

## AGE AND GENDER RELATED ANALYSIS OF PSYCHOSOCIAL FACTORS IN ATTEMPTED SUICIDE

STUDY FROM A MEDICAL INTENSIVE CARE UNIT

P.N. SURESH KUMAR

### ABSTRACT

*Hundred consecutive suicide attempters admitted in the Medical Intensive Care Unit (MICU) of Christian Medical College, Vellore during the period December 1991 to December 1992 were evaluated in detail with respect to all psycho-socio-demographic variables. Instruments used included a specially designed sociodemographic proforma, Gurmeet Singh's Presumptive Stressful Life Event Scale, Suicide Intent Questionnaire and DSM III R Diagnostic Criteria. Young males constituted major part of the sample. Organophosphorus poisoning was the commonest mode of suicide attempt. More than 90% had psychiatric diagnosis. Adjustment disorder was the commonest psychiatric diagnosis followed by major depression and alcohol abuse/dependence. Many of the risk factors reported earlier was found to be operating in older age group only. Among males the commonest mode of attempt was organophosphorus poisoning whereas in females it was drug over dose and native poisoning. The implication of these findings are discussed in the context of prevention and further management strategies.*

*Key Words : Suicide, attempted suicide, age, gender, medical intensive care unit*

Suicide and deliberate self harm are major issues in health care all over the world accounting for 0.4-0.9% of all deaths (Roy, 1995). It is a significant problem in India with a reported rate of 9.74 per 1,00,000 population (Government of India, 1994). Thus it is an important medical emergency having major psychiatric implications. The magnitude of this problem with different facets involving medical, psychiatric, social, religious and other considerations, demands a systematic investigation into the nature of such behaviour. In India, there have been thought provoking studies in the area of suicide (Venkoba Rao et al., 1989; Shukla et al., 1990; Sureshkumar et al., 1995 & Ponnudurai et al., 1997). Since suicide attempts are primarily managed as a medical emergency, an awareness of the

psychiatric aspects of this behaviour will definitely help in the prevention and further management of this health hazard. Present investigation has studied some of the psychosocial aspects of individuals who attempted suicide. The specific objectives of this study were :

1. To evaluate the psycho-socio-demographic variables including family history, physical illnesses, psychiatric diagnoses, past suicide attempts, mode of attempt, life events and outcome of individuals who attempted suicide.
2. To find out the relationship between the above factors in different age and sex groups.

### MATERIAL AND METHOD

This study is a descriptive, cross

## AGE, GENDER & PSYCHOSOCIAL FACTORS IN ATTEMPTED SUICIDE

sectional, hospital based analysis of suicide attempters and analysis of psychosocial and illness variables for age and gender of the subjects. The modality of suicide attempt includes organophosphorus poisoning, native poisoning, medicine overdose, hanging, drowning, jumping, cutting etc. The sample comprised of 100 consecutive suicide attempters admitted in the MICU of Christian Medical College, Vellore between December 1991 to December 1992. Detailed interviews were conducted with patients and their relatives within the first few days of admission. Patients whose physical condition prevented the evaluation were interviewed later as and when their condition improved. In the majority, one or both parents, spouse, or sibling were also available for the assessment.

The psycho-socio-demographic characteristics were documented in a specially designed proforma. Suicide intent was assessed using suicide intent questionnaire (Gupta et al., 1983). This questionnaire has been widely used in a number of studies conducted in India. It consists of ten statements relating to suicide intent. A cut off score of five is suggestive of presence of suicide ideation. Higher score shows more intense suicidal preoccupation. For the present study the suicide intent score is categorised as mild (0-4), moderate (5-10) and severe (11-15). Psychiatric diagnosis was made based on DSM-III-R Criteria (APA, 1987). The presumptive stressful life event scale formulated by Singh et al. (1984) designed specifically for Indian population was employed to evaluate the life events that occurred within 1 year prior to the suicide attempt.

The data were analysed using SPSS window software system. Analysis of categorical variables were done using  $X^2$  test with Yate's correction wherever necessary. Comparison of life event score (mean rank) in different age group was done by Kruskal-Wallis one way ANOVA test. Analysis of life event score (mean rank) in different genders and outcome group was done by Man-Whitney U test. Analysis of

outcome in different genders was done by Fisher's Exact Probability Test. All 'p' values are expressed as two tailed 'p' values.

### RESULTS

Majority (71%) of the suicide attempters were less than 30 years age group and were males (65%); 59% married; 57% were educated; 47% were employed and 60% were from rural background. Half of the sample (46%) were from lower socioeconomic status and 54% were from nuclear families. The Clinical Characteristics of suicidal attempters shows that 57% had family history of psychiatric morbidity with alcoholism, suicide and depression as the common problems. 42% reported physical ailment of which abdominal pain without any demonstrable cause and epilepsy were more common. Among the past psychiatric morbidity (41%) depression and alcoholism were the frequent diagnoses. 53% consumed organophosphorus compounds, 24% medicine over dose and 8% native poisons. Other methods (15%) were hanging, drowning, jumping and cutting. The intent of suicide attempt was judged to be mild in 19%, moderate in 49% & severe in 32%. A vast majority had current psychiatric diagnosis with adjustment disorder being the most frequent one followed by major depression and alcohol abuse/dependence. Ten patients (10%) died during the first week after admission (Table 1).

Analysis of all psychosocial variables (sex, marital status, residence, education, occupation, socioeconomic status, family type, family and past history of psychiatric morbidity, physical ailments, past suicide attempts, type of attempt, intensity of attempt, current psychiatric diagnosis and outcome) in different age groups showed significant association of past and family history of psychiatric morbidity, major psychiatric illnesses, severity of suicidal attempt and life event score in older age group (Table 2).

Analysis of all the above mentioned psychosocial variables in different genders showed significantly high rate of family history of psychiatric morbidity in males and physical

TABLE 1  
SAMPLE CHARACTERISTICS

	Frequency %		Frequency %
<b>AGE (yrs)</b>		<b>EDUCATION</b>	
Less than 20	24	Matric	57
21-30	47	Above matric	43
31-40	11		
Above 40	18	<b>OCCUPATION</b>	
<b>SEX</b>		Unemployed	53
Male	65	Employed	47
Female	35	<b>SOCIOECONOMIC STATUS</b>	
<b>MARITAL STATUS</b>		Low	46
Married	59	Middle	35
Single/Seperated	41	High	19
<b>RESIDENCE</b>		<b>FAMILY TYPE</b>	
Rural	60	Nuclear	54
Urban	40	Joint	46
<b>FAMILY HISTORY</b>		<b>TYPE OF ATTEMPT</b>	
Alcoholism	24	Organophosphorus	53
Suicide	14	Other methods	47
Depression	13	(Medicine overdose and native poison)	
Others	4	<b>SUICIDE INTENT SCORE</b>	
<b>PHYSICAL AILMENTS</b>		Mild (0-4)	19
Abdominal pain	16	Moderate (5-10)	49
Epilepsy	8	Severe (11-15)	22
Tuberculosis	4	<b>CURRENT PSYCHIATRIC DIAGNOSIS</b>	
Diabetes	4	Adjustment disorder	33
Others	18	Major depression	32
<b>PAST PSYCHIATRIC MORBIDITY</b>		Alcohol abuse/ dependence	10
Depression	16	Others	23
Alcohol abuse	13	<b>OUTCOME</b>	
Schizophrenia	3	Alive	90
Others	12	Dead	10
<b>PAST SUICIDE ATTEMPTS</b>	24		

ailments in females. In males the common code of attempt was organophosphorus poisoning while in females it was drug over dose and native poisons (Table 3). Table 4 shows the analysis of psycho-socio-demographic variables with respect to outcome, which did not show any significance.

## DISCUSSION

The sample of this study is comprised of

suicide attempters admitted in a medical intensive care unit for intensive management. Patients with questionable suicide attempt (parasuicide) were treated and discharged either in the casualty or medical ward and were excluded from the study design. Since we have taken only genuine suicide attempters who had adopted lethal methods and had to be managed in intensive care unit, we will be comparing the present sample with suicide completers in literature. Moreover, analysis of psycho-socio-

# AGE, GENDER & PSYCHOSOCIAL FACTORS IN ATTEMPTED SUICIDE

**TABLE 2**  
**ANALYSIS OF AGE VERSUS PSYCHOSOCIAL VARIABLES**

Variable	≤20 (N=24)	21-30 (N=47)	31-40 (N=11)	>40 (N=18)	Significance
Family history					
Present	7	17	3	16	p=0.00022
Absent	17	30	8	2	$\chi^2 = 19.34$
Past psychiatric morbidity					
Present	6	15	6	16	p=0.00008
Absent	18	32	5	2	$\chi^2 = 21.59$
Past suicide attempts					
Present	5	11	2	6	p=0.07518
Absent	19	36	9	12	$\chi^2 = 2.41$
Physical ailments					
Present	8	17	8	9	p=0.105
Absent	16	30	3	9	$\chi^2 = 6.13$
Major psychiatric illness					
Present	6	19	4	18	p=0.00001
Absent	18	28	7	00	$\chi^2 = 26.28$
Type of attempt					
Organosphosphorous	13	25	4	11	p=0.5342
Other methods (drug over dose, native poisons)	11	22	7	7	$\chi^2 = 2.19$
Suicide intent score					
Mild (0-4)	10	8	1	00	p=0.0006
Moderate (5-10)	12	26	5	6	$\chi^2 = 23.7528$
Severe (11-15)	2	13	5	12	
Outcome					
Alive	22	4	9	15	p=0.48177
Dead	2	3	2	3	$\chi^2 = 2.46$
Life event score (Mean rank)	13.50	49.40	66.29	90.11	p=0.0000 $\chi^2 = 74.6069$

demographic variables between different outcome group (alive and dead) did not show any significant relationship to either group. Hence the total sample is compared with suicide completers reported from India and West. The investigation of trends in suicide attempts over the year has revealed considerable variations in age, sex and associated factors. Recent studies have reported two peaks, one in late adolescence and the other in

elderly (Moens et al., 1989; Surtrees & Duffy, 1989). Present study showed that this behaviour is most frequent in younger individuals especially males. Similar findings have been reported by Western workers, where the rate for men have been found to be two or three times higher than those for women (Slater & Roth, 1986). Studies from India too have found males to commit suicide more often than females (Ganapathy & Venkoba Rao, 1966;

TABLE 3  
ANALYSIS OF SEX VERSUS PSYCHOSOCIAL VARIABLES

Variable		Male (N=65)	Female (N=35)	Significance
Family History	Present	20	23	p=0.0016
	Absent	45	12	X <sup>2</sup> = 9.95
Past psychiatric Morbidity	Present	31	12	p=0.1964
	Absent	34	23	X <sup>2</sup> = 1.67
Past suicide attempts	Present	15	9	p=0.1700
	Absent	50	26	X <sup>2</sup> = 1.85
Physical ailments	Present	19	23	p=0.0004
	Absent	46	12	X <sup>2</sup> = 12.43
Major psychiatric illness	Present	29	18	p=0.5150
	Absent	36	17	X <sup>2</sup> = 0.42
Type of Attempt	Organophosphorous	43	10	p=0.0239
	Other methods (drug over dose and native poisons)	22	15	X <sup>2</sup> = 5.10
Suicide intent score	Mild (0-4)	11	8	p=0.7611
	Moderate (5-10)	33	16	X <sup>2</sup> = 0.5458
	Severe (11-15)	21	11	
Outcome	Dead	5	5	p=0.3134
	Alive	60	30	
Life Event Score (Mean rank)		50.19	50.07	p=0.8850 U = 1787.5

Ponnudurai & Jayakar, 1980; Shukla et al., 1990). Present study also shows that suicidal behaviour is slightly more in married though the opposite has been reported in literature. Shukla et al. (1990) have put forward several reasons for suicide being more common among the married in India. Here marriage is a social obligation and is performed by elders irrespective of the individuals preparedness for it. Further marriage is believed to be part of the treatment for mental illness and the mentally ill are more likely to get married, that too sooner than the mentally healthy. Hence there could be several adjustment problems among the married mentally ill persons in India. Divorce being socially frowned upon and suicide provides the only escape. In the West on the other

hand, marriage is believed to be a measure of emotional stability and married people have lower rate of mental illness (Slater & Roth, 1986). Factors like poor socioeconomic status, nuclear family type and unemployment which were more prevalent in this study have been repeatedly cited as significant risk factors predicting suicide (Slater & Roth, 1986). An interesting finding was that there was a definite difference in the clinical profile of suicide attempters in younger and older age groups. Most of the risk factors reported previously i.e. presence of physical illnesses, family and past history of illnesses like alcoholism, suicide and depression were found to be high in elderly suicide attempters. Their intensity of suicide attempt

## AGE, GENDER & PSYCHOSOCIAL FACTORS IN ATTEMPTED SUICIDE

**TABLE 4**  
**ANALYSIS OF OUTCOME VERSUS**  
**PSYCHOSOCIAL VARIABLES**

	Alive	Dead	Significance
<b>Age (yrs)</b>			
≤ 20	22	2	$X^2 = 2.4110$ $p=0.4916$
21-30	44	3	
31-40	9	2	
Above 40	15	3	
<b>Sex</b>			
Male	60	5	$X^2 = 1.2093$ $p=0.2715$
Female	30	5	
<b>Marital status</b>			
Married	56	3	$X^2 = 0.5000$ $p=0.4795$
Unmarried	34	7	
<b>Occupation</b>			
Employed	47	6	$X^2 = 0.2482$ $p=0.6176$
Unemployed	43	4	
<b>Family history</b>			
Present	39	4	$X^2 = 1.4076$ $p=0.2356$
Absent	51	6	
<b>Past psychiatric morbidity</b>			
Present	39	5	$X^2 = 0.9301$ $p=0.1647$
Absent	51	5	
<b>Physical ailments</b>			
Present	37	5	$X^2 = 0.2614$ $p=0.6092$
Absent	53	5	
<b>Past suicide attempts</b>			
Present	21	3	$X^2 = 0.2001$ $p=0.6541$
Absent	69	7	
<b>Current psychiatric</b>			
Present	86	7	$X^2 = 0.1861$ $p=0.6556$
Absent	4	3	
<b>Type of Attempt</b>			
Organosphosphorous	48	5	$X^2 = 0.1797$ $p=0.6717$
Other methods (drug over dose, native poisons)	42	5	
<b>Suicide intent score</b>			
(0-4) Mild	18	1	$X^2 = 3.9098$ $p=0.1416$
(5-10) Moderate	46	3	
(11-15) Severe	24	6	
<b>Mean life event score (Mean rank)</b>	60.12	55.45	$X^2 = 0.8951$ $U = 1812.4$

was also severe and had significantly high stressful life events. The cumulative effect of multiple risk factors may be the reason for

serious attempts in elderly people. It has been reported that suicide complicates depression in the elderly and the risk accelerating with the coexisting unfavourable economic, social factors and physical diseases (Venkoba Rao, 1993). Government of India offers statistical data separately for age groups below fifty while for over the fifty years and above the group is treated as whole. The suicide rate for the elderly (50+) exceeds the country's rate 9-11/100,000 (1976-1986). The elderly contribute to about 12% of all suicides. This is smaller than the western figure, but this is in spite of the comparatively young demographic structure of Indian society (Venkoba Rao, 1991). Rich et al. (1986) have reported significant differences in the characteristics between young and old (30 and over) suicide victims. Young suicide victims had more drug use disorders, antisocial personality and legal problems. Whereas old suicide victims had more mood disorders, brain disorders and unemployment. Clearly more work is needed in this area to substantiate our findings.

Majority of suicide attempters had a current psychiatric diagnosis, of which adjustment disorder was the most frequent one followed by major depression and alcohol abuse/dependence. Studies from India and abroad have consistently reported a high incidence of psychiatric illness in suicide attempters with a reasonable estimate of depression accounting for 75%, alcoholism 15% and miscellaneous psychiatric conditions 8% (Barraclough et al., 1974; Gupta & Singh, 1981). Adjustment disorder denotes a poor coping ability of susceptible individuals to adverse circumstances and they would adopt suicide attempt as a resort to solve the problems or to escape from the difficult situation. Generally patients with this diagnosis would consult physicians primarily and there is a tendency to over look the risk of suicidality. An awareness of suicide risk in any patient presented whether with physical or psychological problems should

alert the clinician to get an expert opinion from the concerned discipline. Studies done in the area of consultation-liaison psychiatry have shown significant reduction in the number of repeated suicide attempts in the vulnerable group with appropriate management (McFarland & Beavers, 1986). A minor proportion in our sample had physical problems. Abdominal pain ranked the highest physical illness in our sample. Both in India and western countries abdominal pain was listed among the causes of attempted and completed suicide (Venkoba Rao, 1971; Vassilas, 1988). One possible link between suicide, pain and chronic illness may be that it can either lead to secondary depression or can be a manifestation of underlying depression. The risk of suicide has been found to be high in individuals who are physically ill. It has been reported that chronic physical illnesses such as cirrhosis, diabetes and hypertension are precipitating factors for suicide, even granting that it will be difficult to predict suicide prior to the attempt (Barraclough, 1987).

Organophosphorus poisoning was the most frequent method employed for attempting suicide in our sample. This has been repeatedly confirmed by many studies done in India (Nandi et al., 1979). In fact the problems of attempting suicide using agricultural chemicals has attracted a great deal of attention over the past decades. In Sri Lanka, a country with one of the largest suicide rate (29/100,000 in 1980) poisoning by agricultural chemical were the most frequent method used (Berger, 1988). From a 1985 survey conducted in Jordan 30.6% of all, used agricultural chemicals, the highest total of any category (Al-Ragheb & Salhab, 1989). A recent survey reported from Japan, also found that consuming organophosphorus compounds as the commonest mode of attempting suicide (Sato et al., 1993). An interesting observations in this study was that among males the common mode of attempt was organophosphorus poisoning where as in

females it was drug over dose and native poisons. Factors like feasibility, accessibility, credibility and rapidity of action could be behind the choice of the method for committing suicide. Fashions change for suicide and relative popularity of different methods have changed overtime (Moens et al., 1989). It is felt that the availability of a method is important when suicidal act is impulsive in nature. In India, agricultural workers are mainly males and have an easy accessibility to these compounds. Higher frequency of medicine over dose in females could be due to the high incidence of physical ailments in females which may lead to the easy availability of drugs. Keeping this in mind Ganapathy and Venkoba Rao (1966) and Nandi et al. (1979) have pleaded for restriction in the sale of organophosphorus compounds which are used as agricultural insecticides and are rather freely available.

The present findings suggest that there are considerable difference in the profile of individuals who attempted suicide. Many of the risk factors reported previously were found to be operating in order age group only. The higher occurrence of attempted suicide in younger individuals would demand more research in this area in order that prevention strategies can be worked out. The higher prevalence of psychiatric disorders in suicide attempters necessitates greater awareness of suicidal risk and early intervention as a preventive strategy. Periodic short term training on psychiatric disorders and crisis management for primary care physicians can effectively reduce this preventable health hazard. The increasing problem of organophosphorous poisoning and drug overdose demands strict legal scrutiny in the provision of these compounds which may in turn limit the availability of common means of attempting suicide.

## REFERENCES

- Al-Ragheb, A.S.Y. & Salhab, A.S. (1989) A Jordanian experience. *American Journal of*

## AGE, GENDER & PSYCHOSOCIAL FACTORS IN ATTEMPTED SUICIDE

*Forensic Medicine and Pathology*, 10, 221-225.

**American Psychiatric Association (1987)**

Diagnostic and statistical manual of mental disorders, Edn. 3, Revised (DSM III R), Washington D.C.

**BarracloUGH, B.M., Bunch, J., Nelson, B. & Sainsbury, P. (1974)** A hundred cases of suicide. *British Journal of Psychiatry*, 125, 355-373.

**BarracloUGH, B.M. (1987)** Suicide in epilepsy. *Acta Psychiatrica Scandinavica*, 76, 339-345.

**Berger, L.R. (1988)** Suicide and pesticides in Sri Lanka. *American Journal of Public Health*, 78, 826-828.

**Ganapathy, M.N. & Venkoba Rao, A. (1966)** A study of suicide in Madurai. *Journal of Indian Medical Association*, 46, 18-23.

**Government of India (1994)** Accidental deaths and suicides in India, National Crime Records Bureau, New Delhi : Ministry of Home Affairs.

**Gupta, S.C. & Singh, H. (1981)** Psychiatric illnesses in suicide attempters. *Indian Journal of Psychiatry*, 23, 69-74.

**Gupta, S.C., Anand, R. & Trivedi, J.K. (1983)** Development of suicide intent questionnaire. *Indian Journal of Psychiatry*, 25, 57-62.

**McFarland, F.H. & Beavers, D.J. (1986)** Psychiatric consultation following attempted suicide. *Journal of American Osteopathy*, 86, 743-750.

**Moens, G.F.C., Loysch, M.J.M., Hoggokoeseeme, S. & Voordeh, V.H. (1989)** Recent trends in methods of suicide. *Acta Psychiatrica Scandinavica*, 79, 207-215.

**Nandi, D.N., Mukherjee, S.P., Banerjee, G., Gosha, A., Boral, G.C. & Chowdhary, A. (1979)** Is suicide preventable by restricting the availability of lethal agents? A survey of West Bengal. *Indian Journal of Psychiatry*, 21, 251-255.

**Ponnudurai, R. & Jayakar, J. (1980)** Suicide in Madras. *Indian Journal of Psychiatry*, 22, 203-205.

**Ponnudurai, R., Patnaik, K.A., Sathianathan, R. & Subhan, K. (1997)** A study on venues of suicide. *Indian Journal of Psychiatry*, 39, 27-34.

**Rich, C., Young, D. & Fowler, R. (1986)** The San Diego suicide study : young versus old cases. *Archives of General Psychiatry*, 43, 577.

**Roy, A. (1995)** Suicide. In : *Comprehensive Textbook of Psychiatry*. Edn. 6, (Eds.) Kaplan, H.I. & Sadock, B.J., pp 1739-1752, Baltimore : Williams & Wilkins.

**Sato, T., Takeichi, M. & Hara, T. (1993)** Suicide attempts by agricultural chemicals. *Indian Journal of Psychiatry*, 35, 209-210.

**Shukla, G.D., Varma, B.L. & Mishra, D.N. (1990)** Suicide in Jhansi city. *Indian Journal of Psychiatry*, 32, 44-52.

**Singh, G., Kaur, D. & Kaur, H. (1984)** Presumptive Stressful Life Event Scale (PSLE). *Indian Journal of Psychiatry*, 26, 107-114.

**Slater, E. & Roth, M. (1986)** Clinical psychiatry, Edn. 3, (Indian Edition), New Delhi : Jaypee Brothers.

**Suresh Kumar, P.N., Kuruvilla, K., Dutta, S., John, G. & Jayaseelan (1995)** Psychosocial aspects of attempted suicide : Study from a medical intensive care unit. *Indian Journal of Psychological Medicine*, 18 (2), 32-42.

**Surtrees, P.G. & Duffy, J.C. (1989)** Suicide in England and Wales : A age period-cohort analysis. *Acta Psychiatrica Scandinavica*, 76, 216-223.

**Vassilas, C.A. (1988)** Parasuicide and appendectomy. *British Journal of Psychiatry*, 152, 706-709.

**Venkoba Rao, A. (1971)** Suicide attempters in Madurai. *Journal of Indian Medical Association*, 57, 278-284.

**Venkoba Rao, A., Mahendran, N. & Gopalakrishnan, C. (1989)** One hundred female burns cases. *Indian Journal of Psychiatry*, 33, 43-51.

**Venkoba Rao, A. (1991)** Suicide in the elderly - a report from India. *CRISIS*, 12 (2), 33-39.

**Venkoba Rao, A. (1993)** Geriatric depression. In : *Affective Disorders* (Eds.) Agarwal, A.K. & Katiyar, M., pp 149-153., Proceedings of Continuing Medical Education Programme on Affective Disorders.