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Study of Sociodemographic Profile of Patients with Acute Poisoning in Himachal Pradesh

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ABSTRACT

Introduction: Poison cases are on rising because of ever-increasing social pressures, changing lifestyles and overindulgence in substance abuse. In India poisoning assumes significant importance as it utilizes a major part of our already scarce health care resources and is associated with high morbidity and mortality.

Aim: We aimed generate a sociodemographic profile of patients presenting with acute poisoning in our region which would help plan rational use of available resources for the prevention and management of these cases.

Methods: This was conducted in the Govt. Medical College Mandi at Nerchowk Himachal Pradesh for a period of one year from December 2018 to November 2019. A structured proforma was suitably designed, the sociodemographic details, education level; causative agent; mode of poisoning; the person who brought the patient to hospital; marital status; any history of substance abuse; History of psychiatric illness were recorded. Expert psychiatry opinion was taken in every patient.

Results: A total of 145 patients were admitted with acute poisoning. Poisoning was more common in females (79). Predominant age group involved was 18-30 years (46%). Most of the poisoning was seen in literate persons (93%). Poisoning was most often suicidal in intention (76%) done at home (90%) and mostly married (75%). Choice of agent for poisoning was diverse with organophosphorus predominating (15%) as a single agent.

Conclusion: The social and peer pressure, marital and family discords, drug abuse, unemployment and psychiatric disorders are the causes behind this increased risk of poisoning. Assurance and education among the population about the safety and hazards of various chemicals used in houses and different occupations will go long way to prevent accidental poisoning.

Key Words: Himachal, Sociodemographic, Poisoning, Organophosphorus, Aluminium phosphide, Zinc phosphide, datura, Chitta

INTRODUCTION

The word poison originates from the Latin word *potio* which means deadly drink / deadly draught. The Herald of modern Toxicology, Paracelsus, once said that everything is poison and only the dose plays a pivotal role.¹ Poisoning is the fourth commonest cause of death in India and five to six persons per lakh of the population die due to acute poisoning every year.² In India, poisoning related hospitalizations have been almost up to 17%, and contribute to health-related complications and death.³ Annually 0.3 million people die due to various poisoning agents as per World Health Organization (WHO) estimates. Acute pesticide poisoning with agents like aluminium phosphide and organophosphate poisonings

is very common in North India as the majority of people are farmers.⁴

The nature of poisoning varies from country to country and also between various regions within a country depending upon sociodemographic factors, diversity of culture and different social beliefs. Majority of Indian population is agriculture-based residing in rural areas so have easy excess to pesticides contributing significantly to accidental as well as intentional poisoning and as a result, deliberate self-harm has become a public health problem.⁵ The study was conducted to generate a sociodemographic profile of acute poisoning cases in our region which in turn will help in planning rational use of available resources for the prevention and management of poisoning cases.

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MATERIALS AND METHODS

The study was undertaken on 145 patients admitted in Medicine wards with acute poisoning in the department of Medicine at SLBSGMC, Mandi at ner chowk, Himachal Pradesh. 66 (45.52%) were male and 79 (54.48%) females. Percentage of age-wise distribution is shown in figure 1. The present study was planned under suitably designed data regarding demographic details shown in table 1.

Table 1: The present study was planned under the following heading

Age-wise distribution	Place of consumption
Sex wise distribution	Mode of poisoning
Educational status	Time of poisoning
Psychiatric disorder	Who brought the patient to Hospital
History of substance abuse	Marital status
Causative agent	Occupation

Figure 1: Percentage age distribution of subjects.

RESULTS

The maximum number of acute poisoning cases were reported in the age group of 18-30 years 66 (46%), 59 (41%) in the age group of 31-45 years, 13 (9%) in 46-60 years and 7 (4%) patients were above the age of 60 years (Table 2).

Educational status was also analyzed. 64 (44%) cases of poisoning were seen in those having high school level of education, 62 (43%) in intermediate to graduates, 10 (7%) illiterates, 6 (4%) in primary school pass out, and 03 (2%) in professionals B.E (2), MBBS (1).

Place of consumption was home in 129 (90%) and outside in 16 (10%) (Figure 2).

Table 2: Age-wise sex distribution of patients studied

Age (in years)	Male (n %)	Female (n %)	Total (n %)
18 - 30 years	25 (38%)	41(52%)	66 (46%)
31- 45 years	27 (41%)	32(41%)	59 (41%)
46-60 years	09 (13%)	04(5%)	13 (9%)
>60 years	05 (8%)	02(2%)	7 (4%)
Total	66 (45.52%)	79 (54.48%)	145 (100%)

Figure 2: Place of Consumption of poison.

In 54 (37%) patients the poisoning was caused by a varied class of agents ranging from a variety of antifungal herbicides, datura poisoning, Iron poisoning, Mushroom poisoning, Parquet, antipsychotic, sedative agents and various drug overdoses.

Table 3: A structural performa designed regarding the demographic details-

Categories	Male (n)	Female (n)	No of cases (n %)
Causative Agent			
Organophosphorus	09	12	21 (15%)
Aluminium Phosphide	07	12	19 (12%)
Organochlorine	04	06	10 (7%)
Zinc phosphide	15	05	20 (14%)
Paraquet	02	06	08 (5%)
Combined Organophosphorus Plus organochlorine	08	04	12
Combined organophosphorus plus others.	00	01	01
Misc.	25	26	54 (37%)

Table 3: (Continued)

	Categories	Male (n)	Female (n)	No of cases (n %)
Educational Status	Illiterate	06	04	10 (7%)
	Primary	02	04	06 (4%)
	High School	28	36	64 (44%)
	11 th to Graduate	31	31	62 (43%)
	Professional	02	01	03 (2%)
Age in years	18 - 30 years	25 (38%)	41(52%)	66 (46%)
	31- 45 years	27 (41%)	32(41%)	59 (41%)
	46-60 years	09 (13%)	04(5%)	13 (9%)
	>60 years	05 (8%)	02(2%)	7 (4%)
	Total	66 (45.52%)	79 (54.48%)	145 (100%)
Mode of Poisoning	Accidental	21	13	34 (23%)
	Suicidal	46	64	110 (76%)
	Homicidal	01	00	01 (1%)
History of Substance Abuse	Alcohol	56	76	132 (90%)
	Misc.			
	None			
Occupation	Employed			
	Unemployed			

In 21 (15%) patients poisoning was caused by organophosphorus, 20 (14%) by Zinc phosphide, 19 (12%) by aluminium phosphate. Combined organophosphorus and organochlorine poisoning was found in 12 (8%) while 8 (5%) had paraquat poisoning. (Table 3). 129 (90%) took poison at home. 110 (76%) patients took poison with suicidal intent, in 34 (23%) it was accidental intake and only in one (0.75%) it was homicidal. (Table 3). 91(63%) patients were brought in the hospital by relatives, 19(13%) by parents, 13(9%) by their spouse, 12(8%) by in-laws and 7(5%) by friends (Table 3). Incidence of poisoning was more in married persons 109 (75%), 34(23%) were unmarried and 2(1.45%) were widows.

Alcohol was the most frequent substance of abuse 56 (39%). This was especially true for males as 54 out of 56 were males, other substances abused were chitta (4) bhang (opium) (3) and one case of morphine. 80 (55%) patients had no history of substance abuse mostly females 76 out of 80.

Psychiatric illness was seen in significant numbers of patients, 38(26%) patients had alcohol dependence, behaviour disorders were 33(23%), depressive disorder 22(15%), adjustment disorder in 16(11%), anxiety and bipolar disorder were 2(1.5%). Out of 79 females in this study 57(72%) had some form of psychiatric disorder. Most of the patients in our study were unemployed 95 (66%) and mostly these were housewives 66 (63%) (Figure 3).

Figure 3: Patients with Psychiatric Disorder.

DISCUSSION

In the developed world rate of mortality from poisoning is testified to be 1% to 2% which is comparatively less as compared to developing countries like India where more than 50,000 deaths occur due to toxic exposure (Table 4). According to the national survey on drug use and health, 18-25 years of age had higher percentages of suicidal thoughts and attempts as compared to middle-aged adults (45 to 64).⁶⁻⁷

The present study also agrees with the national survey and indicate that 18-30 years old patients had higher suicidal thoughts, attempts and increased incidence of poisoning. Reddy et al⁶ reported the majority of poisoning cases in the age group for up to 30 years. Prajapati et al⁸ and Maheswari et al⁹ have found the majority of cases were in young people (age group of 21-30 years). This is similar to the findings of Singh and Unni Krishnan in Mangalore, south India¹⁰, Sarkar et al¹¹ in Bangladesh and Hovda et al¹² in Norway that acute poisonings were more common in young ages (20-40 years) Table 4.

Acute poisoning was higher in females (54.48%) than males (45.52%) in our study which is similar to Reddy et al⁶ and

Heyerdahl et al¹³ and contrary to most studies in India Ramesh et al¹⁴ and Srinivasa et al.¹⁵ Our state is predominantly a rural state where girls get married at a younger age, most of the cases their husbands are working outside in other states due to paucity of jobs in our state and hence increases family pressure, pressure from in-laws, many time forced marriages, infidelity on part of spouse leading to emotional instability, depression, physical abuse. These all culminate into the increased incidence of poisoning in our females.

90% of patients in our study consumed poison at home and in 76% it was suicidal intent. A similar observation was reported by Maharani et al¹⁷ and this could be because of the pressure of studies, settlement issues, lack of emotionally supportive network, divorce and insufficiency to adapt to some quick circumstances.¹⁸

Table 4: Percentage of suicidal thoughts age 18 – 30 years.

Author	Year	Percentage %
National Survey ⁷	2014	Higher %
Reddy et al ⁶	2018	Higher%
Prajapati et al ⁸	2013	Higher%
Maheswari et al ⁹	2016	Higher%
Singh B Unnikrishnan B. ¹⁰	2006	Higher%
Sarkar et al ¹¹	2013	Higher%
Hovda et al ¹²	2008	Higher%

CONCLUSION

The study agrees with the national survey in that the commonest age group involved is 18-30 years, one of the most productive years of life and is more common in females. The social and peer pressure, marital and family discords, drug abuse, unemployment and psychiatric disorders are the causes behind this increased risk. More stress on moral education, counselling of youngsters, married couples, emphasis on treatment and counselling for psychiatric disorder will go a long way in reducing the sufferings of society. Over the counter sale of toxic agents and pharmacological drugs should be strongly regulated.

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