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Research Article

**CLINICO-EPIDEMIOLOGICAL ANALYSIS OF POISONING  
IN THE MEDICINE UNITS OF JINNAH HOSPITAL LAHORE**<sup>1</sup>Dr Muhammad Bilal, <sup>2</sup>Dr Ehsan Ur Rehman, <sup>3</sup>Dr Muhammad Saqib Manzoor<sup>1</sup>Gannan Medical University, China<sup>2</sup>Southwest Medical University, China<sup>3</sup>Xinjiang Medical University, Urumqi China**Article Received:** July 2020**Accepted:** August 2020**Published:** September 2020**Abstract:**

**Objective:** The scale of the problem of poisoning is enormous hence clinico-epidemiological spectrum of all poisoning cases need to explore to generate the management tool.

**Methods:** This prospective study was conducted in the Medicine Unit II of Jinnah Hospital Lahore for one year duration from March 2019 to March 2020 where all poisoning cases were seen. A total of 2,890 patients were admitted, including 600 included in the study.

**Results:** 29% of poisonings were pesticides, 27% were poisoning related to travel, and 20% were benzodiazepines. 70% of poisonings took place under the age of 30 and the ratio of men to women was 3: 2. The frequency of poisoning was higher among students (31%) and housewives (25%). Most patients were in urban areas (76%) and their most common intention was suicide (66%). The main reason for poisoning (63%) was the lack of family compatibility. 42% of cases between 5 and 8 hours of poisoning and over 80% of them went directly to the hospital without first aid. 68% of the Glasgow Coma Scale (GCS) score was more than 10 at the time of admission. The main clinical features of intoxication were nausea / vomiting (63%), drowsiness (56%), miosis (31%). Seventy percent of patients were treated in general and supportive care, and in 30% of cases an antidote was used. Deaths in pesticides, benzodiazepines / antipsychotics, rodenticides and snake bites were 6.9%, 2.2%, 8.3% and 3.3%, respectively.

**Conclusion:** Assessing the scale of the problem, awareness of public prevention, emergency first aid and admission to hospital is a very important component of intoxication.

**Key words:** clinic, epidemiology, poisoning, higher care center.

**Corresponding author:****Dr Muhammad Bilal,**

Gannan Medical University, China

QR code



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**INTRODUCTION:**

Poisoning is a common medical social problem today. The scale of the problem is very large due to high morbidity and mortality. Poisoning is an important global public health problem <sup>1</sup>. According to data from the World Health Organization (WHO) in 2004, approximately 346,000 people worldwide died of involuntary poisoning; 91% of them took place in low- and middle-income countries. In the same year, involuntary intoxication resulted in the loss of over 7.4 million years of healthy life (disability-adjusted years, DALY) <sup>2</sup>. Snake bites cause serious injury and death worldwide and pose an important but neglected threat to public health. WHO estimates that at least 421,000 intoxications and 20,000 deaths from snake snakes noted every year. India and Pakistan has the highest annual poisoning and mortality rates, including 81,000 and 11,000 respectively <sup>3</sup>. Substances contained in poisoning differ significantly in different countries. In Great Britain, acetaminophen poisoning accounts for 48% of all overdose cases, but only 7% in the United States and very rarely in Nepal <sup>4</sup>. Poisoning with tricyclic antidepressants, selective serotonin reuptake inhibitors and drugs is very common in the UK and US. Australia has many ingested toxins similar to those in Great Britain, but poisoning of snakes, spiders and sea creatures is also very common. In South and Southeast Asia, pesticide consumption is endemic and is the most common cause of death from poisoning <sup>5</sup>. Toxicity of existing poisons and inadequate medical infrastructure in developing countries mean that the mortality rate due to self-poisoning is 10% to 20% higher in most industrialized countries, compared to 0.5-1%.<sup>6</sup>

The nature of poisoning in our country, the distribution of cases of poisoning by age and gender, the type of poisoning, the relevant factors and their possible links with academic education are different than in Western countries <sup>7</sup>. The epidemiological model is different because the social structure, economic situation, level of education, awareness of our people and availability of drugs are different.

Poisoning is a potentially serious problem and not only consumes valuable health care resources, but also damages home, social and individual life, but also causes significant morbidity and mortality. Identifying high-risk situations, vulnerable groups in the population, chemicals, commercial products, and natural toxins associated with community poisoning can help improve prevention and management programs <sup>8</sup>.

The purpose of this study is to examine the clinical symptoms and epidemiological profile of these

cases of intoxication, with the expectation that this study will help understand the current situation, inform us, reduce damage and avoid such conditions, by taking appropriate measures.

**METHODS:**

This prospective study was conducted in the Medicine Unit II of Jinnah Hospital Lahore for one year duration from March 2019 to March 2020. The presence of other causes of organic coma detected during tests, such as history, clinical examination and complete blood count, blood sugar, liver function test, kidney function test. Electrolytes and others, if necessary, were exclusion criteria for the selection of specific cases. Patients who were considered suspected of sudden poisoning and external admission were initially evaluated by the examined physician. All cases of adult poisoning have been checked and registered for nurses by checking the 'Patient Register' and 'Records'. Following the exclusion criteria, a detailed interview and clinical examination of all registered cases was carried out. The diagnosis was made on the basis of the patient's testimony, witness's testimony, the smell of toxic agents, in most cases for example poisoning and bacterial properties (syndrome groups). CBC, RBS, SGPT, serum bilirubin, prothrombin time, blood urea, serum creatinine, p. Chest radiograph to exclude electrolytes, other options and to see prognosis. Individuals with appropriate studies confirming other metabolic or structural causes were excluded from the study and therefore were not analyzed. In most cases, after gastric lavage in the emergency room, toxic patients were admitted to the covered ward. All patients were initially evaluated for vital signs and were properly treated. Subsequent treatment was carried out in accordance with the instructions of the physician consultant of the appropriate medical unit, depending on the type, amount, nature and time of poisoning. Then daily observations until recovery, discharge or death. When the patient was fully aware, clinical improvement was observed, all vital signs stabilized. Patients requiring intubation for assisted ventilation were attempted to be transferred to the intensive care unit, but all patients requiring assisted ventilation were intubated in the service and then transferred to the intensive care unit (ICU) due to the lack of available beds. when the bed is available. The results of the patients enrolled in this study were recorded as consultant dismissal, surety and risk release (DORB), discharge from the hospital (death), and death without medical advice. The cause of death was investigated and a summary of the death was recorded. The psychiatric assessment of patients was made by a psychiatrist from the mental health department DMCH. All data collected in the "Case Registration Form - CRF".

For statistical analysis, SPSS software based on Microsoft Windows was used (SPSS, version 17.0 SPSS Inc., Chicago, IL, USA). A detailed database has been created on many variations. Statistical comparisons were performed using a chi-square and Student's t-test. P values of 0.05 or less were considered statistically significant.

### RESULTS:

The total number of patients admitted were 2,890; Of these, 243 (8.4%), 620 (21.45%) of all accepted cases concerned poisoning cases, and 20 were not

consented and were excluded from further testing. The study included six hundred cases, total death from poisoning was 18 (2.9%).

Table 1 shows that most patients belong to the younger age group. 159 (26.5%) patients were 20 or less than 20 years old, and 260 (43.3%) patients were 21-30 years old. The average age was 28.29, the lowest and highest age were 13 and 80 years old. Men are more dominant than women from men to women = 3: 2.

**Table 1. Demographic characteristics of poisoning cases (n = 600)**

Demographic characteristics	Number	%
Age (y)		
≤20	159	26.5
21-30	260	43.3
31-40	113	18.8
41-50	42	7.0
>50	26	4.3
Sex Male	361	60.2
Female	239	39.8

The academic education of patients with poisonous persons was mainly secondary 223 (37.2%) and secondary 190 (31.6%). 181 (31.1%) students had the highest incidence of poisoning, and the next partner group was housewife 147 (24.5%). In this series, 553 (92.2%) and 320 (53.3%) patients were married. Most patients (76%) were from urban areas (Table 2).

**Table 2. Other socio-demographic features of the poisoning cases (n = 600)**

Socio-demographic features	Number	%
Education		
Illiterate	46	7.6
Primary	111	18.5
High school	223	37.2
Intermediate	190	31.6
Graduate and above	30	5.0
Occupation		
Service	133	22.1
Farmer	42	7.0
Student	181	31.1
House wife	147	24.5
Businessman	77	12.8
Others	20	3.3
Religion		
Islam	553	92.2
Hindu	47	7.8
Marital status		
Married	320	53.3
Unmarried	269	44.8
Other (separated, divorced or widow)	11	1.8
Setting (residence)		
Rural	143	23.8
Urban	457	76.2

One hundred and sixty patients (26.7%) of intoxication cases attended within 4 hours after intoxication, 249 (41.5%) from 5-8 hours, 158 (26.3%) from 9-12 hours and 33 (5.5 %) after more than 12 hours. Most patients with poisoning had suicidal tendencies (397, 66.2%), followed by stunning (164, 27.3%). Thirty-five patients (5.8%) targeted the accident and 4 patients (0.7%) targeted the murder. Two-thirds (376, 62.7%) of poisoning cases were caused by family incompatibilities. One hundred sixty-four (27.3%) patients fell victim to the deafening factor. The reason for the lack of acceptance during the exam was 40 (6.7%) cases, including 12 (2%) cases, 8 (1.3%) cases, including economic and accidental losses.

Of the poisoning cases, 175 (29.2%) patients used pesticides and 121 (20.2%) benzodiazepines. The rest are home products, rodenticides, oral medications, kerosene, copper sulfate, methanol and corrosive substances. 30 (5%) patients are snake serpents.

The main clinical features of poisoning were nausea / vomiting (62.7%), drowsiness (55.7%), miosis (30.5%), other clinical features were not very common. 12.7% had only a history of intoxication and had no symptoms or signs (Table 3).

**Table 3. Clinical features of the poisoning cases (n = 600)**

Clinical features	Number	%
No symptom/sign	76	12.7
Nausea/vomiting	376	62.7
Abdominal pain	92	15.3
Miosis	183	30.5
Mydriasis	18	3.0
Visual disturbance	25	4.2
Increased sweating/ salivation	48	8
Dry skin/dehydration	32	5.3
Bradycardia	17	2.8
Tachycardia	63	10.5
Hypotension	25	4.2
Hypertension	18	3
Tachypnoea	64	10.7
Bradypnoea	13	2.2
Muscle weakness	32	5.3
Headache	15	2.5
Drowsiness	334	55.7
Seizure	9	1.5
Coma	27	4.5

Forty-two (7%) patients had Glasgow Coma Scale (GCS) scores in 3, and GCS scores from 4-10 to 408 (68%) in 150 (25%) patients. GCS score greater than 10 (Table 3)

Four hundred eighty (81.2%) patients were hospitalized directly without first aid. Of the 116 (19.3%) patients who received first aid, 63 (10.5%) joined the government. 38 (6.3%) patients attended a private hospital. Nine patients were treated for "Ozha" (snake charmer) in 30 cases of snakes (30% of snakes).

Patients treated in medical wards were treated with general and supportive therapy in over two-thirds of the cases (417, 69.5%). While intoxication due to suicide and murder is more common in women, accidental and daze is common in men (Table 4). Travel poisoning is much more common in men (97.6%), while poisoning with pesticides, rodents, benzodiazepines or antipsychotics often occurs in women. Snakebite is also common in the male group (60%) (Table 5).

**Table 4. Association between sex and intention of poisoning (n = 600)**

	Intention of poisoning			
	Suicidal	Homicidal		Stupefying
	(n=397)	(n=4)	(n=35)	(n=164)
Sex				
Male	177 (44.6)	1 (25)	23 (65.7)	160 (97.6)
Female	220 (55.4)	3 (75)	12 (34.3)	4 (2.4)

**Table 5. Association between sex and poisoning agent (n = 600)**

	Poisoning agent				
	Pesticide + Rodenticide (n=199)	Travel Related (n=164)	Benzodiazepine +Antidepressant (n=136)	Snake bite (n=30)	Others (n=71)
Sex					
Male	87 (43.7%)	160 (97.6%)	61 (44.9%)	18 (60%)	35 (49.3%)
Female	112 (56.3%)	4 (2.4%)	75 (55.1%)	12 (40%)	36 (50.7%)

**DISCUSSION:**

Acute intoxication was found to be a significant clinical problem in 21% of the total number of admissions and about 3% mortality in two adult medical units in DMCH, Dhaka, Bangladesh<sup>9</sup>. The incidence of poisoning is much higher (21%) compared to other studies in Bangladesh (2.93%) (10) and European countries (10%)<sup>10</sup>. The difference in incidence may be based on a Rahman and Salata study in a village hospital (Thana Health Complex), and this study was conducted at DMCH in Dhaka. Therefore, to get a general picture, it is necessary to study poisoning in societies and in all kinds of healthcare facilities. Eighteen patients died without intoxication<sup>11</sup>. Of the deaths due to poisoning, 12 (66.6%) cases resulted from poisoning with pesticides. The mortality rate for poisoning is 3%; this is lower than Ahmed et al. (11.8%), Rahman and Salata (7.06%) and other studies in Bangladesh. In this study, low mortality may be associated with changes in the tendency of poisoning in our country; Poisoning with sedative hypnotics is a less-lethal social and public problem<sup>12</sup>. In addition, less toxic sedatives and household products are used than more toxic agents that can harm each other. Low mortality rates can also improve healthcare for these patients<sup>13</sup>.

In this study, approximately 70% of poisonings are less than 30 years old (26.5%), the average age is 28.29 years, and the male-female ratio is 3: 2. This indicates that poisoning is common among young people. Current findings of Ahmed et al. With Faiz et al.<sup>14</sup> An active age group enabled is prone to poisoning in Bangladesh and indicates that this age group requires attention from a social perspective.

The frequency of aging differs from Khan's work, but is similar to research at CMCH. The greater number of male victims could have been caused by the high number of travel-related poisoning cases, the majority being men (97.6%). Probably more accessible to men during travel and social behavior allows women not to be defenseless victims of drugs. Poisoning with pesticides, rodenticides, benzodiazepines or antipsychotics is common among patients<sup>15</sup>.

About three-quarters (73%) of patients achieved complete recovery and 21% of patients escaped. Amin et al. 84% of patients survived, 7.98% died and 7.98% escaped. Cases of poisoning caused by benzodiazepines and short-term hypnotic sedative journeys that recover early and leave the hospital before the "trip". Early discharge from hospital may have other causes, such as the lack of existing beds (people who are poisoned are kept on the ground or "porch"), poor equipment and hospital environment, and avoidance of social embarrassment. In this series, Bangladesh, India, Nepal, Pakistan and Sri Lanka, these data show that pesticide poisoning is one of the most common causes of death in Bangladesh and other South Asian countries, which can contribute to inadequate first aid before arriving in hospital. The second common cause of death (17%) is benzodiazepine with antidepressants and antipsychotics. Newly developed antipsychotics are prescribed daily in large quantities, and abuse of these drugs is a problem for third-level medical personnel because there is no antidote available.

Overall mortality was 3%, which could be improved by providing the poisoned patient with

first aid treatment before reaching the hospital, increasing public awareness for rapid admission to the hospital after intoxication, providing antidotes and other drugs for free. Government Hospitals provide support in the intensive care unit and monitor the venomous patient closely when needed.

### CONCLUSION:

This is a simple observational study and although scientific diagnostic measurement is not possible, it may reflect the general situation of intoxication in Pakistan and a lot of work is needed to remedy this situation, e.g. Community study to assess the degree of intoxication in Pakistan. To prevent this, create public awareness and create conscious doctors who treat the importance of poisoning through continuous medical training, for emergency first aid and rapid admission to hospital. Legal precautions recommended for storage, sale and use of pesticides, toxic chemicals and aggressive drugs. The National Poison Center should be active so that doctors, healthcare professionals, and even the public can get immediate and accurate information on treatment, clinical properties, and poison identification. Particular attention should be paid to people with depression and suicidal tendencies.

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