Revisiting profile of deliberate self-harm at a tertiary care hospital after an interval of 10 years

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ABSTRACT

Context: Sociocultural factors complement psychopathological factors that result in deliberate self-harm (DSH). A study of change in these factors over time is essential for preventive action.

Aims: To identify factors influencing DSH, which have shown significant variation over a period of 10 years.

Settings and Design: Two hospital-based cross-sectional analytic types of observational studies were performed at two different times at an interval of 10 years.

Materials and Methods: Sociodemographic profile, factors related to DSH, stressful life events, and psychiatric disorders were assessed in two groups of patients drawn from the same tertiary care hospital, 100 consecutive patients in 2002 and 117 in 2012. The observations were compared to identify factors that have undergone significant change.

Statistical Analysis: Descriptive statistics along with Chi-square test was used in this study.

Results: A significant decrease in the overall number of married subjects (60% vs. 43%) and an increase in the number of unmarried females (34% vs. 61%) were seen. A significant increase in the overall number of rural subjects (17% vs. 34%) and especially in a number of rural females (7% vs. 23%) was also seen. An increase in subjects from middle socioeconomic class (15% vs. 29%) and education up to secondary school (9% vs. 25%) was also seen. A significantly higher number of subjects had a psychiatric disorder (50% vs. 81%) with a significant increase in diagnoses of depression (36% vs. 67%). Family and social issues remain the most common antecedent stressful events. Chemical methods are still the most preferred means, but a higher number (8% vs. 18%) report a history of self-harm.

Conclusion: Variations in factors responsible for DSH identified in this comparative study have preventive implications.

Key words: Antecedent stressful events, comparison at an interval, deliberate self-harm

INTRODUCTION

In India, about 100,000 persons commit suicide every year, contributing to about 10% of the suicides in the world.[1] The National Crime Records Bureau statistics report that the number of suicides in the country during the decade (2002–2012) have recorded an increase of 22.7% (135,445 in 2012 from 110,417 in 2002).[2] The national suicide rate for 2012 was 11.2 per 100,000 population.[3] Suicide is among the top ten causes of death in India and among the top three causes of death in those who are between 16 and 25 years of age.[2] It is estimated that the incidence of nonfatal deliberate self-harm (DSH) is 250 per 100,000 persons per year.[3] Thus, in recent years attempted suicide has become the focus of research as it has been found to be one of the significant predictors of suicide.[4,5] Indian research has shown that there are considerable age- and
gender-related differences in psychosocial and psychiatric factors among individuals who attempt suicide. A review of the Indian research on suicide reveals that there is a relative paucity of publications on attempted suicide and in addition to mental illnesses; societal structures and specific stressors play a prominent role. Cultural epidemiological research that takes into account the underlying problems, their perceived causes, triggers of suicidal behaviors along with locally relevant patterns of suicidal behavior in addition to the customary psychopathological account is important in preventive action planning. In the current study, a comparison of sociocultural and psychiatric factors between two samples of DSH participants drawn from the same population over a gap of 10 years is done. The understanding of variations that have occurred in these risk factors over a period can help in better understanding and prevention of these risk factors.

MATERIALS AND METHODS

Two hospital-based cross-sectional observational studies were carried out at an interval of 10 years in 2002 (Study 1) with 100 participants and 2012 (Study 2) with 117 patients, respectively, by the Department of Psychiatry, SMS Medical College, Jaipur. The samples included consecutive participants of DSH reporting to psychiatry OPD in the general hospital of the institute who were 18 years and above and gave appropriate written informed consent. Participants who were having a comorbid current psychotic illness or those who were not able to understand the questionnaires, or had any severe disturbance of mental state due to any reason which could prevent satisfactory response to interviews or questionnaires were excluded from the study. The definition of DSH was as for “parasuicide” in the WHO/Euro multicenter study by Platt et al. 1992. DSH is “an act with a non-fatal outcome in which an individual deliberately initiates a non-habitual behavior, that without intervention from others will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognized dosage, and which is aimed at realizing changes that the person desires via the actual or expected physical consequences.” Both Study 1 and 2 assessed subjects with a semi-structured pro forma for sociodemographic profile and method of self-harm, and with presumptive stressful life events scale for antecedent stressful events. Psychiatric disorder was assessed using clinical interview based on ICD 10 in Study 1 and using Mini International Neuropsychiatric Interview version 5.0.0 (MINI) in Study 2. The two studies were mostly comparable as same variables were assessed in sociodemographic profile, method of self-harm, and stressful events except that Study 1 utilized unstructured clinical interviews for diagnosis of psychiatric disorders, while Study 2 utilized MINI. Descriptive statistics were used to analyze the outcomes for variables that were qualitative in nature. Chi-squared test ($P$-value) was used to test the significance of differences observed in the values of factors in the two studies. For the sake of comparison of two studies, the diagnostic categories were collapsed into depression, others and no disorders as Study 1 had only these three categories.

| Table 1: Comparison of sociodemographic profile of the two studies from 2002 (Study 1) and 2012 (Study 2) |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Age group | Male Study 1, $n$ (%) | Male Study 2, $n$ (%) | Male Study 1, $n$ (%) | Male Study 2, $n$ (%) | Female Study 1, $n$ (%) | Female Study 2, $n$ (%) | Total Study 1, $n$ (%) | Total Study 2, $n$ (%) |
| 18-25 | 17 (40.5) | 26 (46.3) | 0.702 | 36 (62.1) | 41 (67.2) | 0.693 | 53 (53) | 67 (57.3) | 0.622 |
| 26-40 | 18 (42.8) | 21 (37.5) | 0.743 | 12 (20.7) | 17 (27.9) | 0.485 | 30 (30) | 38 (32.5) | 0.806 |
| >40 | 7 (16.7) | 09 (16.2) | 0.844 | 10 (17.2) | 3 (04.9) | 0.063 | 17 (17) | 12 (10.2) | 0.209 |
| Marital status | | | | | | | | |
| Married | 29 (69.1) | 30 (53.6) | 0.971 | 31 (53.4) | 21 (34.5) | 0.057 | 60 (60) | 51 (43.6) | 0.023 |
| Unmarried | 11 (26.1) | 21 (37.5) | 0.335 | 20 (34.4) | 37 (60.6) | 0.008 | 31 (31) | 58 (49.6) | 0.008 |
| Widowed/divorced/singles | 2 (04.8) | 5 (09.8) | 0.692 | 7 (12.2) | 3 (04.9) | 0.282 | 09 (09) | 8 (06.8) | 0.736 |
| Family status | | | | | | | | |
| Joint | 23 (54.8) | 33 (58.9) | 0.837 | 32 (55.2) | 27 (44.3) | 0.314 | 55 (55) | 49 (41.9) | 0.073 |
| Nuclear | 19 (45.2) | 23 (41.1) | 0.837 | 26 (44.8) | 34 (55.7) | 0.314 | 45 (45) | 68 (58.1) | 0.082 |
| Residence | | | | | | | | |
| Urban | 29 (69.1) | 30 (53.6) | 0.180 | 54 (93.1) | 47 (77.1) | 0.029 | 83 (83) | 77 (65.8) | 0.007 |
| Rural | 13 (30.9) | 26 (46.4) | 4 (06.9) | 14 (22.9) | 17 (17) | 0.17 | 40 (34.2) | 40 (34.2) | 0.001 |
| Socioeconomic status | | | | | | | | |
| Low | 30 (71.4) | 28 (50) | 0.054 | 39 (67.2) | 45 (73.8) | 0.562 | 69 (69) | 73 (62.4) | 0.381 |
| Middle | 10 (23.8) | 22 (39.3) | 0.162 | 5 (08.6) | 12 (19.7) | 0.144 | 15 (15) | 34 (29.1) | 0.022 |
| Upper | 2 (04.8) | 6 (10.7) | 0.489 | 14 (24.2) | 4 (06.5) | 0.016 | 16 (16) | 10 (08.5) | 0.140 |
| Educational status | | | | | | | | |
| Up to primary | 13 (30.9) | 6 (10.7) | 0.024 | 30 (51.7) | 24 (39.3) | 0.241 | 43 (43) | 30 (25.6) | 0.011 |
| Up to secondary | 6 (14.3) | 15 (26.8) | 0.305 | 3 (5.2) | 15 (24.6) | 0.014 | 9 (9) | 30 (25.6) | 0.003 |
| Higher and above | 23 (54.8) | 35 (62.5) | 0.573 | 25 (43.1) | 22 (36.1) | 0.550 | 48 (48) | 57 (48.8) | 0.140 |
| Total | 42 (100) | 56 (100) | 58 (100) | 61 (100) | 100 (100) | 117 (100) | 0.466 |
RESULTS

On comparison according to sex and age groups of the two samples, no significant difference is observed, a female preponderance is seen and higher numbers of subjects are seen in younger age groups [Table 1]. A significant increase in the overall number of subjects who are unmarried \( P = 0.008 \) which is primarily due to an increase in a number of unmarried females \( P = 0.008 \) is observed over Study 1. The number of subjects from the joint family group showed a trend toward decline and an increase in a number of subjects from the nuclear family system was seen, though this was not significant \( P = 0.073 \). A significant overall increase in the number of subjects from the rural background was seen \( P = 0.007 \) which is primarily due to a significant increase in the number of rural females presenting with self-harm in comparison to the earlier study \( P = 0.007 \). Among both males and females, there was an increase in the number of subjects from the middle socioeconomic group and the overall increase over the earlier data was significant \( P = 0.021 \). In Study 2, there was a significant decline in the number of females from the upper socioeconomic group \( P = 0.016 \). On comparison according to antecedent stressful life events, there is no significant difference, which emphasizes the fact that family and social issues are still the most common stressors [Table 2]. Chemical methods are still the most reported methods of self-harm, and no significant change is observed over this period of 10 years [Table 3]. A significant change in the profile of psychiatric disorders diagnosed among the subjects of self-harm was seen [Table 4]. A clear increase in diagnosis of psychiatric conditions was seen; in the previous study, 50% of the subjects had no diagnosable disorder while in the current study only 18.80% of subjects had no diagnoses and the change was highly significant \( P = 0.000 \). Another significant finding was the increase in the rates of diagnoses of a depressive disorder wherein both males and females a clear increase was observed \( P = 0.000 \), while no significant change was seen in the diagnoses of other illness which were not comorbid with depression.
DISCUSSION

The sex distribution of the both the studies shows a female preponderance (58% in 2002 and 52.1% in 2012) with no significant difference, though the ratio of females to males is seen to be decreasing in the 2012 sample which is also a trend reported in some recent studies.[10,18] The gap between male and female suicide rates in India is relatively small.[19] There are reports of both male and female predominance in suicide attempts in hospital-based studies in India.[20] Chandrasekaran et al. reported a female dominance in a sample of 18 years and above with about 55% of the sample comprising females.[10] The male-to-female ratio was closer to one in adults and around 1:3 in adolescents in a recent study.[18] In comparison to seven other world communities in the WHO SUPRE-MISS study that showed female preponderance, Chennai was the only site which showed a greater number of males (68%).[21]

On comparison according to the age distribution of the samples, a greater number of subjects in younger age groups and a decrease as age advances is seen in both studies. A similar finding of a preponderance of younger age groups is noted in most Indian studies, and a recent review noted that those below 30 years did 37.8% and those below 44 years of age did 71% of suicides in India.[11]

On comparison of the marital status of the subjects, it was seen that a significant increase in a number of never married subjects ($P = 0.008$) and a consequent significant decline in married subjects was observed ($P = 0.023$). This change is mainly driven by a significant increase in females who were never married ($P = 0.008$) as among males no significant change was observed. Although on literature review, a higher representation of married subjects is seen in most studies on self-harm from India.[9,18,22-29] Thus, our findings are different than many previous studies but few recent studies by Bharati et al. 2013 (57.1%) and Parkar et al. 2008 (51%) have similarly reported a higher number of unmarried subjects.[12,30] According to the WHO, divorced, widowed, and single people are at increased risk of suicide and the SUPRE-MISS study noted a relatively higher (72%) single subjects in Chennai, which is similar to our findings.[21,31] The increase in number of unmarried subjects in the recent study could be due to an increase in age of marriage due to stringent legal provisions and increasing participation of young women in educational and professional activities.

On analysis of the change in the family status of the subjects, an increase in the proportion of nuclear families among those who reported with self-harm was seen although this difference was not statistically significant ($P = 0.073$) but still warrants a discussion. Bharati et al. (53.2%), Muninarayan et al. 2013 (54.2%), Das et al. 2008 (64.5%), and Narang et al. 2000 (57.1%) reported a larger proportion of nuclear families.[8,9,29,30] Bhattacharya et al. 2012 reported an equal proportion (50.49%) of nuclear and joint families, while some studies have reported a very small number of nuclear families, Kar only 6% and Ramdurg et al. 2012 only 8% belonging to nuclear families.[17,22,32] Although literature review in this regard is equivocal, an increase in a number of subjects from nuclear families could be a reflection of the change in the demography and profile of stressors in India as urbanization is increasing.

A significant increase in females from rural background was seen ($P = 0.029$) which contributed to an increase in the overall number of rural subjects over the previous study ($P = 0.007$). Subhadip et al. 2013 (94.9%), Muninarayan et al. 2013 (74.9%), and Kar 2010 (72.4%) reported higher number of rural subjects similar to our finding, while Das et al. 2008 (47%) and Ramdurg et al. 2012 (22%) reported fewer rural subjects.[9,18,22,29,30] The reason for an increase in the number of rural subjects, especially females, could be that many of the stressful factors which were predominantly urban are beginning to influence lives in rural areas also as India develops and means of communication improve.

On comparison of the socioeconomic status of the subjects, a significant decrease in the females from the upper class ($P = 0.016$) and an increase in subjects from the middle classes are seen ($P = 0.021$). Kar 2010 (92.2%), Das et al. 2008 (85%) and Bhattacharya et al. 2012 (18.8%) reported varying representations of middle socioeconomic status subjects.[9,18,32] These findings challenge a popular myth held in the past that middle classes are less vulnerable to stress due to better support and stability.

Subjects educated up to high school have increased (9% vs. 25%), and subjects qualified up to primary school have decreased significantly (43% vs. 26%). Many Indian studies on self-harm have reported majority of subjects to be educated above primary school level.[10,18,20,21,30] Bharati et al. 2013 have reported 31% subjects educated up to primary, 46% educated up to secondary, and 13% higher secondary and above.[30]

Antecedent stressful events among males and females have shown no significant change. Family and social issues are still the most frequently reported stressors, 32% in Study 1 and 29.1% in Study 2. Similar to our results, familial conflicts were most frequently reported events by Shoaiib et al. 2012 (31.8%), Das et al. 2008 (39.2%), Kar 2013 (36.9%), Bharati et al. 2013 (23.1%), and Ramdurg et al. 2012 (22%).[9,18,22,30,33] Gupta et al. 2007 reported that most common stressful event in suicide attempters was family conflicts (28.5%) although in the general population, financial problems (21.5%) were the most commonly reported stressors.[34] Thus, even though the profile of stressors is changing with bereavement, education- and courtship-related problems rising, the impact of stress in leading to self-harm still lies in family and social issues.
On comparison, the method of self-harm chosen by subjects no significant difference is seen and chemical methods, i.e., poisoning by insecticides, prescription drugs, and domestically used toxic chemicals are still the most prevalent. It is a known fact that except for some cultures nonviolent methods of self-harm are the preferred means.

A nearly significant increase ($p = 0.052$) in the history of self-harm is seen over Study 1 (8% vs. 18%), Bharati et al. 2013 (17%), Rao et al. 2013 (11%), and Ramdurg et al. 2013 (26%) have reported a similar proportion of subjects having a history of self-harm, while Muninarayan et al. 2013 have reported only 3.6% such cases. A probable reason of an increase in reporting of past attempts can be that use of self-harm as a method of neutralization of intense, painful affect without a high suicidal intent has become relatively common.

A significant increase (50% vs. 81%) is seen in the diagnoses of psychiatric disorders among the two study samples and depression is seen in most cases in the newer study (36% vs. 67%). The increase in the rate of diagnoses could be due to the use of semi-structured interview schedule MINI in the 2012 study, while the previous study relied on clinical diagnosis alone. Pinninti et al. observed in a review that MINI diagnosed an average of 2.05 comorbid conditions than 0.5 in an open interview. Similar findings of a high proportion of psychiatric disorders have been reported in many Western studies on self-harm, by Haw et al. (92%) and Beautrais et al. (90.1%) and in some recent Indian studies, by Rao et al. (93%) and Kar (82.5%). Robins et al. opined that suicide practically does not occur without the presence of mental illness, most commonly depression and thereafter alcoholism. As the previous study from 2002 relied on clinical diagnosis alone, the newer findings could be a better representation of the actual effect of psychiatric disorders in self-harm behavior.

**Limitations**

The study findings reflect the profile of suicide attempters attending tertiary level hospitals and cannot be generalized to all suicide attempters in the general population. There may be a recall bias about antecedent events. The two studies are not exactly comparable as the methodology used to assess psychiatric disorders is different. The comparison done is between two cross-sectional observations done 10 years apart rather than a continuous analysis of trends over a 10 year period.

**CONCLUSION**

In conclusion, a new profile of self-harm subjects has emerged with a greater representation of unmarried females from the rural areas who are educated up to secondary school and belong to the middle socioeconomic class, have past attempt at self-harm, and have a psychiatric disorder, commonly depression. The use of chemical methods is still the most preferred means, and family and social events are most common antecedent stressors. This knowledge of change in trends among both Study 1 and 2 can be helpful in designing appropriate preventive actions targeted accordingly. Supportive measures for various stressors and interventions for many modifiable risk factors identified seem plausible and may be considered as a priority in local suicide prevention strategies. The findings of this exploratory study also identify areas for further focused research. An important direction for future research which emerges is that a continuous recording of the profile of self-harm subjects must be done, as it may lead to the generation of dynamic trends which can be more informative and conclusive.

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**Conflicts of interest**

There are no conflicts of interest.

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