DOI: https://doi.org/10.17816/fm16185

Intentional self-harm in a tertiary care hospital, rural South India: a study of sociodemographic profile, methods, and associated factors

Jayanth S. Hosahally, Neeraj B. Raj, K.B. Geetha

Dr Chandramma Dayananda Sagar Institute of Medical Education and Research Dayananda Sagar University, Kanakapura, India

ABSTRACT

BACKGROUND: Intentional self-harm refers to a self-injurious behavior without or with a suicidal intent that has a nonfatal outcome. This term encompasses a broad range of behaviors but is typically defined as deliberately self-initiated harm and involves behaviors such as hanging, poisoning, and cutting without and with a suicide intent.

AIMS: To identify different methods adopted for self-harm and to examine the relationship between gender/age and the selected method.

MATERIAL AND METHODS: This is a prospective, cross-sectional study that analyzed all cases of intentional self-harm admitted to the Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research from October 2022 to February 2024.

RESULTS: A total of 98 cases that met the inclusion criteria were enrolled in this study. Of the total subjects, 63.27% were female and 36.73% were male, and 88.78% of them used nonviolent self-harming methods. Attempted hanging was the most common violent method (63.64%), while consumption of pesticides (63.21%) was the most common nonviolent method followed by an overdose of medication (27.59%). Interpersonal conflict was the main reason for self-harm in 41.83% of the cases. Only 20 cases were diagnosed with psychiatric illness, namely, depressive episode, emotionally unstable personality disorder, and adjustment disorder.

CONCLUSION: Self-harm behavior is seen in both individuals with normal mental health and those with psychiatric morbidity. Both sets of people need support to grapple with stress and curb any impulsive acts. A registration and monitoring system for self-harm is thus needed to identify, counsel, and treat such potential cases.

Keywords: intentional self-harm; self-harm behaviors; self-poisoning; suicide; psychiatric disorders.

To cite this article:
Hosahally JS, Raj NB, Geetha KB. Intentional self-harm in a tertiary care hospital, rural South India: a study of sociodemographic profile, methods, and associated factors. *Russian Journal of Forensic Medicine.* 2024;10(4):517–528. DOI: https://doi.org/10.17816/fm16185

Received: 09.09.2024 **Accepted:** 15.11.2024 **Published online:** 05.02.2025

DOI: https://doi.org/10.17816/fm16185

Преднамеренное самоповреждение среди пациентов больницы третичного звена в сельской местности Южной Индии: исследование социально-демографического профиля, методов и сопутствующих факторов

J.S. Hosahally, N.B. Raj, K.B. Geetha

Dr Chandramma Dayananda Sagar Institute of Medical Education and Research Dayananda Sagar University, Канакпура, Индия

АННОТАЦИЯ

Обоснование. Преднамеренное самоповреждение — аутоагрессивное поведение с наличием или отсутствием суицидальных намерений, не приводящее к летальному исходу. Этот термин охватывает широкий спектр поведения, но обычно характеризуется как преднамеренное добровольное причинение вреда самому себе и включает такие действия, как повешение, отравление и порезы, с наличием или отсутствием суицидальных намерений.

Цель исследования — выявить различные методы, используемые для преднамеренного самоповреждения, а также изучить их связь с полом и возрастом.

Материалы и методы. Это проспективное одномоментное исследование, в котором проанализированы все случаи преднамеренного самоповреждения, зафиксированные в Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research с октября 2022 г. по февраль 2024 г.

Результаты. В исследовании рассматривали 98 случаев, отвечающих критериям включения. Гендерное распределение среди участников исследования отражает преобладание женщин: 63,27 против 36,73%. В 88,78% случаев использовали ненасильственные методы самоповреждения. Самым распространённым насильственным методом была попытка повешения, а ненасильственным — употребление пестицидов, что составило 63,64 и 63,31% соответственно. Частота случаев передозировки лекарственных средств — 27,59%. Основной причиной преднамеренного самоповреждения является межличностный конфликт (41,83%). Следует отметить, что только у 20 пациентов диагностированы психические заболевания, такие как депрессивный эпизод, эмоционально неустойчивое расстройство личности и нарушение адаптации.

Заключение. Таким образом, самоповреждающее поведение встречается как у людей с нормальной психикой, так и у тех, кто страдает психическими расстройствами. Они не могут справиться со стрессом и подавить импульсивные порывы, поэтому нуждаются в поддержке. Необходимо создать систему регистрации и мониторинга случаев самоповреждения с целью выявления, консультирования и лечения пациентов с суицидальным поведением.

Ключевые слова: преднамеренное самоповреждение; самоповреждающее поведение; самоотравление; самоубийство; психические расстройства.

Как цитировать:
Hosahally J.S., Raj N.B., Geetha K.B. Преднамеренное самоповреждение среди пациентов больницы третичного звена в сельской местности Южной Индии: исследование социально-демографического профиля, методов и сопутствующих факторов // Судебная медицина. 2024. Т. 10. № 4. С. 517–528. DOI: https://doi.org/10.17816/fm16185

Рукопись получена: 09.09.2024 **Рукопись одобрена:** 15.11.2024 **Опубликована online:** 05.02.2025

DOI: https://doi.org/10.17816/fm16185

在印度南部农村三级医院患者中故意自残：社会人口统计特征、方法及伴随因素的研究

Jayanth S. Hosahally, Neeraj B. Raj, K.B. Geetha

Dr Chandramma Dayananda Sagar Institute of Medical Education and Research Dayananda Sagar University, Kanakapura, India

摘要

背景。故意自残是一种自我攻击行为，可伴或不伴自杀意图，但通常不会致死。该术语涵盖广泛的行为表现，通常指个体有意自我伤害的行为，包括上吊、毒物中毒和割伤，无论是否具有明确的自杀意图。

研究目的。研究故意自残的不同方式，并分析其与性别和年龄的关系。

材料与方法。本研究为前瞻性单时点研究，统计分析了 2022 年 10 月至 2024 年 2 月期间，在 Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research 所登记的所有故意自残病例。

结果。研究共纳入符合纳入标准的 98 例病例。其中，女性占多数（63.27%），男性占 36.73%。在 88.78% 的病例中，自残行为为非暴力方式。最常见的暴力自残方式是上吊（63.64%），而最常见的非暴力方式是农药中毒（63.21%）。服药过量的发生率为 27.59%。主要的自残诱因是人际冲突（41.83%）。值得注意的是，仅有 20 名患者被确诊患有精神障碍，如抑郁发作、情绪不稳定型人格障碍和适应障碍。

结论。自残行为不仅发生于精神疾病患者，也可见于精神健康者。这些个体通常难以应对压力，并缺乏冲动控制能力，因此需要心理支持。应建立自残行为监测与登记系统，以便识别、干预、咨询和治疗有自杀倾向的患者。

关键词：故意自残；自伤行为；自我中毒；自杀；精神障碍。

引用本文：
Hosahally JS, Raj NB, Geetha KB. 在印度南部农村三级医院患者中故意自残：社会人口统计特征、方法及伴随因素的研究. *Russian Journal of Forensic Medicine.* 2024;10(4):517–528. DOI: https://doi.org/10.17816/fm16185

收到：09.09.2024 **接受：**15.11.2024 **发布日期：**05.02.2025

BACKGROUND

A total of 13,606 suicide cases were reported in the state of Karnataka, India in 2022, accounting for 8.0% of all suicides in India [1]. There were more than 20 suicide attempts for each suicide case. There is a high prevalence of suicide attempts among people who engage in self-harm. Both suicide attempts and a history of intentional self-harm can act as predictors of future suicide attempts [2]. People treated in hospital for self-harm are at 30–200 times greater risk of suicide in the following 12 months [3]. Identifying self-harm behaviors and treating them as early as possible could be the first step in managing potential suicidal behaviors.

Intentional self-harm (hereafter referred to as self-harm) refers to a self-injurious behavior without or with suicidal intent that has nonfatal outcomes. Intentional self-injurious thoughts and behavior may be suicidal or nonsuicidal [4]. It encompasses a broad range of behaviors but is typically defined as deliberately self-initiated harm and includes behaviors such as hanging, poisoning, and cutting without and with suicidal intent [5]. Such cases are often regarded as failed attempts at suicide, although the majority of the patients do not try to kill themselves. They are usually in emotional turmoil and trying to seek attention. These acts are often gratifying and cause minor-to-moderate harm, and, sometimes, repeated acts result in death. Various methods have been used depending on the availability of relevant resources at that moment. For example, insecticide poisoning is the most common type of method (50.5%), followed by drug overdose (35%) [6]. Suicide rates from insecticide poisoning have increased from 1.51 to 2.73 per 100,000 among males and from 0.74 to 1.14 per 100,000 among females [7]. The lack of regulation in the sale and use of insecticide in India makes it readily available.

Individuals with a prior mental disorder, previous attempts of suicide/self-harm, and exposure to stressful incidents are at a high risk of attempting self-harm. Identifying such high-risk individuals at the right time and treating them can save their lives. Furthermore, there is a deficiency in maintaining a self-harm registry to track and monitor patients. Apart from a detailed forensic evaluation and reporting of such cases, a detailed psychiatric assessment is deemed essential in both hospitalized and out-patients. Here, we explored the different methods used for indulging in self-harm and examined the relationship of sex and age to the selected method.

AIMS

To identify different methods used for self-harm and to examine the relationship between gender/age and the selected method.

MATERIALS AND METHODS

Source of data

Cases of attempted suicides were admitted/brought to Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research (CDSIMER) during the study period (October 2022 to February 2024).

Methods of collection of data

In this prospective, hospital-based, cross-sectional study, all cases of intentional self-harm admitted/brought to CDSIMER during the study period were assessed after obtaining written informed consent from the patient. In the case of a minor patient, consent was sought from the patient and his/her guardian. The patient's social-demographic details, personal and family histories, history of intentional self-harm, psychiatric illness, and the details of the circumstances under which the act of intentional self-harm was attempted were obtained from the victim, family members, friends, and eyewitnesses, if any.

Inclusion criteria

1. All cases of intentional self-harm admitted in CDSIMER
2. All cases brought with a history of assault or accidental injury or with a vague history that later turned out to be a case of self-harm after evaluation.

Exclusion criteria

1. Cases that were brought with a history of self-harm, but later registered as otherwise after evaluation.
2. Patients who refused/were unable to give consent.
3. Suicide attempts that resulted in death.

Sample size estimation

The sample size was calculated based on a previous study by Kar [8] who found that attempted suicides were more common in the 20–39-year-old age group (63.7%). In the present study, the sample size was calculated considering a relative precision of 15% and a decided confidence level of 95%, which yielded a total of 98 samples.

ETHICAL REVIEW

The study protocol was approved by the Ethics Committee of Dr Chandramma Dayananda Sagar Institute of Medical Education and Research (protocol CDSIMER/MR/0038/IEC/2022 dated 20.09.2022).

Statistical analysis

Descriptive statistics for the qualitative and quantitative types of data such as the age group, gender, methods used, and clinical data were summarized using frequency and percentage.

RESULTS

The study was conducted at CDSIMER from October 2022 to February 2024. A total of 98 cases that met the inclusion criteria were examined. Of these, 63.27% were female and 36.73% were males. Of the total, the majority of the subjects belonged to the age group 25–60 years (46.94%) followed by those in the age group 19–24 years (34.7%). In addition, 43.8% were unmarried; 87.75% hailed from rural areas; 95.9% were Hindus; 46.94% held a diploma or pre-university type of education. Unemployed individuals and students constituted 17.35% each, and most of them belonged to the socioeconomic group Class I (34.7%) and Class II (38.78%). More than half of them had unskilled/semiskilled jobs (Table 1).

As seen in Table 2, 88.78% of them used nonviolent methods and 55 of the 62 females used nonviolent methods for self-harm.

Violent methods were used in 11 cases and attempted hanging was the most common method (63.64%, *n*=7), followed by near drowning and sharp force injury (Table 3).

Consumption of pesticides (63.21%) was the most common nonviolent method chosen, followed by overdose of medication (27.59%) (Table 4).

Consumption of pesticides was the commonly chosen method in the age group of 25–60 years (40/46 cases), followed by overdose of medication in the age group of 19–24 years (16/34 cases). Attempted hanging was the common method in the age group of 14–18 years (5/12 cases) (Table 5).

Of the cleansing products used, phenol and hydrochloric acid were used in two cases each (Table 6). Paracetamol was the most common type of overdose of medication (50%) (Table 7). Pyrethroids constituted 47.27% of the type of pesticide consumed, followed by organophosphorus compounds (29.09%) (Table 8).

Based on the history provided by the patients, 52.04% of them had an intention to end their lives. Death was "likely possible" in 41.83% of all cases and "certainly possible" in 26.54% of the cases (Table 9). This data was taken based on the type of method selected, provision of first aid, time taken to reach the hospital, and the condition on arrival at the hospital.

A total of 47% of these individuals reached the hospital between 15 and 30 min and 50% of them stayed in the ICU for

Table 1. Sociodemographic characteristics of patients, *n*=98*

Characteristics	Number of patients. *n* (%)
Age (years)	
<13	1 (1.02)
14–18	12 (12.24)
19–24	34 (34.70)
25–60	46 (46.94)
>60	5 (5.10)

Table 1. The ending

Characteristics	Number of patients, *n* (%)
Sex	
Male	36 (36.73)
Female	62 (63.27)
Marital status	
Married	52 (53.1)
Unmarried	43 (43.8)
Widow	3 (3.1)
Geography	
Urban	12 (12.25)
Rural	86 (87.75)
Religion	
Hindu	94 (95.9)
Muslim	3 (3.1)
Christian	1 (1)
Education	
Primary School	4 (4.09)
Middle School	8 (8.16)
High School	10 (10.20)
Intermediate/Diploma	46 (46.94)
Graduate	14 (14.29)
PostGraduate	1 (1.02)
Illiterate	15 (15.30)
Current job status	
Unemployed	17 (17.35)
Employed	31 (31.63)
Homemaker	22 (22.45)
Agriculturist	11 (11.22)
Student	17 (17.35)
Socio economic status	
Class-1	34 (34.70)
Class-2	38 (38.78)
Class-3	18 (18.36)
Class-4	6 (6.12)
Class-5	2 (2.04)
Nature of the job	
Skilled	5 (5.10)
Semiskilled	38 (38.78)
Unskilled	15 (15.31)
Others	40 (40.81)

Note. * — number of patients taken as 100%.

Table 2. Type of methods used for intentional self-harm, *n*=98

Type	Number of patients, *n* (%)	Male, *n*	Female, *n*
Violent	11 (11.22)	4	7
Nonviolent	87 (88.78)	32	55
Total	98 (100)	36	62

Table 3. Type of violent methods used, *n*=11

Method used	Number of patients, *n* (%)	Male, *n*	Female, *n*
Violent	11 (100)	4	7
a. Attempted hanging	7 (63.64)	2	5
b. Attempted drowning	2 (18.18)	0	2
e. Sharp force injury	2 (18.18)	2	0

Table 4. Type of nonviolent methods used, *n*=87

Method used	Number of patients, *n* (%)	Male, *n*	Female, *n*
Nonviolent	87 (100)	32	55
a. Cleaning products	6 (6.90)	2	4
b. Herbicides	2 (2.30)	0	2
c. Overdose of medication	24 (27.59)	5	19
d. Pesticide	55 (63.21)	25	30

Table 5. The type of method and age group

Type of method	Number of patients, *n*	Number of patients age group, *n*				
		<13	14–18	19–24	25–60	>60
Attempted Hanging	7	–	5	2	–	–
Attempted Drowning	2	–	–	2	–	–
Sharp force injury	2	–	2	–	–	–
Cleaning products	6	–	–	4	2	–
Herbicides	2	–	1	–	–	1
Overdose of medication	24	1	3	16	4	–
Pesticide	55	–	1	10	40	4
Total	98	1	12	34	46	5

Table 6. Cleaning products used for suicide for intentional self-harm, *n*=6*

Type of cleaning products	Number of patients, *n* (%)
Phenol	2 (33.33)
Hydrochloric acid	2 (33.33)
Herbal cleaner	1 (16.67)
Benzalkonium chloride	1 (16.67)

Note. * — number of patients taken as 100%.

Table 7. Pharmacological groups of drugs used for intentional self-harm, *n*=24*

Pharmacological groups	Number of patients, *n* (%)
Analgesics: Paracetamol	12 (50)
Thyroid hormones: Thyroxin	4 (16.68)
Antibiotic	2 (8.33)
Antidiabetic: Metformin	2 (8.33)
Antihypertensive: Amlodipine	2 (8.33)
Benzodiazepine and Barbiturates	2 (8.33)

Note. * — number of patients taken as 100%.

<24 h. The majority of them were discharged within 5 days (73.47%) (Table 10).

Interpersonal conflict was the main reason to harm themselves in 41.83% of the cases and predominantly it was with their partners (20.41%). Financial issues (18.37%) and academic challenges (11.22%) were the other common reasons (Table 11). Only 20 of the cases were diagnosed with psychiatric illness with no help sought. Depressive episodes

Table 8. Insecticides used for intentional self-harm, *n*=55*

The type of pesticide	Number of patients, *n* (%)
Organophosphorus	16 (29.09)
Pyrethroids	26 (47.27)
Zinc phosphide	2 (3.64)
Aluminum phosphide	8 (14.55)
Yellow phosphorus	3 (5.45)

Note. * — number of patients taken as 100%.

Table 9. Stratification of the possibility and intentionality of death

Stratification	Number of patients, *n* (%)
Possibility of death	
Unlikely	31 (31.63)
Likely possible	41 (41.83)
Certainly possible	26 (26.54)
Intentionality	
Low: Did not want to die	38 (38.78)
High: Wanted to die	51 (52.04)
Mixed	9 (9.18)

Table 10. Evaluation of the effectiveness of medical care

Duration	Number of patients, *n* (%)
The time between the incident and the presentation	
<15 min	10 (10,02)
15–30 min	46 (47)
30–60 min	17 (17.40)
>1 h to 1 day	25 (25.58)
Stay in the intensive care unit	
<24 h	49 (50)
1–2 days	27 (27.56)
3–5 days	11 (11.22)
>5 days	11 (11.22)
Hospitalization	
1–2 days	32 (32.65)
3–5 days	40 (40.82)
6–10 days	21 (21.43)
>10 days	5 (5.10)

(*n*=8), emotionally unstable personality disorder (*n*=7), and adjustment disorder (*n*=5) were the related diagnoses.

DISCUSSION

Intentional self-harm is a global issue and is now a rising concern among Indians. Behaviors ranged from self-poisoning to the use of a sharp force with varying degrees of lethality. The lack of identifying people with self-harm behavior and, in turn, providing them with appropriate psychiatric care is one of the factors contributing to higher suicidal rates in the rural Indian population.

Table 11. Reasons for self-harm

Reasons	Number of patients, *n* (%)
Interpersonal conflicts:	**41 (41.83):**
• with spouse	16 (16.32);
• with partner	20 (20.41);
• with other family members	5 (5.10)
Financial issues	18 (18.37)
Property issues	10 (10.20)
Bereavement	3 (3.06)
Unemployment	4 (4.08)
Alcohol abuse	5(5.10)
Academic challenges	11 (11.22)
Chronic illness	6(6.12)

The present study was a prospective review of the sociodemographic profile, the types of methods adopted, lethality, intentionality, and reasons for such behavior in subjects with intentional self-harm admitted to a rural tertiary care hospital and referred for psychiatry consultation. Here, we discussed the risk factors associated with such behavior and compared them between those in rural India and the rest of the country and the world at large.

A total of 98 cases that fulfilled the inclusion criteria were examined. Females (63.27%) outnumbered the males and the age group of 25–60 years constituted the majority of them (46.94%), followed by those aged 19–24 years (34.7%). Similar observations were made in a study done in Thailand, which reported 60% of females and predominantly patients from these two age groups, namely, 18–25 and 26–39 years, attempting self-harm [9]. In another study conducted in urban India, a slight male preponderance was noted [10]. However, the vulnerable age group of young adults and adolescents is common across similar studies. This age group is more susceptible as they are also more exposed to stressful factors and psychosocial issues that they are not capable of coping with.

Of all the cases, 53.1% were married, as also reported by Tekkalaki [10], Das [11], KK et al. [6], making it a finding consistent with that from the research from the Indian subcontinent, but contrasting to those reported by European and Australian studies, which reported such behaviors majorly among single and divorcees [12]. The age of marriage is lower in Indians when compared to that in the West, albeit it is gradually increasing in rural India too.

As the study center was situated in rural India, the majority of the patients were from rural areas (87.75%). Also,

the majority of them had a pre-university type of education or lower. Graduates and above constituted only 15% of the total cases. Unemployed individuals and students constituted 17.35% each, and most of them belonged to the socioeconomic group Class I (34.7%) and Class II (38.78%). Tekkalaki [10], in his study in urban India, reported that 38% of suicide attempters are educated up to high school and approximately 27% of them are graduates. This finding is different from the present results, as it was conducted in rural India. Self-harm behavior is more commonly associated with low educational status and unemployment. The inability to meet social demands may be the corresponding reason for educated individuals.

Of the total cases, 88.78% used nonviolent methods and 55 of the 62 females used nonviolent methods. These findings were consistent with a similar study conducted by Pham TTL et al. [5] in Australia and by Grover et al. [13] in India (80% and 89% nonviolent methods, respectively). The consumption of pesticides (63.21%) was the most common nonviolent method selected, followed by an overdose of medication (27.59%). Even global data suggest that poisoning by pesticides is common in several Asian countries and Latin America [6]. Pyrethroids constituted 47.27% of the total type of pesticides. Paracetamol was the most common type of medication used for overdosing. Phenol and hydrochloric acid were the commonly used cleansing products used. The consumption of pesticides is the most common nonviolent method observed by Grover et al. [13], which is consistent with the present findings from other Indian researchers. However, the use of corrosives (11%) was preferred over prescription drugs as the next most common nonviolent method.

The use of a sharp force and pharmaceutical drug overdose were found to be more common in Australia compared to that in the Indian literature. Only two cases in the present study used a sharp force, whereas it is the third-most common method (13%) in Australia [5].

More females chose the softer and nonviolent approach to self-harm than males. Attempted hanging was the most common violent method used (63.64%) in our study. Grover et al. [13] observed that violent methods such as hanging, strangulation, jumping from a height, self-stabbing, and self-immolation were common in males (10.9%). Similarly, in another study by Paholpak et al. [9] in Thailand, self-poisoning behaviors were performed more commonly by women, while men tended to attempt self-harming behaviors (violent methods). In contrast, Hansen et al. [12] observed that nearly half of the sampled cases were of drug poisoning and the second largest group involved sharp forces such as cutting or piercing.

Methods are selected based on the availability of related resources in the vicinity, and males are more likely to use violent methods than females. Our institution is a tertiary care center in rural India, and the availability of pesticides is much easier and cheaper than that of prescription drugs in this area. Moreover, pesticides are stored in most of the houses in rural India as agriculture is the primary occupation of most rural Indians. Pyrethroids, a less fatal and more commonly available pesticide, were used for self-harm. Self-harm by poisoning is considered less painful than the use of a sharp force. Hence, nonviolent methods are commonly used by females and it is also the only type of method preferred by individuals of age >25 years in both sexes. In our study, no violent methods were selected by persons of age >25 years.

As per the history taken during hospitalization, 52.04% of the subjects had an intention to end their lives, but it was slightly lesser (38.16%) in a study by Hansen et al [15]. In 41.83% of the cases, death was "likely possible" and it was "certainly possible" in 26.54% of the cases. The likelihood of death depends on the type of method, type, and dosage of poison consumed, injury to vital body structures, provision of first aid, time taken to reach the hospital, and the condition of the patient on arrival at the hospital. An individual's knowledge of the lethality of the type of method is also another contributing factor. The consumption of pyrethroid is the less lethal method, followed by the use of prescription drugs. Pyrethroids are commonly used in mosquito repellents and are more toxic to insects than to mammals and birds due to the greater numbers of sensitive sodium channels in the insect nervous system and their lower body temperature [15].

Paracetamol and other pharmaceutical drugs were consumed in doses lesser than the lethal dose and were less likely to cause death. The likelihood of death is more common with the consumption of organophosphorus compounds, phosphides, attempted hanging and attempted drowning. These are considered to be more lethal methods.

Many villages and towns nearby have easy and quick access to our institution, which makes patients reach faster, and, in our study, approximately 47% of them reached the hospital in 15–30 min. All cases were initially admitted to the ICU and the stay therein was <24 h in 50% of the cases. The duration of hospitalization was <5 days in 73.47% of cases. In a similar study conducted in Thailand, the causes for the longest hospital stay duration were intentional self-harm by (a) smoke fire and flames, (b) by jumping from a high place, and (c) by rifle, shotgun, and larger firearms. The mean length of stay in this group varied between 1.6+0.5 and 24.9+37 days with 7% of admissions being >2 weeks [9]. Indeed, these are more lethal methods and the likelihood of death is higher. In our study, there were no cases of self-harm from the use of fire, firearms, or falling from a height. More lethal methods like attempted hanging, attempted drowning, and consumption of organophosphorus compounds were the types of cases that required longer hospitalization.

Interpersonal conflict was the main reason to harm themselves in 41.83% of the cases, and, predominantly, it was with their partners (20.41%). Financial issues (18.37%) and academic challenges (11.22%) were the other common reasons. In a similar study by Tekkalaki [10], interpersonal conflicts with family members (46.34%), conflicts with spouse

or partner (21.96%), and broken emotional relationships (17.08%) were the main causative factors for self-harm. In another Indian study by Siwach and Gupta [16], marital disharmony, economic hardships, and scolding/disagreement with other family members were identified as the major precipitating factors for self-harm. These findings concur with our results that interpersonal problems and financial and academic performance are usually the instigating factors for suicide.

Psychiatric illness was diagnosed in only 20% of all cases, and these patients were not being treated for the same. A depressive episode, emotionally unstable personality disorder, and adjustment disorder were the diagnoses made in these 20 cases. The remaining 78 subjects did not have any psychiatric illness while they were hospitalized or in the past. In similar studies by Grover et al. [13], Tekkalaki [10], Das et al. [11], and Paholpak et al. [9], psychiatric comorbidity in self-harm cases were 22.8%, 40%, 52%, and 33.8%. The majority of underlying psychiatric disorders comprised diagnoses of anxiety disorders (47.1%) and mood disorders (25.2%), as reported by Paholpak et al [9]. Tekkalaki observed personality- and substance-related disorders were the most common psychiatric disorders [10]. Diagnosis of a depressive episode or adjustment disorder in 40% of the subjects was reported by Kumar et al. [6] and Das et al. [11]. The diagnosis of psychiatric illness is similar to that reported by various existing Indian literature; however, the prevalence rate of psychiatric morbidity varies from 20% to 52%. Self-harm may be attempted by people without or with psychiatric disorders. All impulsive acts are usually preceded by some psychosocial stressors that cannot be surmounted.

CONCLUSION

Individuals aged <25 years constituted almost 47% of all cases, and they were identified to be more susceptible to self-harm. It is important to identify such individuals at the right time. The consumption of pesticides is the most common method attempted in rural India, warranting the need for strict policy-making and stringent regulations to curb the sale and storage of pesticides. The majority of the females used nonviolent softer methods of self-harm than males. Self-harm behavior is seen in both people with normal mental health and those with psychiatric morbidity. Both sets of people need support to grapple with their stress and curb any impulsive acts thereof. Only one-fifth of the cases were diagnosed with psychiatric illness. There is a need for a registration and monitoring system for self-harm to start identifying, counseling, and treating potential and existing suicide victims, involving expert mental health professionals to make early diagnoses of mental disorders, aiming for suicide prevention, and improving access to psychiatric care for self-harm. Moreover, awareness should be created about the availability of a round-the-clock helpline for people who have suicidal or self-harm ideation. It is important to acknowledge the immense scope in identifying the hurdles faced by susceptible individuals in accessing mental health care and facilitating the same.

ADDITIONAL INFORMATION

Funding source. This study was not supported by any external sources of funding.

Competing interests. The authors declare that they have no competing interests.

Authors' contribution. All authors made a substantial contribution to the conception of the work, acquisition, analysis, interpretation of data for the work, drafting and revising the work, final approval of the version to be published and agree to be accountable for all aspects of the work. J. S. Hosahally carried out the study, interviewed and examined the subjects, wrote the manuscript; N. B. Raj carried out the study, interviewed and examined the subjects, dealt with the Psychiatric aspects in all subjects, wrote the manuscript; K.B. Geetha carried out the study, reviewed the literature, wrote the manuscript.

REFERENCES

1. Accodental deaths and suicides in India — 2019. In: National Crime Records Bureau [Internet]. India: Government of India; 2019–2024 [cited 2024 Jan 29]. Available from: https://www.ncrb.gov.in/accidental-deaths-suicides-in-india-adsi.html

2. Hawton K, James A. Suicide and deliberate self harm in young people. *BMJ.* 2005;330(7496):891–894. doi: 10.1136/bmj.330.7496.891

3. Cooper J, Kapur N, Webb R, et al. Suicide after deliberate self-harm: a 4-year cohort study. *Am J Psychiatry.* 2005;162(2):297–303. doi: 10.1176/appi.ajp.162.2.297

4. Schreiber J, Culpepper L. Suicidal ideation and behavior in adults. In: UpToDate [Internet]. Wolters Kluwer, 2023–2024 [cited 2024 Mar 23]. Available from: https://www.uptodate.com/contents/suicidal-ideation-and-behavior-in-adults

5. Le Pham TT, O'Brien KS, Berecki-Gisolf J, et al. Intentional self-harm in culturally and linguistically diverse communities: a study of hospital admissions in Victoria, Australia. *Australian and New Zealand Journal Psychiatry.* 2023;57(1):69–81. EDN: UUTAUW doi: 10.1177/00048674211063421

6. Kumar KK, Sattar FA, Bondade S, et al. A gender-specific analysis of suicide methods in deliberate self-harm. *Indian Journal of Social Psychiatry.* 2017;33(1):7–21. doi: 10.4103/0971-9962.200098

7. Arya V, Page A, Vijayakumar L, et al. Changing profile of suicide methods in India: 2014–2021. *Journal of Affective Disorders.* 2023;340:420–426. EDN: FODBBI doi: 10.1016/j.jad.2023.08.010

8. Kar N. Profile of risk factors associated with suicide attempts: a study from Orissa, India. *Indian J Psychiatry.* 2010;52(1):48–56. doi: 10.4103/0019-5545.58895

9. Paholpak P, Rangseekajee P, Arunpongpaisal S, et al. Characteristics and burden of hospitalization because of intentional self-harm: Thai national, hospital-based data for 2010. *J Med Assoc Thai.* 2012;95 Suppl. 7:S156–S162.
10. Tekkalaki B, Nischal A, Tripathi A, Arya A. A study of individuals with intentional self-harm referred to psychiatry in a tertiary care center. *Ind Psychiatry J.* 2017;26(1):95–98. doi: 10.4103/ipj.ipj_53_15
11. Das PP, Grover S, Avasthi A, et al. Intentional self-harm seen in psychiatric referrals in a tertiary care hospital. *Indian J Psychiatry.* 2008;50(3):187–191. doi: 10.4103/0019-5545.43633
12. Schmidtke A, Bille-Brahe U, Deleo D, et al. Attempted suicide in Europe: rates, trendsand sociodemographic characteristics of suicide attempters during the period 1989–1992. Results of the WHO/EURO multicentre study on parasuicide. *Acta Psychiatr Scand.* 1996;93(5):327–338. doi: 10.1111/j.1600-0447.1996.tb10656.x
13. Grover S, Sarkar S, Chakrabarti S, et al. Intentional self-harm in children and adolescents: a study from psychiatry consultation Liaison services of a Tertiary Care Hospital. *Indian J Psychol Med.* 2015;37(1):12–16. doi: 10.4103/0253-7176.150801
14. Hansen A, Slavova D, Cooper G, et al. An emergency department medical record review for adolescent intentional self-harm injuries. *Inj Epidemiol.* 2021;8(1):3. EDN: FCDEIQ doi: 10.1186/s40621-020-00293-8
15. Bradberry SM, Cage SA, Proudfoot AT, Vale JA. Poisoning due to pyrethroids. *Toxicol Rev.* 2005;24(2):93–106. doi: 10.2165/00139709-200524020-00003
16. Siwach SB, Gupta A. The profile of acute poisonings in Harayana-Rohtak Study. *J Assoc Physicians India.* 1995;43(11):756–759.

СПИСОК ЛИТЕРАТУРЫ

1. Accidental deaths and suicides in India – 2019. B: National Crime Records Bureau [Internet]. India: Government of India, 2019–2024. Режим доступа: https://www.ncrb.gov.in/accidental-deaths-suicides-in-india-adsi.html Дата обращения: 29.01.2024.
2. Hawton K., James A. Suicide and deliberate self harm in young people // BMJ. 2005. Vol. 330, N 7496. P. 891–894. doi: 10.1136/bmj.330.7496.891
3. Cooper J., Kapur N., Webb R., et al. Suicide after deliberate self-harm: a 4-year cohort study // Am J Psychiatry. 2005. Vol. 162, N 2. P. 297–303. doi: 10.1176/appi.ajp.162.2.297
4. Schreiber J., Culpepper L. Suicidal ideation and behavior in adults. B: UpToDate [Internet]. Wolters Kluwer, 2023–2024. Режим доступа: https://www.uptodate.com/contents/suicidal-ideation-and-behavior-in-adults Дата обращения: 23.03.2024.
5. Le Pham T.T., O'Brien K.S., Berecki-Gisolf J., et al. Intentional self-harm in culturally and linguistically diverse communities: a study of hospital admissions in Victoria, Australia // Australian and New Zealand Journal Psychiatry. 2023. Vol. 57, N 1. P. 69–81. EDN: UUTAUW doi: 10.1177/00048674211063421
6. Kumar K.K., Sattar F.A., Bondade S., et al. A gender-specific analysis of suicide methods in deliberate self-harm // Indian Journal of Social Psychiatry. 2017. Vol. 33, N 1. P. 7–21. doi: 10.4103/0971-9962.200098
7. Arya V., Page A., Vijayakumar L., et al. Changing profile of suicide methods in India: 2014–2021 // Journal of Affective Disorders. 2023. Vol. 340. P. 420–426. EDN: FODBBI doi: 10.1016/j.jad.2023.08.010
8. Kar N. Profile of risk factors associated with suicide attempts: a study from Orissa, India // Indian J Psychiatry. 2010. Vol. 52, N 1. P. 48–56. doi: 10.4103/0019-5545.58895
9. Paholpak P., Rangseekajee P., Arunpongpaisal S., et al. Characteristics and burden of hospitalization because of intentional self-harm: Thai national, hospital-based data for 2010 // J Med Assoc Thai. 2012. Vol. 95, Suppl. 7. P. S156–S162.
10. Tekkalaki B., Nischal A., Tripathi A., Arya A. A study of individuals with intentional self-harm referred to psychiatry in a tertiary care center // Ind Psychiatry J. 2017. Vol. 26, N 1. P. 95–98. doi: 10.4103/ipj.ipj_53_15
11. Das P.P., Grover S., Avasthi A., et al. Intentional self-harm seen in psychiatric referrals in a tertiary care hospital // Indian J Psychiatry. 2008. Vol. 50, N 3. P. 187–191. doi: 10.4103/0019-5545.43633
12. Schmidtke A., Bille-Brahe U., Deleo D., et al. Attempted suicide in Europe: rates, trendsand sociodemographic characteristics of suicide attempters during the period 1989–1992. Results of the WHO/EURO multicentre study on parasuicide // Acta Psychiatr Scand. 1996. Vol. 93, N 5. P. 327–338. doi: 10.1111/j.1600-0447.1996.tb10656.x
13. Grover S., Sarkar S., Chakrabarti S., et al. Intentional self-harm in children and adolescents: a study from psychiatry consultation Liaison services of a Tertiary Care Hospital // Indian J Psychol Med. 2015. Vol. 37, N 1. P. 12–16. doi: 10.4103/0253-7176.150801
14. Hansen A., Slavova D., Cooper G., et al. An emergency department medical record review for adolescent intentional self-harm injuries // Inj Epidemiol. 2021. Vol. 8, N 1. P. 3. EDN: FCDEIQ doi: 10.1186/s40621-020-00293-8
15. Bradberry S.M., Cage S.A., Proudfoot A.T., Vale J.A. Poisoning due to pyrethroids // Toxicol Rev. 2005. Vol. 24, N 2. P. 93–106. doi: 10.2165/00139709-200524020-00003
16. Siwach S.B., Gupta A. The profile of acute poisonings in Harayana-Rohtak Study // J Assoc Physicians India. 1995. Vol. 43, N 11. P. 756–759.

AUTHORS' INFO

*** Jayanth S. Hosahally,** MD, Associate Professor;
address: Kanakapura Main Road, Kanakapura, India, 562112;
ORCID: 0000-0001-5209-1133;
e-mail: veejay02@gmail.com

Neeraj B. Raj, MD, Associate Professor;
ORCID: 0000-0003-3632-718X;
e-mail: neerajraj20dec@gmail.com

Geetha KB, MD, Associate Professor;
ORCID: 0000-0002-8841-1407;
e-mail: dr_geethakb@yahoo.co.uk

* Corresponding author / Автор, ответственный за переписку

ОБ АВТОРАХ

*** Hosahally Jayanth Sh,** доцент;
адрес: Индия, 562112, Канакпура, Kanakapura Main Road;
ORCID: 0000-0001-5209-1133;
e-mail: veejay02@gmail.com

Raj Neeraj B, доцент;
ORCID: 0000-0003-3632-718X;
e-mail: neerajraj20dec@gmail.com

Geetha KB, доцент;
ORCID: 0000-0002-8841-1407;
e-mail: dr_geethakb@yahoo.co.uk