International Journal of Community Medicine and Public Health
Mysore S et al. Int J Community Med Public Health. 2023 Nov;10(11):4199-4204
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20233451

Original Research Article

A retrospective study of attempted self-harm in a secondary care setting in rural India

Seetharam Mysore[1]*, Vidyashree M.[2], Shruti Sajjalguddam[2], Deepak Murthy[1], Nagarathna N.[3], María Martínez Rangel[4]

[1]Department of Medical Specialties, [2]Department of Research and Academics, [3]Department of Counselling, Vivekananda Memorial Hospital, Swami Vivekananda Youth Movement, Saragur, Mysuru, Karnataka, India
[4]Global Health Studies, The University of Iowa, Iowa City, Iowa, United States of America

Received: 08 July 2023
Accepted: 25 September 2023

***Correspondence:**
Dr. Seetharam Mysore,
E-mail: emmaress@svym.org.in, emmaress@gmail.com

ABSTRACT

Background: Suicides and non-suicidal self-injuries (NSSI) pose a serious public health problem, affecting communities all over the world. Adolescents and young adults are particularly vulnerable to commit self-harm (SH). SH causes serious emotional, physical, and economic repercussions, and leads to long-term health impacts.
Methods: A retrospective study was conducted in a rural secondary care hospital from Feb 2020 to March 2022. Data regarding demographics, cause and type of SH, and treatment provided to 190 patients were analysed.
Results: Majority of patients were in the 16-35 years age group. Poison consumption was the commonest method used. Pesticides and pills were the commonly-used agents. Agricultural activities and pre-existing illness in families facilitated access to these agents, as did the unregulated availability and unsafe storage. 31 patients disclosed the reason for SH, with the commonest reason being strained relationships. Emotional states described by the patients which pushed them to SH included dejection, hopelessness, anger, recklessness, altered mood, lack of purpose in life, cynicism and a sense of lack of support. 16% were discharged against medical advice.
Conclusions: The study identified the need for methodical documentation, referral and follow-up of patients, with adequate psychiatric and counselling support. Access to care for SH patients is lacking especially in rural areas, and is at best available only for management of the SH event. SH should be considered not as a disease by itself, but as an outcome of stress due to socio-economic and other factors. Multi-stakeholder convergent approaches are needed to tackle this challenge in a holistic manner.

Keywords: Emotional stress, Mental health, NSSI, Pesticides, Poisoning, Self-harm, Suicide

INTRODUCTION

Suicide- an intentional act of self-harm (SH) that is designed to be lethal- poses a serious public health problem, affecting communities all over the world. According to the World Health Organization (WHO), more than 700,000 people die due to suicide each year.[1] Non-suicidal self-injury (NSSI), by definition, is an act of SH without suicidal intent. However, it increases the risk of ideation for suicide as well as the ability to follow it through, as shown by a longitudinal study conducted in United Kingdom.[2,3]

Reasons for SH have been studied and categorized variously as being intrapersonal, self-focused and interpersonal, others-focused.[2] These two components have also been projected as being interdependent and mutually contributory.[4] Multiple studies have concluded that SH is the end result of intense urge to relieve negative emotions or alleviate stress.[3,5]

Stress and mental health issues start early in life, but unfortunately are not recognized and treated in most instances. Half of all mental health disorders start by the age of 14 but in most cases, they go undetected and

untreated.[6] It is estimated that 20% of the world's children and adolescents suffer mental disorders later in life, due to delays in diagnosis and treatment.[6] Substance abuse and other risky behaviours picked up at this age can have long term repurcussions.[6] SH- either suicidal and non-suicidal- as well as serious suicidal thoughts have been seen to occur in about one-fifth of teens and young adults.[3] Both of these factors are recognized risk factors for suicidal behavior. This high age-predilection for SH risk is a matter of concern; in fact, a report from WHO found that suicide was the fourth leading cause of death amongst 15–29-year-olds in 2019. Stressors such as academic pressure, unmet need for social validation and lack of proper support systems may be the reason for the higher incidence of SH among adolescents and young adults.

Suicides and NSSI indicate a deep underlying mental health issue, with progressively worsening stress load, and a final precipitating incident acting as the proverbial last straw.

However, the precipitating final reason as well as the underlying cause- the tip as well as the body of the ice-berg- both go unrecorded in most instances and the affected individuals hardly receive the advantage of formal intervention.[5] The National Mental Health Survey (NMHS) 2015-16 found that almost 80% of those suffering from mental illnesses in India did not receive treatment for more than a year.[7] Early identification of suicidal risk factors is therefore important, so that effective interventions including preventative measures can be planned and implemented.

METHODS

A retrospective study was conducted on cases of attempted SH which presented to Vivekananda Memorial Hospital (VMH) to understand the pattern and profile of attempted SH. VMH is a rural secondary care hospital located in Sargur, Mysore district of Karnataka, India catering to about 3 lakh population including about 20000 Indigenous tribal population. The secondary data for the study was collected from outpatient and inpatient records pertaining to the period of February 2020 to March 2022. The data collection team included the resident medical officers, emergency care department, medical records department, and the counselling department of the hospital. All SH cases that reported during the 26-month period were included in the study. The information collected included demographic data, cause of suicidal attempt, type of attempt, treatment services provided and counseling services offered to the patients. Data was compiled in MS office Excel and analysed to understand the demographics of the attempted SH behaviour in the community. The methods used for SH and the substances used for the same were analysed.

A detailed analysis of the underlying influencing factors was done for a subset of patients who had availed counselling services. These underlying causes were categorized as those that were related to strained relationships, financial stress, health issues, academic performance and accidental instances.

RESULTS

There were 190 (96 males and 94 females) SH cases recorded at the VMH during the study period. 135 (71%) were treated as outpatients and 55 (29%) were treated as inpatients. 141 patients were in the age range of 15 to 35 years with a higher number of adolescents compared to the other age groups. 12 (6%) belonged to indigenous forest-based tribes while 178 (94%) were from non-tribal communities. 134 (70.5%) were married, 55 (29%) were unmarried and 1 (0.5%) was widowed.

Table 1: Demographic details of the study participants.

	Male n (%) n=96	Female n (%) n=94	Total n (%) n=190
Age range (years)	30.2 (16 to 76)	28.7 (15 to 58)	
Age categories			
15-25	38 (40)	46 (49)	84 (44)
26-35	30 (31)	27 (29)	57 (30)
36-45	16 (17)	10 (9)	26 (14)
Above 45	12 (12)	11 (11)	33 (17)
Tribal	11 (11)	1 (1)	12 (6)
Non-tribal	84 (87)	94 (100)	178 (94)
Admission status			
Inpatient	24 (25)	31 (33)	55 (29)
Outpatient	72 (75)	63 (67)	135 (71)
Substance abuse			
Alcohol	18 (19)	18 (19)	32 (17)
Alcohol and tobacco	-	1 (1)	1 (1)
None	7 (7)	9 (8)	16 (8)
Not mentioned	74 (77)	50 (53)	124 (65)
Type of attempt			
Burns	7 (7)	1 (1)	8 (4)
Cuts	1 (1)	1 (1)	2 (1)
Hanging	3 (3)	4 (4)	7 (4)
Pill consumption	36 (37)	25 (27)	61 (32)
Poison	49 (51)	63 (67)	112 (59)

32 (17%) reported a history of alcohol consumption, 17 (8%) did not have a history of alcohol consumption, and there was no information about alcohol consumption in 141 patients (Table 1).

Among the different methods of SH, there were 112 (58.9%) cases of poisoning, 61 (32.1%) cases of pill consumption, 8 (4.2%) cases of burns, 7 (3.7%) cases of hanging, and 2 (1.1%) cases of cuts. For both sexes, poisoning was the most common type of attempt with 49

(44%) cases being males and 63 (56%) being females. Most poisoning attempts were with some sort of pesticide (Table 2).

Table 2: Classification of pills and poison used during the attempted SH.

SH Agent used	Classification of SH agents	Frequency of usage
Poison (n=112)	Organophosphorus compound	29 (26%)
	Insecticides	21 (20%)
	Herbicides	6 (6%)
	Ant Powder	11 (10%)
	Rat poison	10 (9%)
	Phenol	2 (2%)
	Fertiliser	4 (4%)
	Fungicide	1 (1%)
	Petrol	1 (1%)
	Kerosene	7 (7%)
	Camphor	1 (1%)
	Acid	1 (1%)
	Other pesticides	3 (3%)
	Unknown	13 (9%)
Pills (n=61) (medicines identified in the preparations consumed =82)	Analgesics	20 (25%)
	Antihypertensives	2 (2%)
	Antihistamines	5 (6%)
	Antipsychotics	13 (16%)
	Antibiotics	11 (14%)
	Antidiabetic	2 (2%)
	Hormonal	3 (4%)
	Hematinics	2 (2%)
	Antitussive	3 (4%)
	Antacids	2 (2%)
	Topical	2 (2%)
	Disinfectants	3 (4%)
	Steroids	1 (1%)
	Unknown	13 (16%)

The SH cases constituted about 0.19% of all patients presenting to the hospital during this period (190/100191). Case-loads in two segments of the study period were analysed. A total of 76 cases were registered from February 2020 to January 2021 with a caseload of around 6 per month [76/5748 (1.32%) patients presenting to emergency department] and in the same period in the subsequent year 102 cases were registered with a caseload of around 8 per month (102/6613 (1.54%) patients presenting to emergency department). The marginal increase in incidence of cases in the second year was not statistically significant (p=0.30.)

There were 31 cases in which a reason for the SH attempt was recorded. Majority of cases reported a strained relationship (18/31) with spouses, friends, family, or others as the main reason for their SH. 9 out of these 18 were related to marital discord which included vitiated relationships between spouses, in-laws and non-acceptance of the chosen partner by the rest of the family. 4 patients reported discord with other members of the family, while five patients reported discord with others. Academic, health, and financial stress were the other reasons reported (Table 3).

Table 3: Reasons for SH.

Reasons for SH	Risk factors
Strained relationships (18)	Marital (spouse, in laws, non-acceptance) 9 (50%)
	Family discord 4 (22%)
	Other relationships 5 (28%)
Economic issues (1)	Burden of huge debt 1 (100%)
Academic issues (2)	Failure 1 (50%)
	forced discontinuation 1 (50%)
Health issues (7)	Extreme painful illness 3 (43%)
	Severe emotional-mental stress 4 (57%)
Accidental/ unintentional	Accidental, 'mistake' 2 (67%)
	Intended as a 'threat' 1 (33%)

26 (13% of the total patients) underwent counselling. 18 (9%) patients had family counselling and 9 (5%) of them were referred to a psychiatrist. 21 (80% of those who underwent counselling) patients were diagnosed to have some form of anxiety and depression. 30 patients (16%) were discharged against medical advice (DAMA) (Table 4).

Table 4: Outcome compared to method of self harm.

Method of SH	Recovered	Referred	DAMA	Total (n=190)
Pill consumption	25 (33%)	27 (32%)	9 (30%)	61 (32%)
Poison	45 (60%)	47 (55%)	20 (67%)	112 (59%)
Cuts	1 (1%)	1 (1%)		2 (1%)
Burning	3 (4%)	4 (5%)	1(3%)	8 (4%)
Hanging	1 (1%)	6 (7%)		7 (4%)
	75	85	30	190

DISCUSSION

Demographics

In the study, the number of males and females attempting SH was almost equal. This is similar to the findings of earlier studies which have also reported equal rates of SH attempts by males and females.[2] The attempts for SH were more frequent among patients in the age group of 15-35 years. This age predilection is also reported by other studies; serious suicidal thoughts have been seen to occur in about one-fifth of teens and young adults, and such thought patterns coupled with non-suicidal self-injury have been recognised as risk factors for suicidal behavior.[5]

In this study, the methods used for SH were seen to be different between the sexes and across age-groups. However, poison consumption was the most common method among both males and females.

Method used for SH

Methods used for SH have been reported to vary significantly by sex. Women have been reported to usually engage in self-cutting, while men are reported to use hanging, banging and hitting globally.[8,9] Such preferences for methods were not evident in our study, and there was no significant difference in the method used between males and females. Self-poisoning and hanging as methods of SH were seen in both males and females with almost equal frequency (173 self-poisoning-85 males and 88 females; 7 hanging, 3 males, 4 females). However, there were 7 males who attempted burns, as against only one female.

Consumption of pesticides

The use of pesticides for SH attempt was high amongst our patients. Herbicides, pesticides, fungicides, and insecticides accounted for 60% of the cases, with Organophosphorus compounds being the most common substance used. This is reflective of the common chemicals that are used by the local community for control of infections and infestations affecting crops like cotton that are commonly grown here. Though pesticides are to be sold in designated outlets, currently they are available at many unauthorised outlets where they can be bought without documentation. Also, there are no strict precautions followed in the households for safe storage of these toxic chemicals, making it easily accessible to all members of the household.

Usage of pesticide for SH has been variably reported in previous studies. The global estimation of pesticides was reported as 14-20%.[10] It has been reported to range from 4% in the European region to 50% in western Pacific region.[11] In India also, the reported usage of pesticide has been variable. A systematic review from India reported observed that hanging (10-72%) and self-poisoning (14-69%), especially with organophosphates, were the most common methods of SH in India.[12] This wide variation reported in the method used is perhaps reflective of the diverse settings of the individual studies included in this review. In a study conducted in rural settings, it was found that more than 55% of SH cases were by self-poisoning while a study which was in a combined rural and urban setting reported 24% cases of self-poisoning.[13,14] The seriousness of using pesticides for SH can be gauged by the fact that globally, every year, 30% of pesticide self-poisoning turn fatal.[11]

Pill consumption

Consumption of pills was the second most-common method reported by patients who attempted SH by self-poisoning [61 (35%)]. Analgesics, antipsychotics and antibiotics were the most commonly used pills for SH. Access to these medicines is very easy with many of these medicines being available even without prescription, an area which is not adequately regulated and monitored. The patients reported that one or more family members had been on these medications which had given them access to these agents. This raises the importance of safe storage of prescription medications as well.

Factors associated with SH/reasons for SH

The reasons for attempted SH in our study could be grouped as strained relationships (18/31), health related (7/31), accidental SH (3/31), academic (2/31) and economic (1/31). During the counselling sessions, the patients were encouraged to share their emotions before, during and after the attempted SH. Emotional states described by the patients included dejection, hopelessness, anger, recklessness, altered mood, lack of purpose in life, cynicism and a general sense of lack of support. These emotional states are recognised by the suicide risk factors as those that might ultimately lead to the ideation and execution of SH (Table 3).[15] The responses from the patients indicated that these emotional states are not mutually exclusive in their existence, but are often co-existent, and are likely to feed into a vicious cycle of emotional despondency. Such interdependency of contributing factors and co-existences of multiple emotional risk factors was also reported by other researchers.[5]

Documentation and processes of management

It was observed that documentation of information was not standardised, either at the time of presentation, or during the subsequent interactions between the patients and the healthcare professionals. This was true of both the inpatients and the outpatients. This represents an important opportunity lost to identify key risk factors that may help to flag off major psychiatric illnesses or recurrent attempts of SH. Such missing data bits included information about family discord, any emotional stresses, past SH attempts and any major negative life incidents in the recent past. Such information would have helped to identify correctable mental health illnesses, flag off risk factors for future recurrence of SH or suicidal attempts, and also plan out methodical follow up and referrals.

Further, 16% of the patients were DAMA. Other studies have reported that prevalence of DAMA is between 3% and 51% which is similar to the finding in our study.[16] Literature shows that patients insisting on DAMA have poorer long-term prognosis, have greater rehospitalization rates, overuse emergency care, and underuse outpatient services.[16] Getting oneself discharged against the medical advice is by itself considered a high risk factor for SH.[17]

Challenges for service delivery; public health approaches

In our study, only a small percentage of the patients were referred to a psychiatrist or received counselling, with only 31 (16%) out of 190 receiving qualified and formal mental health consultations. This could have been due to lack of resources, or counselling services as also the lack of protocols and systems for documentation, referral and follow ups.

Mental health continues to carry the burden of major stigma in spite of efforts under the National Mental Health program. Health care services especially in the rural areas are riddled with many inadequacies, including policy gaps, paucity of human resources, inadequate ear-marked budgetary provisions, lack of specific mental health training and high workload.[18-20] It is further complicated by the myths and misconceptions about mental illness and its treatment.[21] Often, SH is not recognised as being indicative of underlying correctable mental/emotional conditions. It is no surprise therefore that many of the patients who attempt SH are inadequately treated and are lost to follow up. Detection of psychiatric disorders at an early stage is a challenge, as it is unrecognised and unreported. Even after detection and initiation of treatment, adherence is poor due to the combination of factors like poor reach of the health services, lack of financial resources, fear of social marginalisation and lack of social and family support.[21,22]

A systematic evaluation of the mental-emotional health status would give us an opportunity to identify and manage individuals who are at risk for SH. Proper documentation and methodical follow-up of individuals at risk and those who have attempted SH would allow for preventive and promotive interventions and appropriate curative measures.[1] Services such as counselling are needed to help patients resolve their emotional disturbances better.

Another area which needs attention is the status of the SH victims who survive the attempt. They are likely to be thrown back into the same stressful environment, and it is therefore important to plan interventions to alter these environmental factors. The future behaviour will depend to a large extent on the response of their immediate family and friends. While an empathetic, supportive response could nurture the patient back to productivity, there is also the risk of retaliatory antipathy due to the SH attempt itself, which could be destructive.

India launched its National Suicide Prevention Strategy (NSPS) in November 2022, with the aim to reduce suicide mortality. However, the burden of morbidity is not adequately addressed. It is important to recognise that suicides and NSSIs are not disease entities by themselves, but are the product of the complex interplay of multiple real-life situations including social, financial, academic, emotional challenges faced by an individual. Efforts to destigmatize and dispel misconceptions about mental health issues through public health programmes, with a focus on non-medical precipitating factors need to be enhanced. Targeted programs to uplift self-esteem and self-confidence will be an added advantage by building resilience and ability to deal with 'failure'. Strategies for addressing SH should therefore be multi-sectoral, evidence-based and universally accessible. Such multi-stakeholder approaches would help to incorporate the immediate needs of the at-risk population and at the same time build resilience in the community.

CONCLUSION

The study confirms that SH represents an important public health problem, and that the younger population are the most affected. Strained interpersonal relationships was the most common cause for SH, with poisoning with pesticide-insecticides and with pills being the most common methods adopted. Preventive and promotive measures such as community education and family support, strict enforcement of regulated access, safe storage and usage of harmful chemicals and medicines and regular, appropriately timed awareness campaigns could possibly lower the incidence of SH.

There is a need for standardisation and strengthening of the documentation systems in all health care facilities treating SH cases. Mandatory counselling and psychiatric evaluation would help to determine the level of risk and detect mental health issues for better patient management.

Larger, and longer-term prospective studies are necessary to understand the role of individual personality traits, social and family support, academic stress, financial burden and other factors contributing to this emerging public health problem. The challenges faced by the survivors of SH also need to be understood and addressed so that chances of recurrent attempts can be reduced. Protective and promotive actions at the level of individual, family, educational institutions and the general community, with a convergent multi stakeholder approach would be necessary to address the challenge in a comprehensive manner.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Suicide. 2021. Available from https://www.who.int/news-room/fact-sheets/detail/suicide. Accessed on 5 July 2022.
2. Klonsky ED, Victor SE, Saffer BY. Nonsuicidal self-injury: what we know, and what we need to know. Canadian J Psychiatr. 2014;59(11):565-8.

3. Mars B, Heron J, Klonsky ED, Moran P, O'Connor RC, Tilling K, et al. Predictors of future suicide attempt among adolescents with suicidal thoughts or non-suicidal SH: a population-based birth cohort study. Lancet Psychiatr. 2019;6(4):327-37.
4. Quarshie ENB, Waterman MG, House AO. SH with suicidal and non-suicidal intent in young people in sub-Saharan Africa: a systematic review. BMC Psychiatr. 2020;20(1).
5. Eckart K. New meta-analysis examines link between SH and stress. UW News. 2022.https://www.washington.edu/news/2022/04/28/thinking-about-suicide-and-self-harming-alleviates-stress-new-meta-analysis-confirms/. Accessed on 5 July 2022.
6. Satyanarayana PT, Prakash B, Kulkarni P, Kishor M, Renuka M. A comparative study of prevalence of mental abnormalities among high school children in Tribal, rural and Urban Mysuru District, Karnataka, India. Int J Community Med Public Health. 2017;4(3):809.
7. National Mental Health Survey of India, 2015-16 National Mental Health Survey of India, 2015-16 Mental Health Systems. Indian J Psychiatr. 2017;59(1):21-6.
8. Sornberger MJ, Heath NL, Toste JR, McLouth R. Nonsuicidal self-injury and gender: patterns of prevalence, methods, and locations among adolescents. Suicide Life Threat Behav. 2012;42:266-78.
9. Laye-Gindhu A, Schonert-Reichl KA. Nonsuicidal SH among community adolescents: understanding the whats and whys of SH. J Youth Adolesc. 2005;34:447-57.
10. Mew EJ, Padmanathan P, Konradsen F, Eddleston M, Sen CS, Phillips MR, et al. The global burden of fatal self-poisoning with pesticides 2006-15: systematic review. J Affect Disord. 2017;219:93-104.
11. Gunnell D, Eddleston M, Phillips MR, Konradsen F. The global distribution of fatal pesticide self-poisoning: systematic review. BMC Public Health 2007;7:357.
12. Rane A, Nadkarni A. Suicide in India: a systematic review. Shanghai Arch Psychiatr. 2014;26(2).
13. Kumar TS, Kanchan T, Yoganarasimha K, Kumar GP. Profile of unnatural deaths in Manipal, Southern India 1994-2004. J Clin Forens Med. 2006;13:117-20.
14. Sharma BR, Gupta M, Sharma AK, Sharma S, Gupta N, Relhan N, et al. Suicides in Northern India: comparison of trends and review of literature. J Clin Forens Med. 2006;13:117-20.
15. Suicidal ideation risk assessment steps and resources for exploring thoughts of suicide. Department of Health, Minnesota. Available from: https://www.health.state.mn.us/people/syringe/suicide.pdf.
16. Brook M, Hilty DM, Liu W, Hu R, Frye MA. Discharge against medical advice from inpatient psychiatric treatment: a literature review. Psychiatr serv. 2006;57(8):1192-8.
17. Kuo CJ, Tsai SY, Liao YT, Lee WC, Sung XW, Chen CC. Psychiatric discharge against medical advice is a risk factor for suicide but not for other causes of death. J Clin Psychiatr. 2010;71(6):808-9.
18. Ebrahimi H, Seyedfatemi N, Namdar Areshtanab H, Ranjbar F, Thornicroft G, Whitehead B, et al. Barriers to family caregivers' coping with patients with severe mental illness in Iran. Qual Health Res. 2018;28(6):987-1001.
19. Kpobi L, Swartz L, Ofori-Atta AL. Challenges in the use of the mental health information system in a resource-limited setting: Lessons from Ghana. BMC Health Serv Res. 2018;18(1):98.
20. Endale T, Qureshi O, Ryan GK, Esponda GM, Verhey R, Eaton J, et al. Barriers and drivers to capacity-building in global mental health projects. Int J Ment Health Syst. 2020;14:1-2.
21. Zhang J, Ye C. Factors associated with loss to follow-up of outpatients with depression in general hospitals. J Int Med Res. 2020;48(5):0300060520925595.
22. Shrivastava A, Johnston M, Bureau Y. Stigma of mental illness-2: non-compliance and intervention. Mens Sana Monographs. 2012;10(1):85.

Cite this article as: Mysore S, Vidyashree M, Sajjalguddam S, Murthy D, Nagarathna N, Rangel MM. A retrospective study of attempted self-harm in a secondary care setting in rural India. Int J Community Med Public Health 2023;10:4199-204.