It needs to be seen whether these findings reflect the overall geriatric population demographics or whether there are intermediate factors (such as guilt regarding being a burden to care givers, specific interpersonal issues arising from the family structures) influencing these findings.

Association with multiple factors in geriatric suicide attempters warrant broadly directed and multimodal interventions. Improved identification of depression, better treatment of depression, adequate attention to medical problems and associated dependency issues, and sensitization and education of primary care physicians could be the targeted interventions for reduction of suicide prevalence in old age. As the study suggests, suicide in elderly need specific interventions tailored for this population rather than a nonspecific, "one size fits all" approach.

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Conflicts of interest

There are no conflicts of interest.

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