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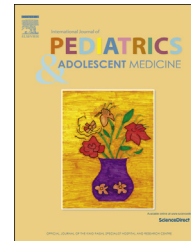


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ORIGINAL ARTICLE

Do parents in Saudi Arabia store medications safely?



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Abstract *Background and objectives:* Safe storage of medications can prevent the accidental poisoning of children. How medications are stored in homes in the Saudi community is not known. The objective of this study was to assess the safety measures for drug storage that are employed by parents to avoid unintentional drug poisoning of children below the age of 6 years.

Materials and methods: This was a cross-sectional survey study based on a validated questionnaire created using the Survey Monkey online tool.

Results: Ninety-three percent of the respondents did not store medications in secure and safe places such as locked boxes or locked drawers; however, more than half of the respondents (54.3%) stored medications at a level that was above the eye level of an adult. The majority of drugs (60.2%) were kept in the fridge; 45.9% were kept in kitchens, 45.1% in bedrooms, 8% in living rooms and 2% in bathrooms. Thirty percent of the respondents stored medications in two places, and 10% stored medication in three or more places. Eighty-nine percent disposed of unwanted medicines by throwing them in the trash, only 11% returned them to the pharmacy, and 11% flush them down the toilet.

Conclusions: These results raise concerns about how drugs are stored and disposed of in the community. Additional community education and awareness programs regarding the safe storage of drugs in the home and the identification of useful and accessible methods of drug disposal are needed.

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1. Introduction

Unintentional poisonings are a major cause of nonfatal injuries in children, especially those less than two years old [1]. In 2010, the American Association of Poison Control Centers (AAPCC) reported that among the over 1.5 million pediatric poison exposures (63% of all human exposures), children younger than 3 years of age were involved in 37.7% of exposures, and children younger than 6 years accounted for approximately half of all human exposures (50.5%); furthermore, most of these exposures (93%) occurred at home [2].

It has been noted by many researchers from various countries that significant toxic exposure-related problems are unique to their socio-economic and cultural environments [3–10]. A study from Saudi Arabia revealed that childhood poisonings accounted for 88% of the poisoning cases reported to one poison control service in Riyadh City [11]. This study also showed that more than 90% of these cases involved children below the age of 5 years, and 2.3% and 5.7% of the cases occurred in children between 5 and 8 years and between 9 and 12 years, respectively [11].

Toxicology-related visits to Emergency Department (ED) among children less than five years old are increasing and have led to the conclusion that the current poisoning prevention efforts are inadequate [12].

Inappropriate medication storage is a worldwide problem. A study conducted in Saudi Arabia reported that the mean number of drugs stored in each household is 8 and that up to 30% of households have at least 10 medications [13]. Similar findings have been reported in other studies from different countries, and these studies have also found that elderly patients tend to have more medications in their homes and that larger households are also predictive of the storage of more medications [14,15]. Previous studies have found significant variations in between the characteristics of parents who do and do not safely store medications or cleaning products [16–18].

Unintentional poisonings in toddlers can be largely prevented by preventive actions, although poisonings can still occur despite such efforts [19–24].

There is a paucity of research regarding the effectiveness of community-based childhood poisoning prevention programs. Therefore, there is a clear need to increase efforts to examine the efficiency of the currently implemented measures for the prevention of unintentional poisoning in children [1,9,23–28]. No study has yet examined how medications are stored in Saudi homes.

The primary objective of this study was to assess the current safety level of drug storage utilized by parents to avoid unintentional drug poisonings among children less than 6 years of age. The secondary goal of the study was to alert people about the improper storage of medications at home and to warn them about the potential for toxicity among children that is secondary to unsafe storage conditions.

2. Materials and methods

This was a cross-sectional survey study based on a validated questionnaire that was created using the Survey Monkey tool.

The questionnaire was written in both English and Arabic languages and was distributed using social media websites (primarily Twitter and Facebook). The survey examined the following information: the presence of medications at home, the safety level of medication storage, medication disposal, and factors that might contribute to improper storage of medications at home, including the numbers in the households, the level of education and the presence of patients with chronic diseases in the households.

We defined safe drug storage as drug storage that occurred in locked places, such as cupboard, drawers or special boxes.

The participants were assured about the confidentiality of their responses, and they were informed that the study was about home safety issues with the goal of improving the storage of drugs at home to decrease pediatric poisoning. Participants without at least one child below the age of 6 years and non-Saudi residents were excluded from the study.

The study was approved by the Research Ethics Committee at King Faisal Specialist Hospital & Research Centre (KFSH&RC), and participant confidentiality was maintained throughout the study by giving each participant a unique identity number on the data collection sheet that was secured with a password. An informed consent statement was signed at the beginning of the survey. The questionnaire was pre-tested by sending it via email to the staff of the Emergency Department (ED) prior to publishing it on the social media websites.

3. Statistical analyses

The descriptive data were assessed with the software package SAS version 9.3 (Statistical Analysis System, SAS Institute Inc., Cary, NC, USA). Categorical variables were summarized as frequencies and percentages and were compared using the chi-square test. The 0.05 level of significance was used for all data analyses.

4. Results

Data were collected from a total of 1023 respondents; of these respondents, 505 participants met the inclusion

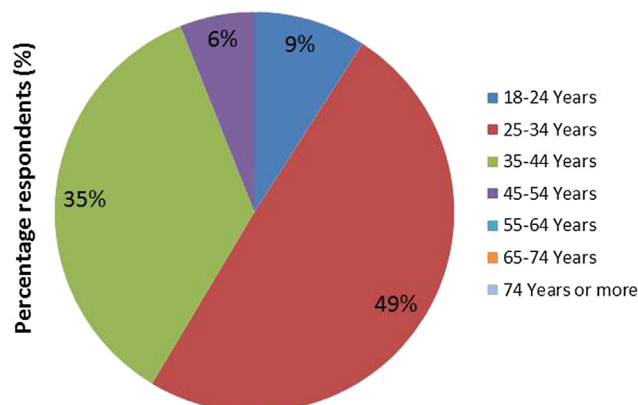


Figure 1 Age distribution of participants.

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