

## Original Article

# Sociodemographic Status and Pattern of Poisoning in a Tertiary Level Hospital

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### Abstract:

Poisoning is responsible for a large number of hospital admissions in Bangladesh. Sociodemographic status and pattern of poisoning are changing day by day. That's why poisoning related mortality and morbidity are varying. This study was carried out in the Medicine department of Faridpur Medical College Hospital (FMCH) from January to June 2017, to observe the sociodemographic status, such as age, sex, residence, occupation, level of education of patient, mode and pattern of poisoning. Cases were selected randomly in ward and data were collected in a data sheet with consent. Sample size was 100 and age range was from 15 to 65 years. Among them female were 60(60%). Maximum number (64%) of cases was on age range from 15 to 25 years that comprises 41% female and 23% male. Subsequently second highest number (20%) was on range from 26-35 years. Most of the female (60%) were housewives and maximum (40%) of male were student. Highest number (60%) of patients studied academically below SSC. Regarding mode of poisoning suicidal attempted was highest (85%) and among them about 68% were female. Organophosphorus compound (OPC) was most common (52%) poisoning agent and most of them (67%) were female. Street poisoning was observed in 11(11%) cases and all were male. Subsequently sedative and harpic poisoning occurred in same number (10 in each) of cases. History of gul poisoning was found in 8% cases and most of them were female. Besides them paracetamol, savlon and others poisoning were documented in 4%, 2% and 3% respectively.

**Key words:** Poisoning, Sociodemographic status, Pattern, Organophosphorus compound (OPC).

### Introduction:

Acute poisoning is a global problem which has steadily been increasing over the past few years in developing

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countries and has become one of the major causes of morbidity and mortality in India and Iran<sup>1,2</sup>. According to the World Health Organization, 99% of the fatal poisoning cases occurred in developing countries<sup>1</sup>. In our country it causes around 3,000,000 episodes and around 2000 death per year. It consumes not only the valuable health service resources but also causes considerable morbidity and mortality<sup>3</sup>.

Poisoning is a serious threat in Bangladesh as it comprises around 44% of all deaths among adult females and around 8 to 10% of overall mortality in medical wards of tertiary healthcare settings<sup>4</sup>. Common types of poisoning in this country are organophosphorus poisoning, poisoning with unknown substances especially in commuter (travel-related) poisoning; poisoning with sedatives, corrosive agents, rodenticides, kerosene/petrol and alcohol, and snakebite<sup>4,5</sup>. Of them, poisoning in commuters (commuter poisoning) has become a major toxicological issue in Bangladesh in the recent years<sup>6</sup>.

Estimated case load of poisoning in hospitals of Bangladesh was 7.1% of total admissions<sup>5</sup>. A nationwide survey was conducted in September 2002 in 13 medical college hospitals, which showed main mode

of poisoning was insecticide with mean age of poisoning was 27.99 years with greater intention to suicide. The retrospective study revealed that the highest incidence of poisoning was among the people aged between 11-30 years (68% in 1985 and 65% in 1986). Pesticides were the commonest chemicals used for poisoning and addictive drugs were next to insecticides<sup>7</sup>.

The pattern of poisoning as well as their sociodemographic parameters varies in times and, from one country to another, even among different regions of a country. This study was carried out to describe the sociodemographic profile and pattern of poisoning in a tertiary level hospital in Bangladesh.

#### Materials & methods:

This cross-sectional observational study was done in the department of Medicine of FMCH from January 2017 to June 2017. The study was conducted among 100 patients of both sexes who were more than 14 years of age admitted with the history of poisoning. With informed written consent, their detailed clinical history was taken and physical examinations were done. Food poisoning, snake bite and drug reaction and who were unwilling to give consent were excluded from study. All the data related to sociodemographic status and poisoning were collected in a data sheet. After that, data were analyzed and tabulated systematically.

#### Results:

In this study, among 100 cases 64(64%) were in the age ranged from 15-25 years, 20(20%) were from 26-35 years, 8(8%) were from 46-55 years, 4(4%) were 36-45 years and 4(4%) were 56-65 years. Here 60 (60%) patients were female and 40 (40%) were male. Male and female ratio was 2:3 (Table I).

**Table I:** Distribution of patients according to age and sex (n=100).

Age group (Years)	Number of patients (%)	Male(40)	Female (60)
15-25	64(64%)	23	41
26-35	20(20%)	6	14
36-45	4(4%)	3	1
46-55	8(8%)	4	4
56-65	4(4%)	4	0

Regarding occupation, highest 36(36%) number were house were, 32(32%) were students (16% male, 16% female), 12(12%) were service holder (10% male, 2% female), 6% were unemployed (4% male, 2% female), 6% were farmer, 4% were maidservant and 4% were businessman (Table II).

**Table II:** Distribution of patients according to occupation category (n=100).

Occupation	Number of patients (%)	Male (40)	Female (60)
Housewife	36(36%)	0	36
Student	32(32%)	16	16
Service	12(12%)	10	2
Business	4(4%)	4	0
Farmer	6(6%)	6	0
Servant	4(4%)	0	4
Unemployment	6(6%)	4	2

Table III shows distribution of patients according to residence. Maximum number lives in rural area and that were 77 out of 100. Rest 23(23%) were from urban area.

**Table III:** Distribution of patients according to residence (n=100).

Residence	Number of patients (%)
Rural	77(77%)
Urban	23(23%)

Regarding educational status 60(60%) patients studied academically below S.S.C, 16(16%) studied up to H.S.C, 8(8%) were up to SSC, 8(8%) were graduate and 8(8%) were illiterate (Table IV).

**Table IV:** Distribution of patients according to educational status (n=100).

Education	Number of patients (%)
Graduate	8(8%)
HSC	16(16%)
SSC	8(8%)
Below SSC	60(60%)
Illiterate	8(8%)

**Table V:** Distribution of patients according to mode of poisoning(n=100).

Mode of poisoning	Number of patients (%)	Male(40)	Female(60)
Suicidal	85(85%)	27	58
Accidental	4(4%)	2	2
Homicidal	11(11%)	11	0

In this study, 52(52%) were caused by OPC and that was highest in number (comprise 17% male and 35% female). Among all 11(11%) were affected by street poisoning and all were male. Subsequently sedative and harpic poisoning occurred in equal number (10 in each). Gul (tobacco dust) poisoning were observed in 8(8%)cases and most of them (75%) were female. Besides them paracetamol, savlon and others poisoning were documented in 4%, 2% and 3% respectively (Table VI).

**Table VI:** Distribution of patients according to types of poisoning (n=100).

Types	Number of patients (%)
OPC	52(52%)
Street	11(11%)
Sedative	10(10%)
Harpic	10(10%)
Gul	8(8%)
Paracetamol	4(4%)
Savlon	2(2%)
Others	3(3%)

### Discussion:

In this study 64(64%) cases were in the age ranged from 15-25 years and that was highest in number. In this age group persons are more emotional and active, that may predispose such event. This result is consistent with two studies in Bangladesh by Bari MA et al<sup>7</sup> and Dewan G et al<sup>5</sup>. But Islam MR et al<sup>8</sup> shows majority were in the 21 to 30 years age group (38.71%), followed by the 11 to 20 years age group (33.22%). These findings are different from other studies.

In this study, number of female (60%) was more than male (40%) and ratio was 3:2. But study by Howlader MAR et al<sup>9</sup>, Hossain AKMM et al<sup>10</sup> and Ahmed R et al<sup>11</sup> shows male was more in number. Again, in another

study of Dhaka Medical College Hospital (DMCH), Dewan Get al<sup>5</sup> show male to female ratio was almost equal (1: 0.9). On the other hand, findings from some studies in abroad by Tufekci IB et al<sup>12</sup> in Istanbul and Yamashita M et al<sup>13</sup> in Tokyo shows females were more affected than male. Those are consistent with our study. So, sex distribution is variable. It may depend on time, place, person, circumstances etc.

Regarding occupation, highest (36%) number was house wife, as because of female predominance of this study. Second highest (32%) were student (16% male, 16% female) and that may be explained by 64% of all cases were in 15-25 years age group. Occupation was reported in a study in DMCH, by Shadequl-Islam AHM et al<sup>14</sup> and that showed 18.3% were student, 16.7% housewife. In another study in Japan by Yamashita M et al<sup>13</sup> showed 47% of patients were farmer, 16% were students and 13% were Housewives. So, types of occupation are different in studies because it depends on social, cultural, economic, education and others factors.

This study was conducted in FMCH that is situated in a district town. A large number of patients came here directly or as referred case from surrounding areas every day. So, in our study most (77%) of the patient's resident was in rural area. A study by Shadequl-Islam AHM et al<sup>14</sup> shows majority (80%) lived in rural areas and that is consistent with our study.

A study in DMCH by Dewan Get al<sup>5</sup> shows suicide is a major public health concern in Bangladesh. Self-poisoning is the commonest method employed. In our study, mode of poisoning in most of the cases was suicidal 85% (58% female, 27% male) followed by homicidal/stupefying (11%) as street poisoning and 4% was accidental. Another study by Mohammad Rafiqul Islam et al<sup>8</sup>, shows same result that is the main mode of poisoning was suicidal (62.25 %) followed by stupefying poisoning 24.16% and unintentional (accidental) 12.38% and homicidal 0.69%. Though suicide is the highest in number but in our study percentage is more.

In villages, OPC is the most common pesticides that are used for agriculture purpose. This is available in farmer's home and often preserve without any special attention. So, it may easy to use for poisoning purpose. In the study, highest number (52%) of poisoning was caused by OPC. A study by Shadequl-Islam AHM et al<sup>14</sup> shows, in different parts of Bangladesh, pesticides have been responsible for poisoning in great number of patients admitted to hospitals. So, this is consistent with our study. A study by Dewan Get al<sup>5</sup> shows Pesticide poisoning accounted for 39.1% of total poisoning cases admitted in different levels of hospitals in Bangladesh

and OPC was in 89.8% among the all Pesticide. In addition, a study in Sylhet (northeastern Bangladesh) by Bari SM et al<sup>15</sup>, shows out of 4435 poisoned patients admitted to a tertiary hospital in 4 years, 25.7% were due to OPC poisoning. Similarly, a study by Chowdhury FR et al<sup>4</sup> in southern part of Bangladesh, among 1903 poisoned cases admitted to Khulna Medical College Hospital in 3 years, OPC as the predominant cause of poisoning (27.64%). So, study shows OPC poisoning is a significant portion but percentage varies in place.

Recently human mobilization is marked especially due to education and professional purpose as well as improvement of vehicle facilities. That's why travel related occurrences are increasing. Our study shows such a reflection. Here street poisoning or travel related poisoning was second highest (11%) next to OPC and all were male. This is consistent with another study by Chowdhury FR et al<sup>4</sup>, that shows travel related poisoning came across as the second highest (16.03%) cause in southern part of Bangladesh. Males were more victims of stupefying poisoning mostly by unknown toxic agents which usually occurred in the streets because of frequent traveling. In our study all affected in street poisoning were male. A study in DMCH by Majumder MM et al<sup>6</sup>, shows commuter poisoning was the most common poisoning in three consecutive years 46.6%, 47.6% and 55.7% (2004-2006). So, there is change of mode of poisoning day by day and travel related poisoning is gradually increasing.

In our study sedative poisoning were observed in 10% cases. Common sedative used for poisoning was benzodiazepines which is easily available without prescription in the country. A study by Howlader MAR et al<sup>9</sup> reported sedatives as the leading agent (37.1%) after including travel-related poisonings.

History of harpic poisoning was found in 10% cases. Harpic is a common house-hold cleaning staff mainly composed of 10% hydrochloric acid with a pH of <5 and it is commonly abused by women as suicidal mode. This is consistent with another study by Bari MS et al<sup>16</sup> that shows harpic poisoning was found in 7% cases. Same result also observed in two studies by Howlader et al<sup>9,17</sup>.

Gul is a new poisoning agent that often observed in hospitals and mode is usually suicidal. This is tobacco dust apply habitually within mouth cavity in Bangladesh. In this study 8% cases of poisoning was caused by gul and most of them were female. No adequate data is available of such poisoning. In our study savlon poisoning was observed in 2% case. Savlon is used as antiseptic purpose in our daily life and normally preserve at home. So, it is easy to use for poisoning purpose. The findings of the study related to savlon poisoning, by Howlader et al were completely similar with our study<sup>17</sup>.

## Conclusion:

Acute poisoning is a common emergency medical problem in our country. Young group of people are mainly affected. Besides OPC poisoning, street poisoning is increasing day by day. In this case, it is very challenging because poison is unknown and in maximum cases patient presented with deep sleep or unconsciousness. Recently tobacco dust or gul poisoning is observed especially by female.

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