

## Patterns of Self Poisoning by Household Substances

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### ABSTRACT:

**Introduction:** Poisoning is an important public health problem in developing countries like Bangladesh; self poisoning with organophosphorous compound (OPC) used in agriculture is particularly common. However, tertiary level hospitals in urban settings, self-poisoning with different household substances is also frequent, especially in teenagers. This study aims to identify the common household substances used for self harm and describe their clinical profile.

**Methods:** A prospective study was performed in five adult medicine units of Dhaka Medical College Hospital over a period of six months from January 2008 to June 2008. Data were collected purposefully in a standard case record forms.

**Results:** One hundred and twenty eight patients with a definite history of self poisoning were enrolled. Majority of patients came from urban areas (77.4%); mean age was 20 years and 48.1% were unmarried. Most patients (102, 76.7%) were female. A suicidal intention was mentioned in 88.7% of cases and family disharmony (70.7%) was the main reported reason. Most of the patients (119, 89.4%) were educated with at least Primary school. The most commonly used compounds were Savlon (Chlorhexidine 0.05%, Cetrimide 0.5%) in 50.4% of cases and Harpic (Sodium alkyl benzene sulphonate & sodium alkene sulphonate) in 30.8% of poisoning cases. 92.5% of patients sought treatment in a public hospital. All patients received supportive and symptomatic treatment, commonly with intravenous fluids and omeprazole. Recovery was usually fast; 92.9% improved within two days. All patients survived and no complications were noted.

**Conclusion:** Though poisoning due to household substances is usually mild, prompt recognition and early treatment is important. An effort should be made to define preventive measures that can be implemented in order to reduce this common form of self poisoning.

### INTRODUCTION:

Poisoning is an important preventable public health problem in developing countries like Bangladesh. Many people consider suicide as an acceptable way of relieving their personal misery or of reducing the financial and emotional burden that they cause to their family. Acute poisoning due to household products is common in Bangladesh. Household products pose a difficult problem in poisoning,

because of the lack of toxicological data in humans. Frequently the only information available is the trade name of the product and the purposes for which it is intended. In most instances, however it is possible to make an educated guess of expected toxicity on the basis of the nature of the product. The objective of the present study was to know the clinical sketch of self-poisoning by different household substances/products.

## **Subjects and methods:**

Household products were defined as those products found in the home environment not of a medicinal nature<sup>1</sup>. It was a prospective study, descriptive in nature. The patient with history of self poisoning by different household substances admitted in five adult medicine units of DMCH was evaluated. We enrolled 128 cases of poisoning with household products who were admitted in Dhaka Medical College Hospital from January 2008 to June 2008.

## **Result:**

During the study period, total 11,747 patients were admitted in Medicine units; of them, 1,649(14.03%) were due to poisoning and 128 (7.76%) were due to household substances. Majority (47.7%) of the household poisoning cases were aged between 11-20 years followed by 40.6% between 21-30 years and 6.2% between 31 to 40 years of age (Table-1). Only 7 cases were above the age of 40 years. Females were predominant than males; ratio of 3.4:1. Amongst, 44.7% were married.

Regarding occupation 45.3% were student, 29.7% housewife, 9.4% Govt. employee, 7% businessman and 7% were engaged with other occupations. About 45.3% patients were educated upto high school, 26.6% upto college, 14.8% were graduate and only 3.9% were illiterate. Most of the patients(78.9%) were from urban areas.(Table-1) Familial disharmony was the major cause of self poisoning reported 77.3%, some 9.4% were resulted from breaking love affairs. 7.8% poisoning were due to some other causes like psychiatric illness, 4.7% originated from fail to pass exam and 0.8% poisoning were due to economical loss( Fig-1).

Regarding brand of poison used, out of 128 patients 49.2% (63) used savlon(Chlorhexidine 0.05%,

Cetrimide 0.5%) followed by 34.3% (44) harpic (Sodium alkyle benzene sulphonate & sodium alkene sulphonate), 4.6% (6) dettol, 2.5% (3) shampoo, 1.6% (2) finix powder, and 7.8% used other household substances like nail polish (1), wheel powder (2), aerosol (2), tarpin oil (1), mosquito coil (2), phenyle (1), hexisol (1).(Fig-2) Regarding intention of poisoning, majority (88.3%) of the poisoning was suicidal, 7.8% was accidental and 3.9% was unknown(Fig-3). Clinical features varies from minor symptoms like sore throat, blurring of vision, abdominal pain to difficulty in deglutition, ulceration of oral mucosa , shortness of breath. (Table-3)

Most of the patients 122 (95.2%) stayed at hospital for 1-2 days, while 3 (2.4%) stayed 3-5 days and the rest 3 (2.4%) for more than 5 days. Most of the patients (108, 84.4%) recovered completely and rest of them (20, 15.6%) were absconded. There was no death among the cases of poisoning by household products.

## **DISCUSSION**

Poisoning due to household products is particularly common in developing countries like Bangladesh. The objective of the present study was to know the clinical profile of self-poisoning by different household substances/products.

We enrolled 128 cases of poisoning with household products who were admitted in five adult medical units of Dhaka Medical College Hospital from January 2008 to June 2008. During this period a total 11747 patients were admitted in adult medical units out of which 1649 cases has been found to be admitted following poisoning, which is 14.03% of total admission. Among this poisoning cases 128 patient were admitted with poisoning by household products, which is about 7.76% of total poisoning

Table-1 : Socio-demographic features of poisoning cases (n=128)

Socio demographic features		Number	%
Age (years)	11-20	61	47.7
	21-30	52	40.6
	31-40	8	6.2
	41-50	3	2.3
	51-60	1	0.8
	61-70	1	0.8
	71-80	2	1.6
Sex	Male	29	22.7
	female	99	77.3
Marital status	Married	61	47.7
	Unmarried	67	52.3
Occupation	Farmer	2	1.6
	House wife	38	29.7
	Student	58	45.3
	Business	9	7.0
	Govt. employee	12	9.4
	Other	9	7.0
Education	Primary	12	9.4
	High school	58	45.3
	Intermediate	34	26.6
	Graduate	19	14.8
	Illiterate	5	3.9
Residence	Urban	101	78.9
	Rural	27	21.1

cases. This figure is considerably higher than those (3-5%) reported from other developed countries.<sup>2,3</sup> Savlon, which is widely available as a household disinfectant, was commonly used for self poisoning in Bangladesh. It accounts for 49% of the household products used in this study. It is described as non poisonous. The majority of our patients had relatively mild symptoms related to its corrosive action on the oral mucosa, throat and gastrointestinal tract. Harpic is a domestic toilet cleaning agent that

contains sodium alkyl benzene sulphonate, sodium alkene sulphonate and others. It is a common household agent in Bangladesh. In our study this is the second commonest product used for self poisoning which accounts for 34.3% (44 patients). After ingestion it causes irritation of the upper gastrointestinal tract. The toxicity of this product has not been determined. In our study, out of 44 patients with harpic poisoning, 17 patients presented with minor symptoms like vomiting, burning, salivation

Table 2 : Clinical features of different household substances in 128 patients with self poisoning

	No symptom*	Minor symptom**	Abdominal pain	Ulceration of oral mucosa and difficulty in swallowing	Respiratory distress	Total
Savlon	2	28	10	20	3	63
Harpic	2	17	10	13	2	44
Dettol	0	3	1	2	0	6
Shampoo	1	2	0	0	0	3
Finix powder	0	2	0	0	0	2
Others***	0	4	3	2	1	10
total	5	56	24	37	6	128

\*patient has only history of poisoning but there was no subjective complaints or objective finding.

\*\*eg minor symptoms such as vomiting, burning, salivation, sore throat.

\*\*\*wheel powder, nail polish, aerosol, mosquito coil, kerosene, tarpin, phenyl.

and sore throat, 13 presented with oral ulceration and difficulty in swallowing, 10 with abdominal pain, 2 with respiratory distress and 2 patients presented without any symptom.

Dettol(Ingradient) is another household product used for self harm. It accounted for 3.1% of the household products used in this study and most of them had relatively mild symptoms like nausea, vomiting,

abdominal pain and sore throat. This findings correlate with the study done by T Y K Chan et al.<sup>4</sup> But they also found serious complication like aspiration pneumonia, ARDS due to aspiration of dettol directly or following gastric lavage without

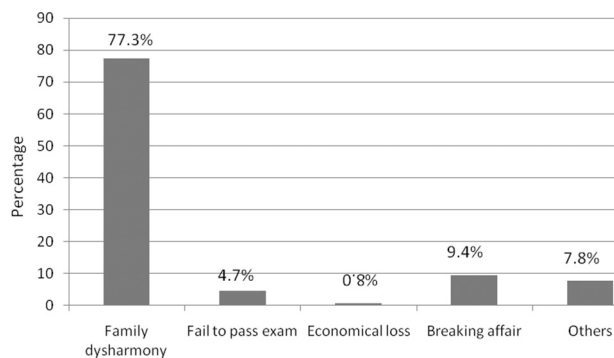


Figure-1 : Circumstances of poisoning



Fig-2 Photograph showing bottles containing different brands of household subatances used by study patients.

adequate protection of the airway that was not observed in this study. Ingestion of household cleaning products and shampoo usually related in mild symptoms unless aspiration occurred. In general, the toxicity of household cleaning agents are related to their irritant and toxic properties.<sup>5-7</sup>

Acute poisoning affected both males and females in similar proportions but deliberate poisoning was more prevalent in females than males. This finding is consistent with reports by other investigators.<sup>8</sup> This study showed most of the patients were between 21 to 30 years of age (40.6%). Maximum incidence (88.3%) of poisoning occurred below the age of 30 years which indicates that poisoning with household substances is common among young people. These findings are close approximation with the findings of K.C. Yeung and T.W. Wong (1990/91) in Hongkong.<sup>9</sup> In our country studies related to poisoning showed that in Chittagong Medical College Hospital in 1987 most of the poisoning patients (84.2%) were between 16 to 45 years of age,<sup>10</sup> in Dhaka Medical College hospital in 1994 most of the poisoning patient (59.8%) were between 10 to 30 years.<sup>11</sup> This indicates that the overall poisoning is common in young people in our country.

This study shows 61 (46.6%) patients were married and 67 (51.1%) patients were unmarried which tells that poisoning with household product is common in both groups. The high incidence among the students reflects that they are emotionally vulnerable group and among the housewives indicates that familial instability is the underlying cause. Regarding educational status among the poisoning with household product, most of the patients are educated. Among them 14.5% are graduate, 26% college student and 44.35% high school student. In comparison to pesticide poisoning which is the most common poisoning in our country a study conducted

by Islam AHMS and Faiz MA showed that males were predominant than females giving rise a male: female ratio of 2:1. 50% of the patients were married. Regarding occupation 18.3% were student, 16.7% housewife, 11.7% businessman, 40% were engaged with other occupations. 58.3% patients can read and write whereas 36.7% were illiterate. 80% of the patients were from rural areas.<sup>12</sup>

Regarding circumstances of poisoning, familial disharmony was the underlying cause in 75.6% cases, fail to pass exam in 4.6% cases, breaking love affairs in 2.4% cases, financial problem in 0.8% cases and 16.8% poisoning are due to some other causes like psychiatric illness etc.

Regarding outcome, most of the patients (108, 84.4%) recovered completely and 20 (15.6%) were absconded. Most of the patients (95.2%) were recovered within 24-48 hours of admission. This findings correlate with the study done by TYK Chan et al.<sup>4</sup>. In our study there was no death.

With introduction of modern amenities of life more and more new chemical substances are going to be used in the household. This has the potential of human exposure by intentional purpose or accidentally. Proper precaution to keep the household chemical substances is required. At the same time knowledge for proper handling and first aid measures following exposure need to be give to the public.

## CONCLUSION

Acute poisoning due to household products is common in Bangladesh. Household products pose a difficult problem in poisoning because of the lack of toxicity data in humans. Possibly this is the first systematic study on poisoning by household substances in Bangladesh. Frequently the only information available is the trade name of the product and the purposes for which it is intended. So prompt

recognition and early treatment is mandatory in order to minimize the toxic effects of the poisoning substances. The diagnosis of poisoning requires detail history of exposure and adequate clinical features.

Treatment is not standardized and there are lots of variations amongst professionals. A national guideline should be introduced. Awareness regarding prevention of poisoning, immediate first aid measures and hospital admission following poisoning should be raised among general population via audio visual and broadcasting media.

The study was a simple observational study done on hospital admitted patients in Dhaka Medical College Hospital for a short period of time and it may reflect the total household substances poisoning situation of Bangladesh and future interventions should be taken to prevent and reduce the sufferings related to household substances poisoning.

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