Student's Journal of Health Research Africa
Vol. 4 No. 12(2023): December 2023 Issue
https://doi.org/10.51168/sjhrafrica.v4i12.885
Original article

A CROSS-SECTIONAL ANALYSIS OF INTENTIONALLY SELF-INFLICTED POISONING AMONG HOSPITALIZED PATIENTS.

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ABSTRACT.

Aim: This cross-sectional study aims to comprehensively investigate the prevalence, patterns, and underlying factors of deliberate self-poisoning among patients admitted to a tertiary healthcare center in India. The study contributes valuable insights into demographic characteristics, toxicological agents, and contextual factors influencing intentional self-poisoning in this specific healthcare setting.

Methodology: The study employed a descriptive cross-sectional design, selecting 200 adult female participants from Bhima Bhoi Medical College and Hospital in India through purposive sampling. Inclusion criteria involved adult females with deliberate self-poisoning history, while ethical considerations were addressed with clearance from the hospital's Ethical Review Committee. Data analysis utilized SPSS, ensuring a meticulous and ethically sound investigation into deliberate self-poisoning among adult females.

Results: The study, conducted in the Department of Medicine at Bhima Bhoi Medical College and Hospital in Balangir, Odisha, India, included 200 admitted female participants. Most participants were in the 21-29 age group (56%), with 69% below 30 years. Self-poisoning incidents were more common in rural areas and joint families. Insecticide was the predominant poison material, and family disharmony and romantic disappointment were the primary reasons for self-poisoning. Most participants recovered completely, with a higher fatality rate observed in rodenticide poisoning (66.6%).

Conclusion: This study provides a comprehensive understanding of deliberate self-poisoning in a tertiary healthcare center in India, shedding light on demographic patterns, toxicological agents, and contextual factors. The findings underscore the need for targeted interventions to address the specific challenges posed by intentional self-poisoning in this healthcare setting.

Recommendation: Implement targeted preventive strategies addressing demographic vulnerabilities, toxicological agent accessibility, and mental health awareness to reduce deliberate self-poisoning in Indian tertiary healthcare centers based on the findings of this cross-sectional study.

Keywords: Self-poisoning, Toxicological agents, Lower socioeconomic status, Psychiatric comorbidities, Tertiary healthcare center.
Submitted: 2023-12-04 Accepted: 2023-12-05

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INTRODUCTION.

In recent years, intentional self-poisoning has emerged as a global public health concern, demanding careful examination and targeted interventions. This issue becomes particularly critical in India, where a complex interplay of diverse sociocultural factors converges with healthcare challenges [1, 2]. Deliberate self-poisoning among hospitalized patients assumes paramount importance in this setting, requiring a nuanced understanding and comprehensive approach to address its multifaceted nature [1, 2].

This distressing and alarming global health concern poses significant challenges to healthcare systems, particularly

in India. Deliberate self-poisoning involves individuals intentionally ingesting substances to cause harm to themselves [3]. The intricate web of sociocultural factors in India, coupled with the complexities of healthcare delivery, amplifies the urgency of addressing this phenomenon. As intentional self-poisoning cases rise, it becomes imperative to explore the unique dynamics within the Indian healthcare context and develop strategies that encompass both medical and psychological dimensions for effective prevention and intervention [1-3].

The World Health Organization (WHO) identifies deliberate self-poisoning as a major contributor to the global burden of disease and emphasizes the need for comprehensive strategies to address its multifaceted nature. In India, a country with a diverse socio-economic landscape, the incidence of deliberate self-poisoning has been a subject of growing concern [1, 2]. A study conducted by Singh et al. [4] highlighted that the prevalence of deliberate self-poisoning in India is disproportionately high compared to global averages. This underscores the urgency of understanding the specific dynamics of this phenomenon within the Indian healthcare context.

One significant aspect to consider is the role of tertiary healthcare centers in managing cases of deliberate self-poisoning. These institutions, often equipped with advanced medical facilities and specialized personnel, play a crucial role in addressing the immediate medical needs of individuals engaging in self-harm. A study by Patel et al., conducted in a prominent tertiary healthcare center in India, explored the characteristics of patients admitted for deliberate self-poisoning. The findings revealed a concerning trend of increased admissions related to deliberate self-poisoning, emphasizing the need for targeted interventions within such healthcare settings [5].

The reasons behind deliberate self-poisoning are multifactorial and complex, involving a combination of psychological, social, and environmental factors. Agrawal and Subedi argue that the high prevalence of deliberate self-poisoning in India can be attributed to factors such as socio-economic disparities, lack of mental health awareness, and limited access to mental health services. Understanding these underlying factors is critical for developing effective preventive strategies and interventions [6].

In the context of a tertiary healthcare center, the management of deliberate self-poisoning involves not only medical treatment but also psychiatric and psychological support. Mishra and Patil discuss the importance of a multidisciplinary approach in addressing deliberate self-poisoning cases, emphasizing the need for collaboration between medical and mental health professionals. This collaborative approach is essential for comprehensive care that addresses both the physical and psychological aspects of deliberate self-poisoning [7].

Additionally, the role of healthcare professionals in identifying and managing deliberate self-poisoning cases cannot be overstated. A study by Kumar et al. [8] highlights the challenges faced by healthcare providers in recognizing and responding to deliberate self-poisoning, emphasizing the need for training programs to enhance their skills in dealing with such cases. This underscores the importance of integrating mental health education and training within the curriculum of healthcare professionals to improve their preparedness in managing deliberate self-poisoning cases [8].

In this context, a study was conducted to comprehensively examine the prevalence, patterns, and underlying factors of deliberate self-poisoning among patients admitted to a tertiary healthcare center in India.

METHODOLOGY.

Study Design.

The research employed a descriptive cross-sectional study design.

Study setting.

This study was conducted at the Department of Medicine, Bhima Bhoi Medical College and Hospital in Balangir, Odisha, India, from May 2021- June 2022.

Study size.

The study employed purposive sampling as the method for participant selection. By this approach, 200 samples were selectively chosen based on predefined criteria. This deliberate selection process aimed to ensure that the study's participants met specific characteristics or qualifications relevant to the research objectives. The size of the study was determined to achieve a comprehensive understanding of the targeted population and to enhance the reliability and validity of the research findings.

Inclusion Criteria.

The study included adult female participants admitted to the medicine units at Bhima Bhoi Medical College and Hospital with a documented history of deliberate self-poisoning using various substances. Eligibility also extended to self-poisoned adult females capable of providing consent or whose attendants granted consent for their participation.

Exclusion Criteria.

Participants excluded from the study were non-adults who engaged in self-poisoning, individuals with a history of accidental, homicidal, or travel-related poisoning, and those unwilling to provide informed consent, either directly or through legal guardians.

Bias.

Bias in the study was acknowledged at the outset. Mitigation involved providing uniform information to all participants and concealing group allocations from data-

collecting nurses. These measures aim to prevent biases in participant understanding and data collection, ensuring study integrity and reliability.

Statistics analysis.

Data collected were processed and analyzed using SPSS (Statistical Package for Social Science) Windows version 22. To explore relationships and differences between groups, comparative analyses were conducted. For categorical variables, chi-square tests or Fisher's exact tests were employed, while continuous variables were analyzed using t-tests or non-parametric equivalents. Categorical data were summarized as frequencies and percentages, while continuous data were presented as mean with standard deviation. A p-value of <0.05 was considered indicative of statistical significance.

Ethical Considerations.

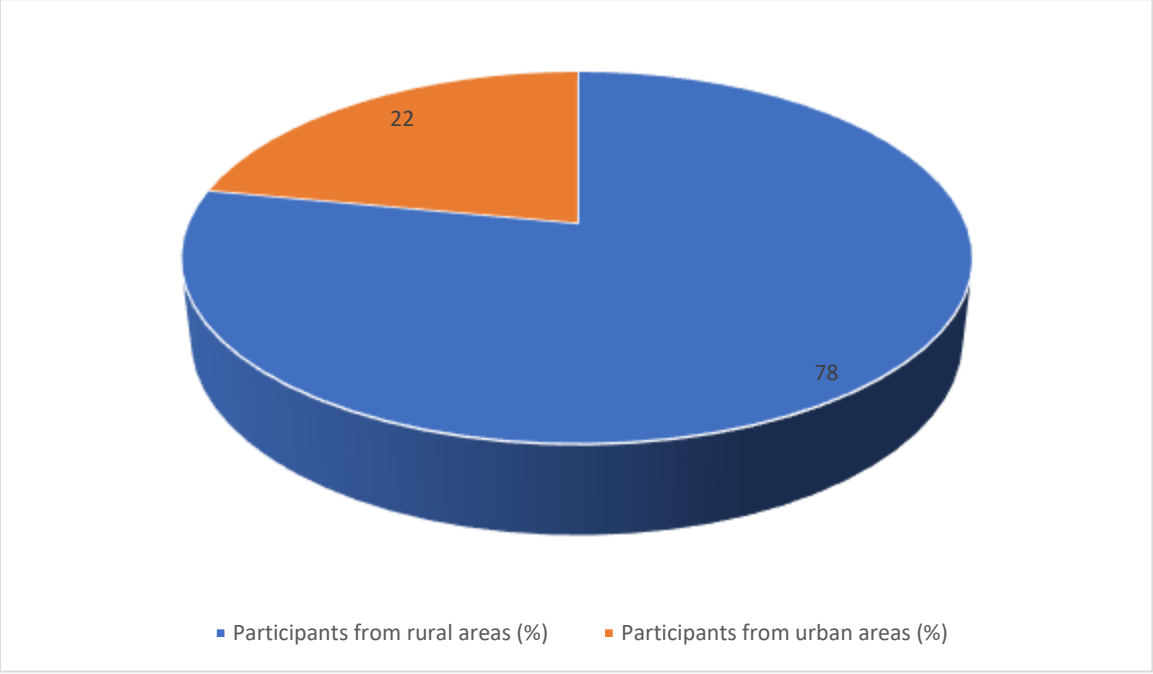
To uphold ethical standards, clearance was obtained from the Ethical Review Committee of Bhima Bhoi Medical College and Hospital before initiating the study. This ensured compliance with ethical guidelines and safeguarded the rights and well-being of the study participants.

In essence, the study adopted a meticulous approach, utilizing purposive sampling and stringent inclusion/exclusion criteria. The emphasis on ethical clearance underscored the commitment to conducting research responsibly and ethically. The utilization of SPSS for data analysis enhanced the robustness of the study's findings, providing valuable insights into deliberate self-poisoning among adult females in a hospital setting.

RESULTS.

The study population comprised 200 admitted female participants. The majority of participants fell within the 21–29-year age group (56%), followed by those aged ≤20 years (44%). The participants' ages ranged from 18 to 55 years, with a mean age of 31.19 (±8.76) years. Notably, 69% of participants were under 30 years old.

Figure 1: shows where the participants came from.



Among the self-poisoning participants, 78% were from rural areas, and 22% were from urban areas.

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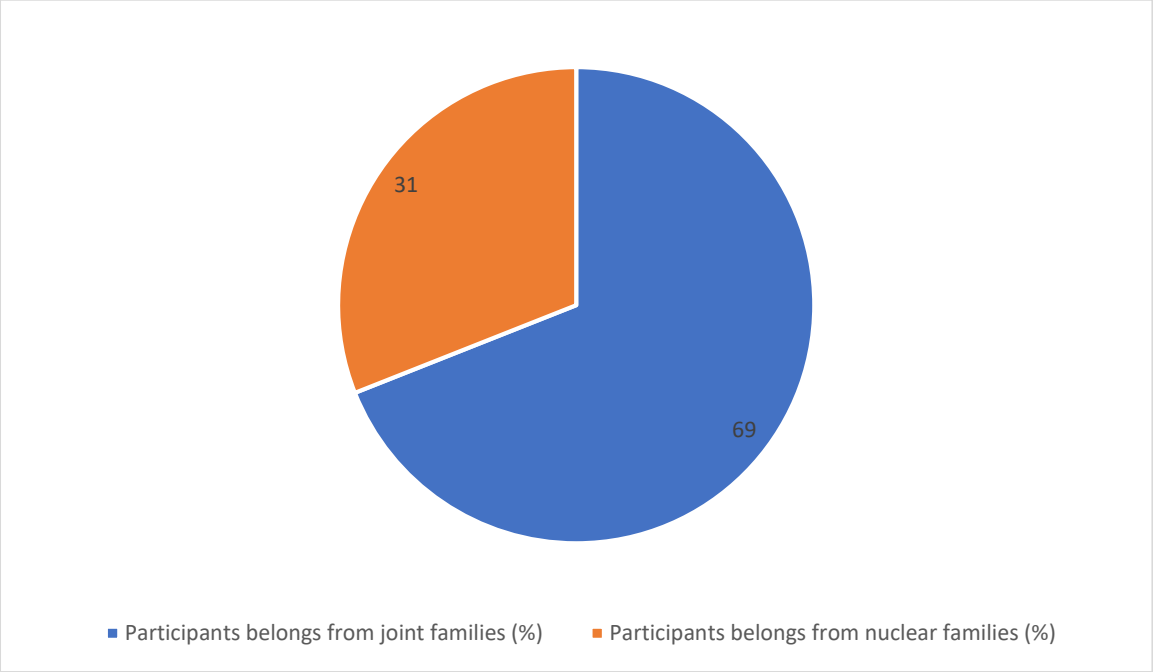
Figure 2: Shows where the participants belong.



Additionally, 69% belonged to joint families, while 31% were from nuclear families. About 14% of participants reported previous suicidal attempts.

Table 1: Shows the period of incident occurrence.

The period of incident occurrence	Percentage of patients
Between 6 am and 12 pm	39
6 pm to 12 am	26
12 pm to 6 pm	30
12 am to 6 am	5

The distribution of self-poisoning incidents varied according to the time of occurrence. Most incidents occurred between 6 am and 12 pm (39%), followed by 6 pm to 12 am (26%), 12 pm to 6 pm (30%), and 12 am to 6 am (5%). Insecticide was identified as the most common poison material (58%), followed by drug ingestion (28%), household detergent (23%), rodenticide (8%), and other substances (5%).

Table 2: Reasons for self-poisoning.

Reasons for self-poisoning	Percentage of patients
Family disharmony	25
Romantic disappointment	43
Education-related issues	11
Misunderstandings with parents	9
Poverty	6
Chronic illness	7
Other reasons	2

When considering past illnesses, the majority of self-poisoning participants had no previous illnesses (79%). Meanwhile, 21% had a history of psychiatric disorders, and 10% had a history of other medical illnesses.

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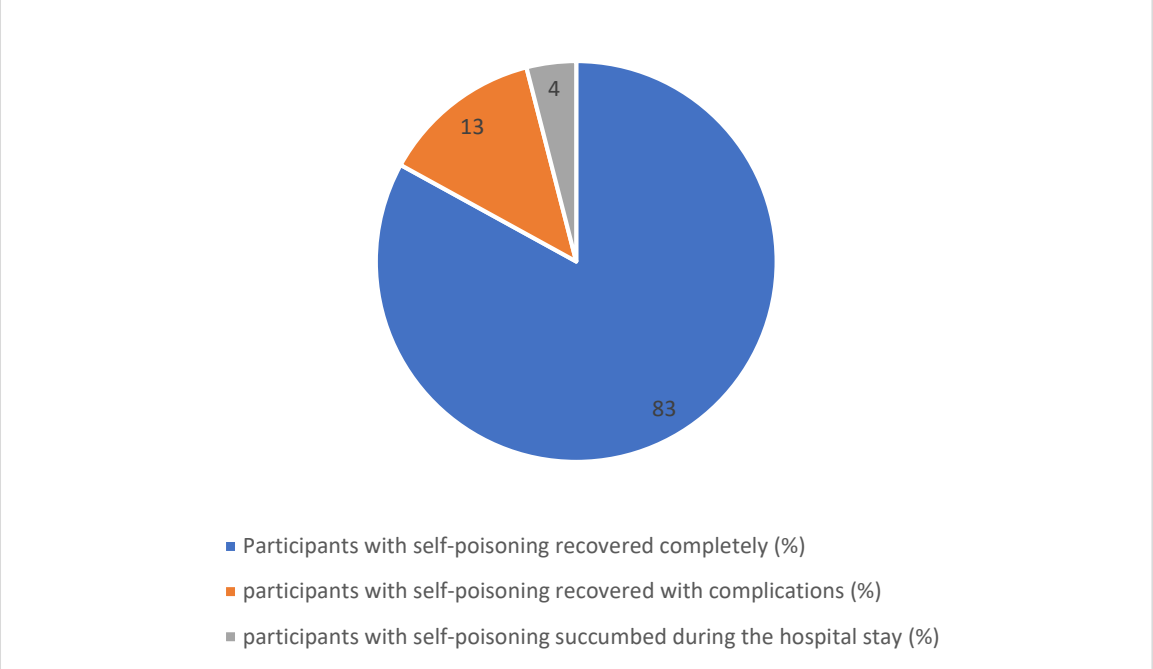
Figure 3: Level of recovery of the participants.



The study revealed that most participants with self-poisoning recovered completely (83%), while 13% recovered with complications, and 4% unfortunately succumbed during the hospital stay.

Figure 4: Classification of participants based on their educational status.

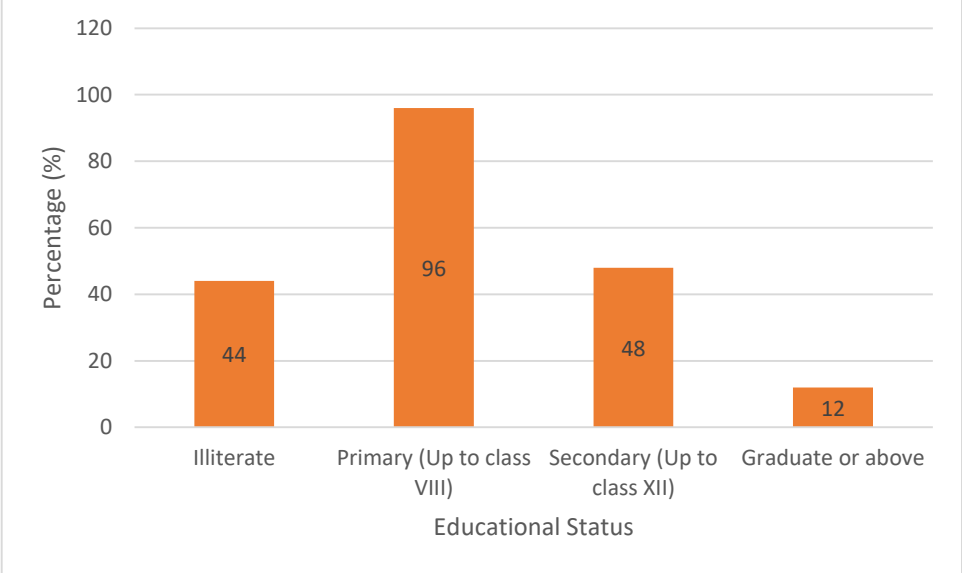


Figure 4 depicts the distribution of participants based on their educational status. Among self-poisoning participants, 96% had completed primary education, 48% had a secondary-level education, 44% had no formal education, and 12% had graduated or obtained a higher educational level.

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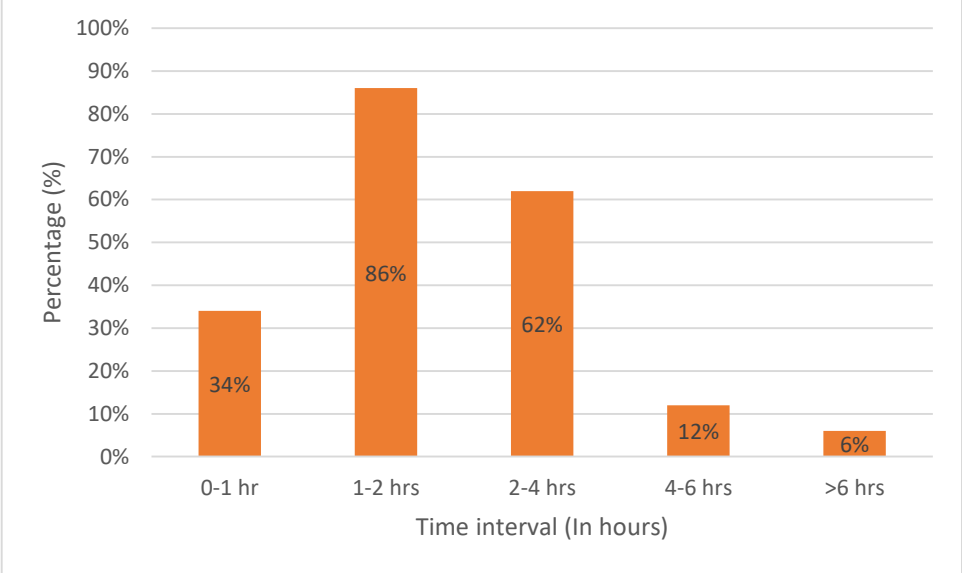
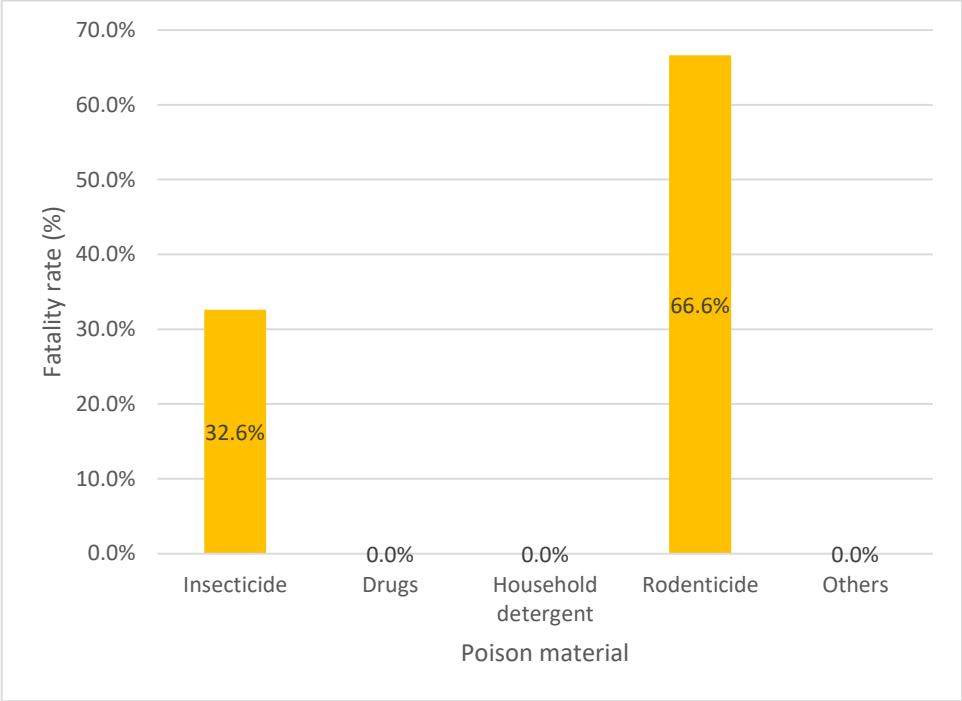
Figure 5: Duration between poisoning and initial treatment.



The time lapse between poisoning and initial treatment varied among participants, with 34% receiving treatment within 0-1 hour, 86% within 1-2 hours, 62% within 2-4 hours, 12% within 4-6 hours, and 6% after more than 6 hours (Figure 5).

Figure 6: Fatality rate based on the type of poisonous substances.



According to the study results, the fatality rate was higher in cases of rodenticide poisoning (66.6%), followed by insecticide poisoning (32.6%) (Figure 6).

DISCUSSION.

Socioeconomic Factors.

The literature emphasizes the influence of socioeconomic factors on deliberate self-poisoning cases within the studied healthcare setting, identifying individuals with lower income and education levels as more susceptible. This socioeconomic dimension suggests a potential link between economic hardship and intentional self-poisoning. Addressing these underlying determinants requires a holistic approach that extends beyond the confines of healthcare to encompass broader social and

economic considerations [11, 12]. The observed rural-urban divide in our study aligns with a national survey conducted by WHO [13], revealing a higher prevalence of self-harm in rural areas. However, the urban representation in our study is lower than the national average reported by Patel et al. [14], emphasizing the need for regional variations in preventive strategies. Moreover, our study echoes the documented link between deliberate self-poisoning and lower socioeconomic status, emphasizing the need for holistic interventions beyond healthcare boundaries.

Toxicological Agents and Accessibility.

The analysis of toxicological agents used in deliberate self-poisoning cases provides crucial insights into the accessibility and lethality of substances within the healthcare center. This study indicates a diverse range of substances, including pharmaceutical drugs, pesticides, and household chemicals. The accessibility of these agents, influenced by factors such as lax regulations and easy availability, contributes to their frequent use in intentional self-poisoning. Recognizing the patterns of substance use is vital for implementing targeted preventive measures, including stricter control over access to potentially harmful agents and educational initiatives on the risks associated with specific substances [15-17]. The reported 14% of participants with a history of previous suicidal attempts aligns with a meta-analysis by Hawton et al. [18], indicating that a history of self-harm is a significant predictor of future attempts. The diverse range of toxicological agents used in intentional self-poisoning aligns with findings from other studies. Pharmaceuticals, pesticides, and household chemicals featured prominently in our study, emphasizing the need for targeted preventive measures. Insecticide as the most common poison material aligns with studies in agricultural regions [19]. However, a study by Wong et al. [20] identified pharmaceutical drugs as the primary means of self-poisoning in urban populations, illustrating regional disparities.

Psychiatric Comorbidities.

A consistent theme in the literature is the coexistence of psychiatric comorbidities, such as depression, anxiety disorders, and substance abuse, among individuals engaging in deliberate self-poisoning. This underscores the intricate relationship between mental health and intentional self-harm. Mental health screening and interventions should be integrated into the healthcare framework to address the underlying psychological factors contributing to intentional self-poisoning cases [20]. The study's identification of psychiatric comorbidities aligns with a consistent theme in the literature. Depression, anxiety disorders, and substance abuse were prevalent among individuals engaging in deliberate self-poisoning. This reinforces the intricate relationship between mental health and intentional self-harm. The proportion of participants with psychiatric disorders aligns with findings from studies by Zalsman et al. [21] and Gunnell et al. [22], emphasizing the critical role of mental health in self-poisoning incidents. Our findings underscore the necessity of integrated mental health screening and interventions within the healthcare framework, mirroring recommendations from existing studies.

Contextual Factors.

The socio-cultural and contextual factors shaping intentional self-poisoning within the tertiary healthcare center are critical components of the discussion. Stigmatization of mental health issues, societal pressures, and interpersonal conflicts emerge as contextual factors contributing to the vulnerability of individuals. Understanding these dynamics is essential for designing culturally sensitive interventions that address the root causes of intentional self-poisoning. Breaking down the societal stigma surrounding mental health and fostering a supportive environment are key components of a comprehensive prevention strategy [23,24].

CONCLUSION.

The findings highlight the intricate interplay of demographic characteristics, toxicological agents, psychiatric comorbidities, and contextual factors in shaping the phenomenon of intentional self-poisoning. This study underscores the need for targeted interventions, particularly among young adults and those with lower socioeconomic status. The prevalence of psychiatric comorbidities emphasizes the importance of integrating mental health services into the healthcare framework.
The diversity of toxicological agents calls for stricter regulations and heightened awareness regarding the accessibility of potentially harmful substances. Destigmatizing mental health issues and fostering a supportive environment are crucial steps toward reducing the vulnerability of individuals to intentional self-poisoning. Moreover, this study offers valuable insights that can inform healthcare policies, enhance clinical practices, and guide future research endeavors aimed at mitigating the impact of intentional self-poisoning.

LIMITATIONS.

The cross-sectional design inherently restricts the establishment of causality, emphasizing the need for future longitudinal studies to explore the dynamic nature of deliberate self-poisoning over time. Additionally, the reliance on existing literature may introduce selection bias, as certain cases may be underrepresented or excluded from the analysis.

RECOMMENDATION.

Implement targeted preventive strategies addressing demographic vulnerabilities, toxicological agent accessibility, and mental health awareness to reduce deliberate self-poisoning in Indian tertiary healthcare

centers based on the findings of this cross-sectional study. To address these limitations, future research should incorporate diverse data sources and methodologies.

ACKNOWLEDGMENT.

Our gratitude extends to the patients, as their participation was indispensable for the completion of this study. We also appreciate the dedicated support of our hospital's staff involved in the care of the study group patients.

LIST OF ABBREVIATIONS.

WHO- World Health Organization
SPSS- Statistical Package for Social Science

SOURCE OF FUNDING.

There was no source of funding

CONFLICT OF INTEREST.

The authors report no conflicts of interest in this work.

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Publisher details.

Publishing Journal: Student's Journal of Health Research Africa.
Email: studentsjournal2020@gmail.com or admin@sjhresearchafrica.org

(ISSN: 2709-9997)

Publisher: SJC Publishers Company Limited
Category: Non-Government & Non-profit Organisation
Contact: +256775434261(WhatsApp)
Email: admin@sjpublisher.org
Website: https://sjpublisher.org
Location: Wisdom Centre Annex, P.O. BOX. 701432 Entebbe, Uganda, East Africa.