

A Medico-legal Analysis of Autopsy Cases Due to Poisoning

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ABSTRACT

Background: The prevalence of poisoning has increased, costing many valuable lives, as has the progress in research and technology, agriculture, and the industrial sector. Chemicals created to safeguard agricultural products from pests and rodents helped preserve the environment. People who are starving are becoming a threat to other people's lives.

Objective: This research aims to assess the frequency and pattern of poisoning.

Design: Retrospective Study.

Setting: Peoples Medical College Hospital in Nawabshah, Shaheed Benazirabad, Sindh.

Duration: From May 1, 2021, to May 30, 2022.

Methodology: The current study was conducted in the past. All suspected poisoning deaths that were presented to Peoples Medical College Hospital in Nawabshah, Shaheed Benazirabad, Sindh for a medical-legal autopsy within the course of a year, from May 1, 2021, to May 30, 2022, would be investigated. Inquest reports, hospital records, autopsy reports, and chemical examiner's analysis reports of viscera and bodily fluids were used to compile information on suspected poisoning instances. Age, sex, religion, place of residence, marital status, education, occupation, financial situation, mental state, date and conditions of poisoning, location of treatment, and the most prevalent agent responsible for deadly poisoning are among the different epidemiological data that are examined.

Conclusion: Poisoning is predicted to decline as a result of measures to enhance socioeconomic conditions through changes in employment, health care, education, and economic as well as scientific assistance for farmers. It is anticipated that proper education of the general public and farmers regarding the storage, handling, and usage of pesticides and insects will lower the frequency of poisoning.

Keywords: Poisoning, Suicide, Medico-legal

INTRODUCTION

Any substance, regardless of its quality or quantity, that hurts, endangers, or even kills a person is considered a poison. Pakistan is a developing nation, and the bulk of the people works in agriculture. Accidental and suicidal poisoning are quite common since pesticides are widely available and used more frequently.^{1, 2} Death is a sobering fact of life. Numerous issues have emerged as a result of the society's rapid succession of changes, alarming the conscious section greatly.⁴ The propensity for poison ingestion suicide is one such issue. Whether caused by suicide, an accident, or homicide, every unnatural death represents a devastating resource loss and human existence. Poisoning deaths are not an exception. A compound (solid, liquid, or gaseous) that, when administered to the live organism or when it comes into contact with any part of it, will result in ill health or death due to its constitutional, local, or both effects is considered a poison. People in the developed society utilize a lot of substances in all aspects of their lives, including the home, industry, agriculture, and hospitals.^{5, 6} Chemical substances are used in almost every facet of modern life, from food preservation to the treatment and prevention of various diseases. Poisoning is a prevalent method of suicide that has been practiced since antiquity. The availability, affordability, detrimental effects of the poison, and regional considerations all influence the choice of poisoning agents. Suicidal and unintentional poisoning contributes significantly to morbidity and mortality worldwide. According to the WHO, over 3 million instances of poisoning occur each year, with 2, 20,000 deaths, with 90 percent of cases occurring in underdeveloped countries, primarily among agricultural workers. Poisoning has a low death rate in wealthy countries, but it is fairly significant in underdeveloped countries like as Pakistan (16 to 35%).^{7, 8}

MATERIALS & METHODOLOGY

The current study was conducted in the past. All suspected poisoning deaths that were presented to Peoples Medical College Hospital in Nawabshah, Shaheed Benazirabad, Sindh for a medical-legal autopsy within the course of a year, from May 1,

2021, to May 30, 2022, would be investigated. Inquest reports, hospital records, autopsy reports, and chemical examiner's analysis reports of viscera and bodily fluids were used to compile information on suspected poisoning instances. Age, sex, religion, place of residence, marital status, education, occupation, financial situation, mental state, date and conditions of poisoning, location of treatment, and the most prevalent agent responsible for deadly poisoning are among the different epidemiological data that are examined. 100 suspected poisoning deaths over the research period were examined. These patients have distinct histories and autopsy results that point to poisoning. The decayed skeletal remnants cases and bodies when poisoning symptoms were present were not present were not included in this investigation. The incident scene was examined throughout the investigation. Omitted from this study's scope

Data Collection: Age, sex, socioeconomic class, marital status, place and time of consumption, length of survival after consumption, and reason of death were some of the factors whose data were gathered and examined in the most recent version of SPSS. In order to display the information in a comprehensible way, the statistical analysis of the data from this study was done utilizing pertinent tables and graphs as well as descriptive

statistics like percentages. Statistical techniques like the mean and percentages were employed to analyses the collected data.

Ethical Consideration: Many of the ethical concerns surrounding informed consent are irrelevant to this study because incidents successfully exposed in There is a collection of papers. Regardless, the It is guaranteed that members are categorized as none of the nuances that reveal their personality include used as a source in the inquiry. Totally on guard while attending to security concerns, practiced prior to the paperwork to avoid defense specialist in connected subjects missed the names, addresses or telephone numbers of the deceased. The Documents received at were not protected by any law on copyright.

RESULT

Table 1: Sex & Marital Status of the Victims

Parameters	Male No	%	Female No	%
Sex of the Victim	45	41.7	55	50.9
		No	%	
Marital Status	Married	60	55.6	
	Unmarried	40	37.0	

Table 2: Educational & Occupational Status of the Victims

Educational	Male No	%	Female No	%
Illiterate	10	9.3	6	5.6
Primary School	15	13.9	14	13.0
Higher School	13	12.0	18	16.7
Graduate	7	6.5	17	15.7
Occupational Status	Male No	%	Female No	%
Student	10	9.3	12	11.1
Business	6	5.6	1	.9
Service	5	4.6	4	3.7
Labor	6	5.6	10	9.3
Domestic	9	8.3	12	11.1
Unemployed	9	8.3	16	14.8

Table 3: Economical Status of the Victims

Parameters	Male No	%	Female No	%
Lower	25	23.1	30	27.8
Middle	15	13.9	24	22.2
Upper	5	4.6	1	.9

Table 4: Mental Status and Nature of Death of the Victims

Mental Status	Male No	%	Female No	%
Normal	40	37.0	52	48.1
Depressed	5	4.6	3	2.8
Nature of Death	Male No	%	Female No	%
Suicidal	23	21.3	32	29.6
Alleged	18	16.7	18	16.7
Accidental	5	4.6	5	4.6

Table 5: Suspected Poisons In The Victims

Poisons Suspected	Male No	%	Female No	%
Organophosphorus	17	15.7	15	13.9
Phosphide Ions	15	13.9	19	17.6
Alcohol	8	7.4	9	8.3
Sedatives	3	2.8	4	3.7
Unknown	2	1.9	8	7.4

150 autopsy in all were carried out during the study period, 100 of which involved suspected poisoning in the death. Male victims made up 45 (41.7%) of the total, and female victims made up 55 (50.9%) of the total. In our analysis, the male to female ratio is 1.22:1. According to data in, 60 (55.6%) of the victims were married, while 40 (37.0%) were not (Table I). Males have the highest percentage of cases with education up to the elementary school level (13.9%), and females have the highest percentage of cases with education up to the higher school level (16.7 percent). The Graduate Group reported the fewest cases, with 7 (6.5%) cases in males and 6 (5.6%) cases of illiteracy in females, as indicated in (Table II). Regarding the profession, students made up the majority of victims with 10(9.3 percent) instances, followed by domestic workers and the jobless in the male community and the unemployed 16(14.8 percent) cases in the female community. (Table II). In the current study, lower class has the most percentage of victims with 25 (23.1%), followed by middle class with 15 (13.9%), and the remaining 5 (4.6%) cases belong to upper class. For females, the highest percentage of victims is lower class with 30 (27.8%), as indicated in (Table III). The majority of victims' mental conditions were typical numbers 40 (37.0%) in men and 52

in women (48.1 percent). Suicide was the most frequent cause of death in men, accounting for 23 (21.3%) of all deaths, and 32 (29.6%) of all deaths in women (Table IV). Organophosphorus 17 (15.7%) was the most frequently suspected toxin in cases involving male victims, and phosphide ions 19 (17.6%) in cases involving female victims (Table V).

DISCUSSION

In today's environment of cultural, societal, and personal challenges, poisoning fatalities are an unavoidable component of all unnatural deaths. The ever-rising mortality rate of poison fatalities is significantly influenced by poverty, stress, financial insecurity, unemployment, personal conflicts, psychological problems, and challenges with psycho-social adaptation, poor health, and loneliness. In the latest study, it was 45 percent for men and 55 percent for women. This can be attributed to the fact that men, who make up the bulk of the population and are typically the family's breadwinner, must shoulder a lot of obligations, making them more prone to risk-taking and aggressive behavior. As a result of Pakistani culture, societal norms, and post-marital issues including abuse from husbands and in-laws, women who are viewed as the weaker sex are more likely to commit suicide by poisoning. According to the current study, 23 (21.3 percent) of instances involved suicidal males. 18 alleged cases made up 16.7% of all cases, and 5 of those cases (4.6%) were unintentional. Organophosphorus group of insecticide was the most prevalent poison in this investigation, occurring in 17 instances (15.7 percent) in males, followed by phosphate ions in 15 cases (13.9 percent). Organophosphorus compounds are the most often poisons encountered due to their easy over-the-counter availability, accessibility as a poison in the form of insecticides, particularly in the homes of farmers, cost effectiveness, lethal nature, and broad public understanding of compound toxicity. Phosphide compounds are the second most common due to their efficiency as a rodenticide, frequent usage in grain storage, dangerous storage methods, and ease of access as a household poison, especially among women. The results are consistent with those found in studies by Shetty AK, Jirli PS, Bastia BK17, and Somnath Das, Subhasish Saha, and Debasish Guha et al.18. In the study by Shadnia S, Esmaily H, Sasanian G et. Al ¹⁷, where medicines were the most prevalent agent, opposing findings were reported. The rodenticide tetramine was the most prevalent poison in the study by Lan Zhou, Liang Liu, Lin Chang et al.¹⁸, and aluminium phosphide was the most prevalent poison in the study by Sharma BR, Nidhi Relhan, Neha Gupta et al.¹⁹.

CONCLUSION

Poisoning is predicted to decline as a result of measures to enhance socioeconomic conditions through changes in employment, health care, education, and economic as well as scientific assistance for farmers. It is anticipated that proper education of the general public and farmers regarding the storage, handling, and usage of pesticides and insects will lower the frequency of poisoning. Toxic substance legislation already in place should be adopted to close any gaps in their production, distribution, sale, storage, and use. Reduced poisoning deaths are anticipated as a result of increased public knowledge of the seriousness of poisoning. Government should help doctors with toxicological diagnosis and therapeutic procedures. ^{11,12} The best course of action in cases of poisoning is prevention. However, the majority of contemporary treatment options will lower mortality after occurrences occur. Poisoning is an issue that has existed and will continue to exist in human society. Therefore, additional research is required to contain this expanding threat.

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