

Awareness and Attitudes of People about the Use, Precautions, and Accidental Poisoning of Common Household Poisons

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Abstract

Introduction: Consumption of household chemicals like insecticides, rodenticides, repellents, detergents etc is common in cases presenting to casualty. A lot of incidents among these are caused by accident and completely preventable only if the person using them had awareness or basic understanding of the effects that the chemicals present in the products can cause.

Material and methods: In this observational cross-sectional study a total of 345 participants answered the questionnaire to check awareness and attitudes of people about the use, precautions, and accidental poisoning of common household poisons based on MCQ type questionnaire.

Observation & results: In this study, for 20 questions 14 questions have more than 50% correct reply; and 3 questions got more than 90% correct responses. It shows although there is some basic knowledge regarding household poisons more awareness & training programmes are needed as it is a matter of life & death.

Conclusion & recommendations: The lack of proper knowledge and awareness of the potential dangers of household poisons and their increased use has caused an increase in cases of household poisoning. Everyone should have at least the basic knowledge of the potential harms that common household items can cause. Very old and very young members of the family should be kept away from household "poisons". Making it a habit to read the labels on any new product that one buys.

Keyword: Household Poisons; Awareness; Attitude; Precautions.

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INTRODUCTION

Consumption of household chemicals like insecticides, rodenticides, repellents, detergents etc is common in cases presenting to casualty. A lot of incidents among these are caused by accident and completely preventable only if the person using them had awareness or basic understanding of the effects that the chemicals present in the products can cause.¹ Not only must there be understanding but also the knowledge of the precautions that can be taken to prevent such incidents from taking place. These precautions are simple practices and very basic changes that people have make to save themselves and their loved ones, especially very



young children, from the delirious effects of the “poisons” and even death in some cases.²

These items are wide range of products like medications, pesticides used in homes, cleaning products, antiseptics, detergents, paint, thermometers (containing mercury) etc. These products are kept causally lying around the house where anyone can access them. The most vulnerable individuals are children, homemakers (especially those who cannot read and understand labels) and older age groups (commonly due to their inability to read or see properly).³

National Poisons Information Centre AIIMS Delhi in three years received 2719 calls, of those 92% of the inquiries concerned poisoning management & domestic poisons accounted for the largest 44.1% of poisoning cases.¹ The most prevalent mode was accidental (79.7%) & the most often implicated products were household pesticides (43.7%), then cleaners (21.8%), paint thinner (2%), antiseptics (3%), mercury thermometers (5.2%), naphthalene balls (5%), and household pesticides (21.8%). Several general use products like adhesives, hair colour, nail polish remover, camphor, and silica gel (17.1%) were also reported. Although the data may not accurately reflect the actual situation in India as a whole, but findings do point to a rising rate of domestic product poisoning, particularly in children. The causes of household poisoning are negligent storage, ignorance, disregard for usage guidelines, and insufficient parental supervision. This study was conducted to understand how much knowledge of the harmful and sometimes fatal effects of very ordinary items found in & around our households the general population have.

AIMS AND OBJECTIVES

1. To study the awareness general population, have regarding household poisons
2. To know attitude of people regarding incidences of household poisoning and in turn help reduce the same in future.
3. To create awareness among people about:
 - Items commonly used that can act as household poisons & their adverse effects
 - Proper precautions while using them
 - Precautions while storing them

MATERIAL & METHODS

This is an observational cross-sectional study in 345 participants of general population of Pune region, who were willing to participate in the study.

MCQ type questionnaire containing 20 questions (15 MCQs & 5 True/False questions) given to willing participants. Additionally demographic data related to participant was collected. Informed consent from participants was taken in survey form. After completion of survey a detailed answer sheet was provided to increase awareness and any doubts were answered. Mandatory permission from Institutional Ethics Sub-committee was obtained vide Ref no. I.E.S.C./128/2023 Dt. 07/11/2023. All the data tabulated and analysed to determine participant’s awareness regarding each household poison, its adverse effect, and legal implications.

OBSERVATIONS & RESULTS

A total of 345 participants responded to questionnaire. out of total 345 participants; 177 (51.3%) of them mentioned male and 168 (48.7%) females as gender (Chart 1). As most of the survey was conducted through google form respondents are presumed to be literate and educated.

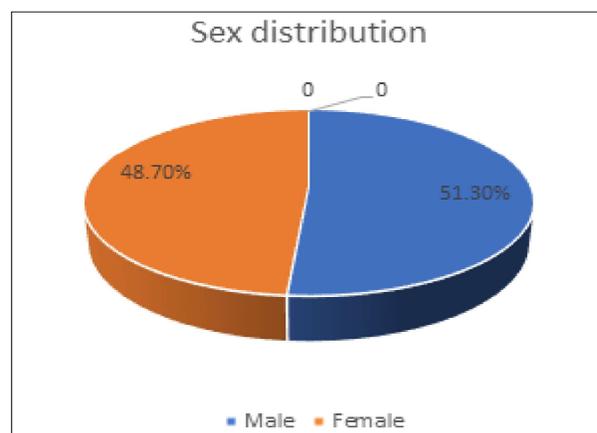


Chart 1: Sex Distribution

Table 1: Age Distribution

Age distribution	10-15 years	16-25 years	26-45 years	46-65 years	>65 years
Number	4	123	103	102	13
Percentage	1.16	35.65	29.85	29.57	3.77

Most common age group (Table 1 & Chart 2) of the participants was 16-25 years with 123(35.65%) participants followed by 26-45 years (29.85%) and 46-65 years (29.57%). Elderly persons of more than 65 years age 13(3.77%) and 4(1.16%) children of 10-15 years were less commonly surveyed than those of young and middle-aged population.

The questionnaire for study and responses of participants are compiled in Table 2. It contains

asked questions, correct response & number of participants who have given correct/ incorrect responses. Graphical representation of correct-incorrect responses is elicited in Chart 3. Out of

20 questions 14 questions got correct response from more than 50% participants and 3 question received more than 90% correct response.

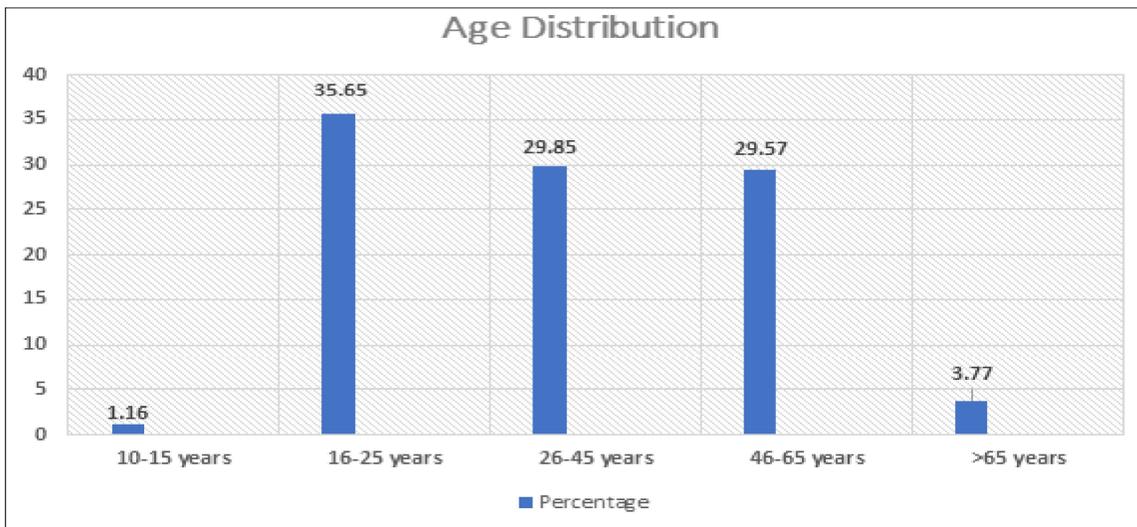


Chart 2: Age Distribution

Table 2: Response to questionnaire

Question	Correct Answer	Total Responses	Correct Response / In %	Incorrect Responses/ in %
How many items/ substances in your household do you think of as poisons?	More than 6	345	61 (17.68%)	284 (82.32%)
Have you ever experienced any accidental poisoning by any household substance(or know any one else who has?)		345	Yes 12.8% (54 responses)	
If yes, which substance?			Most common substance- Phenyl	
 What does the symbol stand for?	Poison	345	186 (53.91%)	159 (46.09%)
 What does the symbol stand for?	Corrosive	345	210 (60.87%)	135 (39.13%)
What are the contents of ant-repellent chalk	Cypermethrin	345	148 (42.9%)	197 (57.10%)
Mosquito repellent contains	All of the above	345	195 (56.52%)	150 (43.48%)

table cont.....

Which one is the incorrect practice while applying "Odomos" on children?	Apply "Odomos" to unexposed body parts (Covered by clothes) as well as exposed body parts (not covered by clothes)	345	136 (39.42%)	209 (60.58%)
From the following images which one is not the rat poison	Option 1	345	285 (82.61%)	60 (17.39%)
If a child accidentally consumes detergent, what will you do?	Immediately take to the Hospital.	345	186 (53.91%)	159 (46.09%)
Where do you keep cosmetic products in the house	Closed Cabinet that cannot be accessed by children	345	276 (80%)	69 (20%)
How many Dolo 650 tablet can you consume safely per day?	As per the Doctor's prescription	345	250 (72.46%)	95 (27.54%)
How frequently do you check for expired medications?		345	200 (57.97%)	145 (42.03%)
What is true about the side effects of cough syrup?	Symptoms that resemble heavy drugs	345	92 (26.67%)	253 (73.33%)
Which type of thermometer is not safe for children?	Mercury	345	194 (56.23%)	151 (43.77%)
Do you check for instructions or warnings on newly bought products?		345	Yes 311 (90.14%)	No 34 (9.86%)
Which is the most vulnerable age group for accidental intake/ consumption of poisonous substances	Toddlers	345	261 (75.65%)	84 (24.35%)
What is the wrong way to store detergents or soaps?	Under the sink	345	229 (66.38%)	116 (33.62%)
Which is a better option for a floor or toilet cleaner	Lysol / Harpic	345	324 (93.91%)	21 (6.09%)
Do you think children should be educated regarding the risks and precautions of household poisons?		345	Yes 340 (98.6%)	No 5 (1.4%)

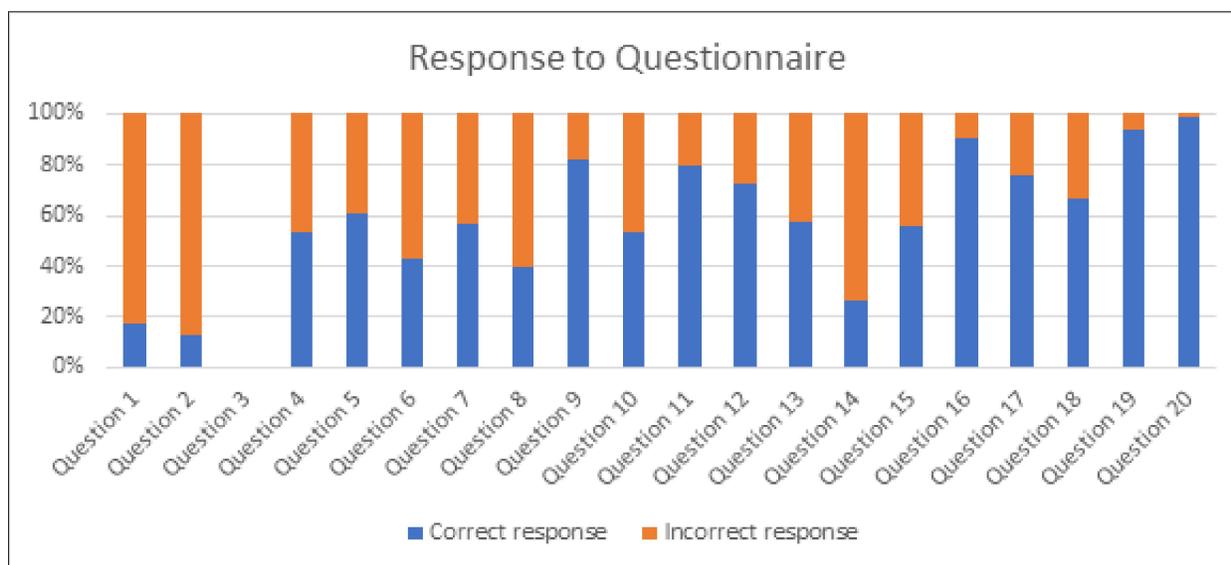


Chart 3: Response to questionnaire

DISCUSSION

Household poisoning cases amongst the general population is an issue of significant concern, majority of them are preventable but there is less awareness and knowledge about it in the general population. As the number of chemicals being used at homes has significantly increased more such cases are being reported & will increase in future. Lack of awareness and marketing techniques by companies that misguide people that their products are harmless also contribute to accidental household poisonings. This study also aims to provide information on common substances of household poisoning so that after attempting this questionnaire (Table 2) at least some people go back and read about, pass on this information to those around them it or make changes in their daily lives to prevent incidents like these happening in their houses.

There are some substances in house which are commonly implicated in accidental poisonings. Kerosene poisoning is one of the most frequent accidental poisonings that occur in children in underdeveloped nations.⁴ Camphor, a common household item is extremely poisonous in even little dosages and has the potential to be lethal. Children are attracted to matchsticks which contains phosphorus & number of matchstick heads consumed determines the level of toxicity.⁵ Meperfluthrin is a low toxicity pyrethroid insecticide that is used in electric mosquito coils & children are more likely to be poisoned by it.⁶

It is important to know the presence and nature of household substances capable of poisoning. In this study, to a question "How many items/substances in your household do you think of as poisons?" only 17.68% of participants said to have known more than 5 substances capable of poisoning. How can one take precautions against any substance when he/ she doesn't know whether its poisonous or not. As per this survey about 12.8% people has experienced cases of poisoning in their life or know someone who has. Most common was phenyl poisoning, earlier studies reported organophosphorus as most used suicidal poison.⁷ This is possibly because the target population had more urban population. Many studies from developed nations, like by KP Dawson et al., have reported medicines to be the most common agents.⁸ Indian researchers like S Rathore et al. have reported kerosene to be the most encountered agent in urban areas and overall incidence too.⁹ Although studies from the rural part of India done by NK Bhat et al. reported insecticides to be the most common agent causing acute childhood poisonings.¹⁰

Only 26.67% people knew that cough syrup had the potential to cause dangerous side effects. Warning signs and hazard symbols are important for safety and precautions. In this study majority of people could

correctly identify the symbols of poison and corrosives thanks to high literacy and awareness.

Substances most frequently ingested by children in the developed world include household chemicals, medication, and plants. Although the great majority of such poisonings have no or limited clinical effects, it puts substantial burden on health care systems. Importantly, a few poisons can kill after ingestion of very small amounts. Unintentional poisoning in developing countries can be much more serious, following ingestion of kerosene, caustic agents, herbal remedies, insecticides, or herbicides.¹¹

To ensure safe and efficient use, always adhere to the directions on the product label, for example: Bleach is particularly harmful and should only be combined with water. To safely dispose of spent button batteries (such as those found in watches), store any that are not in use out of the reach of children. Please adhere to any specific storage directions (for example, keeping flammable liquids away from heat, keeping medicines in a cool place, and keeping acids away from alkaline products).¹² To protect skin and eyes, put on gloves and safety goggles when using harsh cleaners like drain cleaner, bleach, and oven cleanser. Regardless of whether you know what is inside, avoid sniffing chemical containers. Call the local poison control centre or the emergency number if you or someone you are with has been exposed.

Prescription drugs are also commonly implicated in household poisoning by the way of overdose, accidental or suicidal ingestion. In this survey 72.46% participants were aware of taking medications like 'Dolo 650' as per Doctor's prescription. Regarding checking expiry of medications 57.97% responded affirmatively. It is expected from all patients and caretakers to check for expiry date and proper dose of prescription drugs. It is a good practice to keep medications properly labelled and store them in their original containers, also discard them if they are expired or no longer in use.

To a question regarding side effects of common drug like cough syrup, only 26.67% gave correct response & for a question regarding safe type of thermometer for children, 56.23% responded correctly. 75.65% respondents correctly mentioned the most vulnerable age group for accidental intake/consumption of poisonous substances as toddlers. Saikia, et al.: Clinical profile of poisoning in children reported circumstances of poisoning in children. In 144 cases (94.1%), poisonous substance was accidentally ingested by the child itself, while in 7 (4.6%), the poison was accidentally given to child by others (mother, grandmother, elder sibling etc). In 1 case, intentional intake of poison was noted.¹³

90.14% participants affirmed that they check for instructions or warnings on newly bought products.

Manufacturer's instructions are very important safety & efficacy wise. Storage & inventorying of hazardous/poisonous items in home should be kept away from children's reach.¹⁴ Laundry supplies, toiletries, cosmetics etc. to be kept in locked cabinets. 66.38% of participants responded that it is wrong to store detergents or soaps under the sink, which can be easily taken by toddlers & children. The choice of toiletries is also very important, safer, and non-hazardous option should be used though it may be costlier. To a question "Which is a better option for a floor or toilet cleaner", 93.91% participants chose Lysol / Harpic over hazardous acids.

Education & training regarding use of poisonous substances avoids unwanted complications. Vulnerable persons like elderly, children, mentally ill or illiterate should be protected from accidental use/effect of poisons. 98.6% of respondents agreed to 'children should be educated regarding the risks and precautions of household poisons.'

CONCLUSION

The lack of proper knowledge and awareness of the potential dangers of household poisons and their increased use has caused an increase in cases of

household poisoning in the recent years. People are not aware of the fact that they should start thinking about it more seriously. The main objective was to not only assess the existing knowledge that people have about this topic but also to give them some information and create a drive in them to study more about it so that they make more informed choices about which products they use and how to use them safely.

Recommendations

- Everyone should have at least the basic knowledge of the potential harms that common household items can cause.
- Schools should teach the proper way to handle various household substances to children
- Very old and very young members of the family should be kept away from household poisons and in cases where it is not possible, their use should be supervised.
- Making it a habit to read the labels on any new product that one buys, especially the contents, directions of use, date of expiry and precautions.

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Conflict of Interest: None

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