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Poisoning and its pattern among patients in a tertiary care center in Kancheepuram district, Tamil Nadu

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Abstract:

INTRODUCTION: Poisoning is an important global health problem that leads to increase in mortality and morbidity. Worldwide, a million people die each year because of poisoning. The incidence of poisoning is also highest in India, with an estimated death of 50,000 people every year. There is a paucity of literature on various factors associated with poisoning which hinders effective poisoning prevention.

AIMS: The present study aimed to study the pattern of poisoning among patients in a tertiary care center and to assess the factors associated with poisoning.

METHODOLOGY: The prospective study was conducted at the intensive care unit of a tertiary care hospital from May 2018 to September 2018. All the patients who had exposure to poisoning were included in the study. A pretested questionnaire was administered, and information regarding sociodemographic factors, type, mode, and outcome of poisoning were obtained. Statistical analysis was done through SPSS version 21.

RESULTS: Of 106 poisoning patients admitted, 55.7% were female and majority were from rural area (52.8%). The major type of poisoning was suicidal (86.8%). Among suicidal, tablet poisoning was predominant (35.8%), followed by corrosive poisoning (17.9%) and Organophosphorus poisoning (13.2%). The major reason for suicidal poisoning was family problems (63.4%), and the association was statistically significant ($P < 0.001$). Suicidal poisoning was more among the age group of 21–30 years and middle socioeconomic status, which was statistically significant ($P < 0.001$). The prevalence of poisoning was 20.8% and 19.8% among homemakers and college students, respectively, which was statistically significant.

CONCLUSION: Young adults, especially homemakers and college students, are more affected from poisoning in the current study. The involvement of family, educational institutes, and community is very important in identifying the risk factors and timely counseling. Emphasis should be made on legislative measures to combat socioeconomic problems.

Keywords:

Intensive care unit, poisoning, sociodemographic factors

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Introduction

Poisoning or intoxication is the occurrence of harmful effects resulting from exposure to a foreign chemical.^[1] Poisoning can be accidental or intentional. Poisoning is an important global health problem. Globally, an estimated 251,881 deaths occurred due to poisoning every year. About

99% of the poisoning death is contributed by the developing countries.^[2] Self-poisoning plays a major role in increasing the mortality, especially in Asia, and increase in incidence is due to the easy availability of poisoning agents at all levels such as industrial, agricultural, and household levels.^[3,4] In India, an estimated 230,314 suicidal deaths occurred during 2016.^[5] Poisoning is the second most common cause of suicide in India. The prevalence of pesticide poisoning

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is more in India, especially among farmers. The pattern of poisoning changes every year and varies according to the difference in cultural and sociodemographic factors. Appropriate information on such factors helps in policymaking and framing treatment guidelines of poisoning.

There is a paucity of literature on various factors associated with poisoning which hinders effective poisoning prevention. Hence, the current study aimed to study the pattern of poisoning among patients in a tertiary care center and to assess the factors associated with poisoning.

Methodology

The cross-sectional study was conducted at a 15-bedded intensive care unit (ICU) of a tertiary care hospital in Kancheepuram district of Tamil Nadu, India. The study was conducted for a period of 5 months from May 2018 to September 2018. Data of all patients who had exposure to poisoning and admitted to the ICU were included in the study. After obtaining permission from the ICU head, a pretested questionnaire was administered, and information regarding sociodemographic profile, type, mode, and outcome of poisoning were collected. Statistical analysis was done through SPSS version 21.

Results

Table 1 shows the general profile of the patients. Of 106 poisoning patients admitted, 55.7% were female and majority were from rural area (52.8%). The mean age of the suicidal patients was 25.04 years (2–65 years). About 8.5% of patients had a hospital stay of >7 days. Only 1.9% had a history of the previous attempt. The intention of poisoning of 106 patients the majority of poisoning was due to suicidal intention (86.8%) and only 13.2% was accidental.

Table 2 shows the type of agents used for poisoning. Among suicidal, tablet poisoning was predominant (35.8%), followed by corrosive poisoning (17.9%) and OPC poisoning (13.2%).

Figure 1 shows the reason for suicidal poisoning. The major reason for suicidal poisoning was family problems (63.4%) followed by failures (19.56%). Poisoning was equally distributed among homemakers (20.8%) and college students (19.8%). The highest prevalence was seen among farmers. Engineers showed 18.4% prevalence of poisoning.

Table 3 shows the association of sociodemographic factors with poisoning. The major reason for suicidal

Table 1: General profile of poisoning patients

General Profile	n (%)
Sex	
Male	47 (44.3)
Female	59 (55.7)
Marital status	
Married	46 (43.4)
Unmarried	60 (56.6)
Area	
Urban	50 (47.2)
Rural	56 (52.8)
Socioeconomic class	
Upper	3 (2.8)
Upper middle	37 (34.9)
Middle	41 (38.7)
Upper lower	24 (22.6)
Lower	1 (0.9)
Hospital stay in days	
1-3	49 (46.2)
4-7	48 (45.3)
>7	9 (8.5)
Survival	
Recovered	85 (80.2)
Leave Against medical Advice	17 (16.0)
Death	4 (3.8)
Previous attempt	
Yes	2 (1.9)
No	104 (98.1)

Table 2: Agents of poisoning

Agents	Frequency (%)
Tablet poisoning	38 (35.8)
Corrosive poisoning	19 (17.9)
Rat killer poisoning	14 (13.2)
Organophosphorus poisoning	14 (13.2)
Oleander seed poisoning	8 (7.5)
Mosquito coil liquid	6 (5.7)
<i>Abrus precatorius</i>	2 (1.9)
Phenol	1 (0.9)
Others	4 (3.8)

poisoning was family problems (54.7%), and the association was statistically significant ($P < 0.001$). Suicidal poisoning was more among the age group of 21–30 years and middle socioeconomic status, which was statistically significant ($P < 0.001$). Poisoning was more among homemakers (20.8%), which was statistically significant ($P < 0.001$).

Discussion

The trend in poisoning is changing every year, and the incidence of suicidal poisoning is also increasing. The present study is concordant with these findings. In the present study, the major intent of poisoning was suicidal (86.8%) comparable to a study conducted by Srihari *et al.*, where 85.8% of the patients had suicidal

Table 3: Sociodemographic poisoning association

Sociodemographic factors?	Accidental poisoning	Suicidal poisoning	P
			0.000
Age group			
Below 1 year	2	1	
1-10	8	2	
11-20	2	25	
21-30	0	47	
31-40	0	6	
41-50	0	7	
51-60	1	4	
61-70	1	0	
Occupation			0.000
Student	1	20	
Homemaker	0	22	
Business	0	9	
Child	11	4	
Farmer	0	2	
Engineers	0	17	
Others	2	18	
Socioeconomic status			0.000
Upper	3	0	
Upper middle	4	33	
Middle	6	35	
Upper lower	1	23	
Lower	0	1	
Reasons			0.000
Accidental	14	0	
Family problem	0	58	
Work stress	0	13	
Financial problem	0	3	
Failures	0	18	

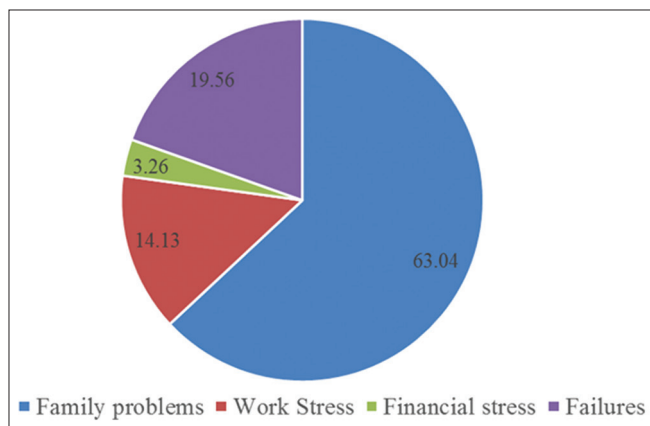


Figure 1: Reasons for suicidal poisoning

poisoning.^[6] This reflects the increasing burden of socioeconomic problems and thereby the vulnerability of people toward it.

In spite of increased incidence of poisoning, the survival rate was 80.2%. This may be attributed to the less amount of poison consumed. And also, the legislation control of content of poisoning substance in the product and

banning of severe poisoning product in the marketing could also be the reason for increased survival rate.

Among mortality of four cases, two cases were paraquat poisoning which affects the organs rapidly, and antidote is also not available. The other two cases were late reporting to the hospital. Hence, mortality depends on the substance and time of intervention. The cases admitted <2 h of ingestion of poison survived despite heavy consumption. The first aid support such as administration of gastrointestinal lavage and dose schedule of various antidotes such as atropine, pralidoxime, and activated charcoal given had a considerable impact on the outcome.

Accidental poisoning was predominant among children <10 years in the current study. This may be attributed to the easy accessibility of poisoning agents to children and lack of awareness about these agents among parents.

The current study showed tablet poisoning, especially benzodiazepines, and paracetamol was predominant (35.8%). This is contradictory to the studies conducted by Arulmurugan *et al.* and Aravind *et al.*, where insecticide

poisoning was most predominant.^[7,8] This shows the irregular sales of these drugs over the counter. The most affected age group was between 11 and 30 years similar to a study conducted by Ahmed *et al.* in Ethiopia.^[9] This can be attributed to the increasing stress and vulnerability of this age group.

Majority of the suicidal poisoning patients were young adults, especially college students. Failures in examinations and personal life were the major reason for attempting suicides. Poisoning was also predominant among homemakers. Family problems such as abuse by spouse, stress from family members, and new challenges in day-to-day life forced these women to attempt suicide. These findings are similar to a study conducted in Ethiopia by Ahmed *et al.*^[9]

Conclusion

Young adults, especially homemakers and college students, are more affected in the current study. The increased burden can be attributed toward increased socioeconomic problems such as high competition, academic pressure, failures, family problems, and financial stress.

The involvement of family, educational institutes, and community is very important in identifying these vulnerable people and directing them toward necessary interventions. Establishing counseling centers, providing helplines, and regulating sales of drugs can reduce the prevalence of suicides. Emphasis should be on policymaking and legislative measures to combat socioeconomic problems.

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Conflicts of interest

There are no conflicts of interest.

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