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Research Article

**Pattern And Determinants Of Poisoning In Children Registered In Jeddah Poison Control Center 2018 Cross-Sectional Study****Dhoha Omar Alamoudi<sup>1</sup>, Bayan Abdulrahman Aldeibani<sup>1</sup>, Hanen Omar Bamged<sup>1</sup>, Sulafa Al-Qutub<sup>2</sup>**<sup>1</sup>Family medicine resident, Joint program of family medicine, Jeddah Saudi Arabia<sup>2</sup>community medicine and public health consultant, Ministry of health, Jeddah Saudi Arabia**Article Received:** December 2019 **Accepted:** January 2020 **Published:** February 2020**Abstract:**

**Aim:** To determine the pattern including route and types of different kinds of toxins exposure among children less than 18 years in who registered in the poison control center in Jeddah 2018.

**Method:** A cross-sectional record -based study conducted among the pediatrics age group till the age of 18 years in who registered in the poison control center in Jeddah 2018.

**Result:** The result revealed that the majority of the cases were from the age group of younger than five years ( 54.9%) and the majority was at home (59%), almost half of the cases were accidental (47.2%) and (60.4%) through oral administration. The most common symptoms were vomiting, nausea, drowsiness, abdominal pain, convulsion, and irritability. The most common poisoning types were analgesics, anticonvulsants, fire smoke inhalation, and pesticides. The rate of accidental and at home cases was significantly higher among younger age children and female ( $p=0.0001$ ), ( $P = 0.025$ ), ( $P=0.031$ ), respectively.

**Conclusion:** An adequate knowledge on chemical poisoning patterns in a particular place would help in detecting potential risk factors related to poisoning. In which this will help in early diagnosis, correct management, and hence a decline in morbidity and mortality rates.

**Recommendation:** There is a need for more community-based education programs to raise the level of awareness on the storage of chemical substances and drugs. Also, high level of child supervision is mandatory. Moreover, conducting workshops on the first aid skills aiming at teaching the public about how to manage poisoning cases before patients` transfer to the hospital.

**Keywords:** Poisoning, Pattern and Determinants, children and adolescent, Jeddah, Saudi Arabia.

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## INTRODUCTION

### Background

Poisons, also known as toxins, are potentially harmful substances that can negatively impact the human body (1). The rate of childhood toxicity has increased all over the world, and this is a frequent cause of morbidity and emergency department crowdedness (2,3,5,6). Toxins ingestions are most commonly occurring household toxins and leading to childhood poisoning (2,3,5,6).

Reviewing several studies worldwide including the US recent study demonstrated that medications such as analgesic and antihistamine are the most common type of poisoning followed by chemicals and domestic products such as ; Pesticides and cleaning agents. While in other countries such as Australia and India showed higher incidence for chemical poisoning rather than medications (5,6,7).

Many studies took place in different cities within Saudi Arabia including the most recent one at Riyadh ended in 2016 to explore determinants of poisoning, it showed that medication is the most common toxin among children. Oral ingestion poisoning was the most common route. Age peak was ranging from one to seven years, and some studies stated that the summer season has a significant increase in number of cases compared to other seasons. The patient outcome was either staying in the hospital under observation or admitted to the ward, some of them received treatment by decontamination with activated charcoal. While, others with an antidote or only symptomatic treatment. Older studies from Abha in 2003 and Eastern Area in 2013 were showing relatively similar findings (2,3,4,5).

Up to the researchers' knowledge, there is no recent information or published studies about toxins among pediatric age group for the last 20 years in Jeddah (8).

Childhood Poisoning is a severe preventable commonly occurring health problem. Although the poison control center in Jeddah serves different sectors and wide geographic area, they don't usually conduct analysis to the data nor publishing their data.

The aim of the study is to Increase awareness on the most common toxins involved in child poisoning moreover to recommend ways for poisoning prevention. Also to determine the pattern of exposure to toxins among children less than 18 years who are registered in poison control center in Jeddah 2018.

## LITERATURE REVIEW

### National studies

During 2011 to 2013, in Saudi Arabia-Eastern Province, a prospective study was conducted at Al-Dammam Maternal and Child Hospital. It aimed to identify problems of accidental poisoning among children, and to identify the factors related to it among poisoned patients who visited a pediatric ER department. The results of the study established that the most common toxic presentation in the reported cases was medication toxicity exposure (63.2%), followed by poisonous pesticide exposures (16.3%). Acetaminophen exposure was the most common poisonous form of medication exposures (27.6%). Age from one to seven years is the most common exposed age (74.8%). From the studied cases, 64.5% of the cases were asymptomatic, while only 6% were suffering from acute severe consciousness disturbance "Glasgow Coma Scale was less than 8". The study group concluded that there is a need for effective health promotion programs for parents and caregivers regarding poisoning dangers to raise awareness and to decrease the incidence of poisoning among children (2).

A study within King Khaled University Hospital in Riyadh, Saudi Arabia(3), aimed to categorize the most common classes of toxic substances and route of poisoning in children. Also, explored the pattern of drugs and chemical poisoning in suspected case fatalities, the subsequent need for hospital admission, and arrival time to the hospital. Results of Riyadh study included a total of 735 child attended Pediatric Emergency Medicine with poisoning. Most of the cases were asymptomatic, and most of the children have arrived at the hospital in less than three hours. The drugs were the most common cause of poisoning (70%) followed by chemicals (29%). A significant association was found in children under two years compared to other groups at ( $p < 0.001$ ). The route of poisoning was mostly oral and forming (98.8%) of the reported cases. The drugs most frequently ingested were analgesic (18.8%). Among the chemicals, pesticide products involved in (39.6%) of the cases, followed by cleaning products (25.9%) and cosmetics (22.8%). The study concluded that the majority of poisoning cases occurred in children under the age of six and necessitate only observation without further intervention. They recommended more close cooperation between different governmental health-sectors to create national epidemiological surveillance of poisoning events in Saudi Arabia to assist in developing national plans to reduce the financial burden of emergency department congestion and hospital crowding (3).

In 2018 another retrospective study was conducted in Abha, Saudi Arabia to explore the pattern of pediatric poisoning in Abha city over one year from May 2016 to May 2017. Two hundred nine cases reported to the Emergency Department of Abha

Maternity and Children Hospital in Abha City. The ratio of female to male was (1.7:1) with 132 females and 77 males. Two peaks were realized. At the age of two to three years and seven years. Food poisoning was more in children at the age of six to seven years, with 93 cases (44.5%). Whereas drug poisoning was more in children from two to four years with a high rate of Ibuprofen 39 cases (19%) followed by Paracetamol 22 (9%). Only 9 out of 209 (4%) mothers received an education about poisoning, which shows the high need for more educational programs for childhood and bearing age mothers. A reported one case of death caused by Digoxin poisoning at the age of four years. (4)

### International studies

In 2011 in India, a retrospective review on hospital archives of all children and adolescents aged less than 18 years to determine the profile and outcome of children presenting with acute poisoning at a North Indian tertiary care center. Out of 117 patients presented with acute poisoning during the study period. The median age was four years (range 0.75 - 17.75). Most of the patients (60.68%) were in the one to six years old. The male to female ratio was 1.4:1. Most of the patients lived in rural areas. Insecticides (37.61%), drugs (25.64%), and Kerosene oil (18.8%) were the most common poisoning agents. Almost all (97.2%) cases in the one to six years were accidental, while in the 12 - 18-year age group, the majority (80.9%) were suicidal. Almost the third (30.7%) stayed asymptomatic, while the rest developed symptoms related to toxic ingestion and needed symptomatic or definitive treatment. Thirteen patients required ICU care. Gastric lavage was done in 34% of patients, and the specific antidote was given to 28 (23.9%) patients. Four death was reported. They concluded that the profile of pediatric poisoning was similar to the other hospital-based studies. The majority of patients were symptomatic and needed hospitalization because of the inherent toxicity of the substances involved (7).

In 2018 in Australia, a retrospective analysis of call records from Australian Poisons Information Centers (PICs). The analysis aimed to describe the types of calls received in Australia and to investigate poisoning exposures by age group, circumstances of exposure, and the types of substances involved. They found 204 906 calls to Australian PICs in 2015, 69.0% from the general public, 27.9% from health professionals. One hundred seventy thousand four hundred sixty-nine calls linked to poison exposure events; 64.4% were unintentional, 18.1% were the consequences of a medication error and 10.7% involved deliberate self-poisoning. Most cases were of 20-74-year-old adults (40.1%) or one to four years old toddlers (36.0%). The PICs recommended callers to stay at home for 67.4% of

exposures, and to go to the hospital for 10.9%. The most common substances involved in overall were household cleaners (10.2%) and paracetamol containing analgesics (7.3%). Exposures of infants and toddlers were most frequently to household cleaning substances (17.8%, 15.3% respectively). Exposures of adults (20-74 years) usually involved psychotropic pharmaceuticals (17.8%) or pain killers (15.1%). Exposures in adults over 74 were often medication errors involving cardiovascular (23.6%), anticoagulant (4.6%), or antidiabetic (4.1%) medications (6).

### METHODOLOGY

This study was a retrospective cross-sectional record-based study. All children and adolescents under 18 of age with documented toxicity in the poison control center in Jeddah during the period from January 2018 until the end of December 2018 were included. The total pediatric cases registered in poison Control Center during 2018 was 144. Data was collected using data collection sheet, sheet was reviewed by the specialized consultant.

The Poison Control Center is provided by ministry of health service. The center deals with all reported cases of poisoning and toxicology. Doctors within the center are providing 24/7 consultation services. The center can assist emergency physicians in the treatment and management of toxicology and poisoning cases. Also, provide immediate treatment advice and assistance over the phone for toxicology and poisoning cases.

The center has the essential poison information resources, including; electronic toxicology information database, clinical drug information database, and an electronic surveillance system Online Toxicology Analysis Requests and Results (OTARR), to document all inquiries.

The identified dependent variables included; types and routes of exposure to toxins. The independent variables included; demographic variables such as age and gender, the time and place of exposure.

### Pilot Study

A pilot study was done on 10% of the sample to test the validity of data collection sheet, methods, and environment. Necessary changes were made.

All ethical approvals were obtained (Research committee approval from Joint Program of Family Medicine, Approval from Directorate of Health Affairs, and Permission from Poison Control Center in Jeddah)

All collected data were coded and entered into a personal computer. Data entry and statistical

analysis performed by using the Statistical Program for Social Sciences (SPSS, version 22.0) and appropriate statistical tests were applied. Descriptive statistics (i.e., frequency, percentage, mean, and standard deviation) calculated. Chi-square test and independent t-test were used for comparison. A P-value of <0.05 was considered statistically significant.

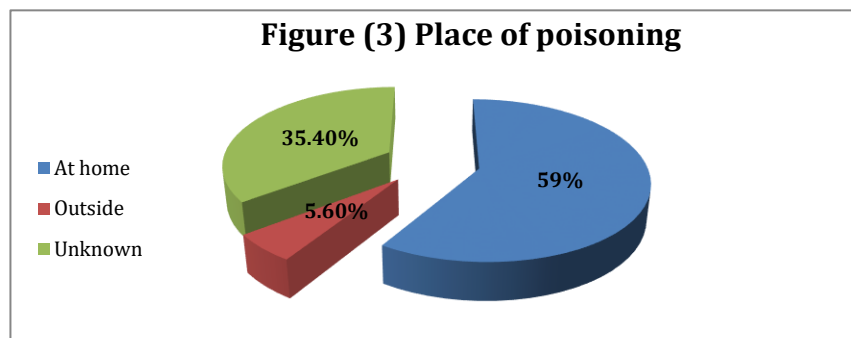
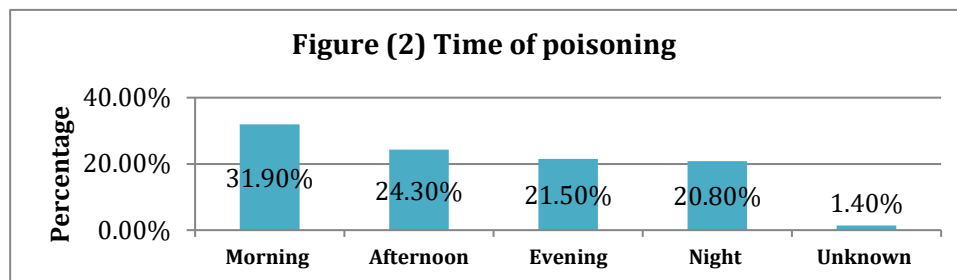
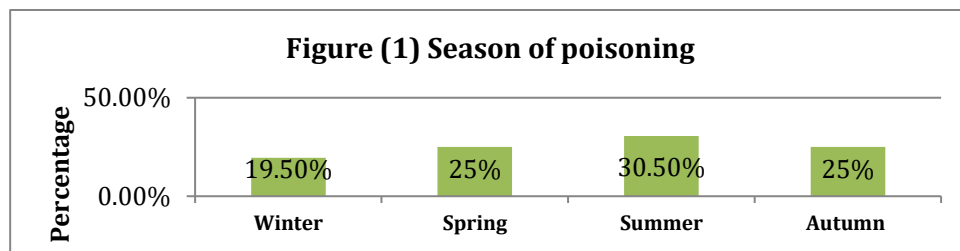
## RESULT

During the period from January 2018 to December 2018, a total of 144 children and adolescents with documented toxicity in the poison control center in

Jeddah were recruited in the study. More than half were female, 75 (52.1 %), & more than third 56 (38.9%) were toddlers, with a median age of 4.2 years. Over 2018 the rate of distribution of cases across the year quartiles was convergent among (first, second and fourth) with an increase in the proportion of occurrence during the third quarter of the year (summer). The rate of distribution of cases over the dayparts was as follows; the highest rate was reported in the morning, followed by afternoon, then evening, and last night. More than half 85 (59.0%) of the poisoning occurred "at home" (Table 1 & Figures 1,2, &3).

**Table (1) Sociodemographic data**

| Variable                   | N             | %    |
|----------------------------|---------------|------|
| <b>Gender</b>              |               |      |
| Female                     | 75            | 52.1 |
| Male                       | 69            | 47.9 |
| <b>Age group</b>           |               |      |
| Infants (1-12 months)      | 1             | 0.7  |
| Toddler (1-2 years)        | 56            | 38.9 |
| Preschooler (2-5 years)    | 22            | 15.3 |
| School-age (6-12 years)    | 26            | 18.1 |
| Adolescent (>12 years)     | 39            | 27.1 |
| <b>Time of poisoning</b>   |               |      |
| Morning                    | 46            | 31.9 |
| Afternoon                  | 35            | 24.3 |
| Evening                    | 31            | 21.5 |
| Night                      | 30            | 20.8 |
| Unknown                    | 2             | 1.4  |
| <b>Season of poisoning</b> |               |      |
| Winter (Dec, Jan, Feb)     | 28            | 19.5 |
| Spring (Mar, Apr, May)     | 36            | 25.0 |
| Summer (Jun, Jul, Aug)     | 44            | 30.5 |
| Autumn (Sep, Oct, Nov)     | 36            | 25.0 |
| <b>Place of poisoning</b>  |               |      |
| At home                    | 85            | 59.0 |
| Outside                    | 8             | 5.6  |
| Unknown                    | 51            | 35.4 |
| <b>Variable</b>            |               |      |
| <b>Age</b>                 | <b>Median</b> |      |
|                            | <b>4.2</b>    |      |

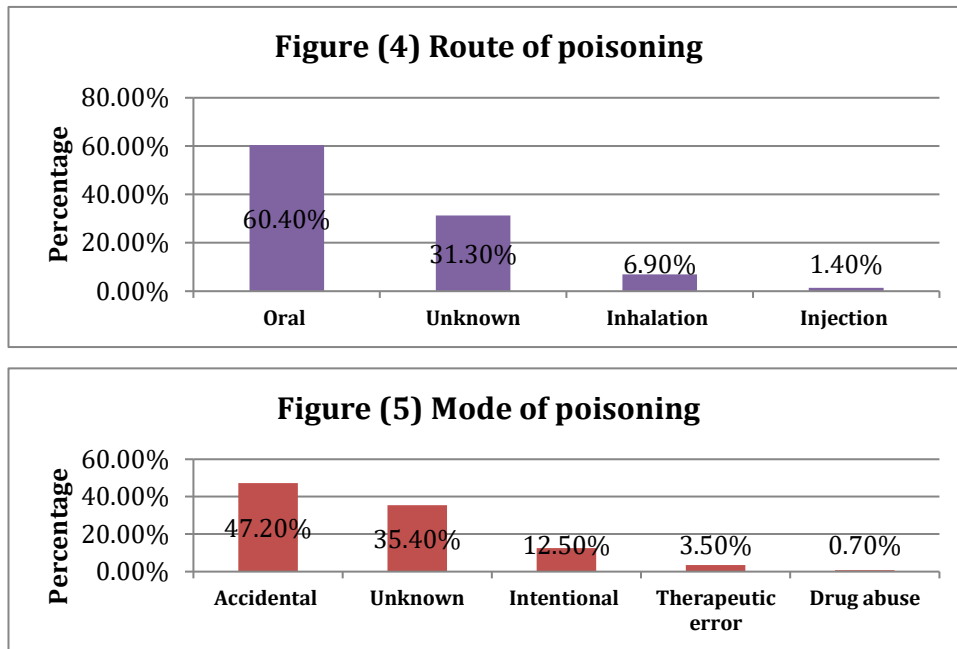


Almost half of the cases were accidental 68(47.2%), while 18 (12.5% cases reported as Intentional circumstance. Concerning the route of poisoning 87 (60.4%) through the oral route and 10 (6.9%) reported the Inhalation route (Table 2 & Figures 4 & 5).

**Table (2) Poisoning pattern**

| Variable                    | N  | %    |
|-----------------------------|----|------|
| <b>Route of poisoning</b>   |    |      |
| Inhalation                  | 10 | 6.9  |
| Injection                   | 2  | 1.4  |
| Oral                        | 87 | 60.4 |
| Unknown                     | 45 | 31.3 |
| <b>Mode of poisoning</b>    |    |      |
| Accidental                  | 68 | 47.2 |
| Drug abuse                  | 2  | .7   |
| Intentional                 | 3  | 2.1  |
| Intentional, Suicide        | 13 | 9.0  |
| Intentional, to relive pain | 2  | 1.4  |
| Medication error            | 5  | 3.5  |
| Unknown                     | 51 | 35.4 |

Data presented as number (%)



The results in table (3) revealed the common symptoms, Where 48 (22.3%) of the cases were asymptomatic, “vomiting” was among 36 (16.7%) of the cases, “Drowsiness” was reported among 25 (11.6%) of the cases. While “Nausea,” “Abdominal pain,” “Convulsions” and “Irritability” were the common symptoms among 12 (5.6%) cases equally (**Table 3**).

**Table (3) clinical presentation**

| Variable       | N (n=215) <sup>#</sup> | %    |
|----------------|------------------------|------|
| Asymptomatic   | 48                     | 22.3 |
| Vomiting       | 36                     | 16.7 |
| Drowsiness     | 25                     | 11.6 |
| Nausea         | 12                     | 5.6  |
| Abdominal pain | 12                     | 5.6  |
| Convulsions    | 12                     | 5.6  |
| Irritability   | 12                     | 5.6  |
| Decrease LOC   | 11                     | 5.1  |
| Confusion      | 7                      | 3.3  |
| Dyspnea        | 4                      | 1.9  |
| Tachycardia    | 3                      | 1.4  |
| Slurred speech | 3                      | 1.4  |
| Dizziness      | 3                      | 1.4  |
| Hallucinations | 3                      | 1.4  |
| Coma           | 2                      | 0.9  |
| Headache       | 2                      | 0.9  |
| Diarrhea       | 2                      | 0.9  |
| Palpitation    | 2                      | 0.9  |
| Fever          | 2                      | 0.9  |
| Weakness       | 2                      | 0.9  |
| Others         | 12                     | 5.6  |

<sup>#</sup> Multiple responses

Data presented as number (%)

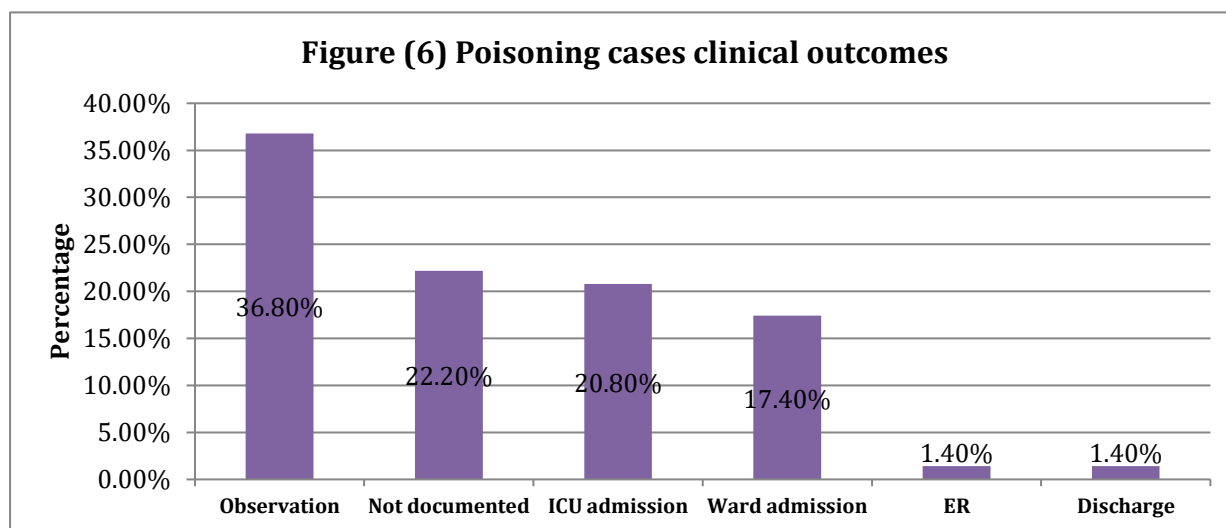
Regarding types of poisoning, 34 (23.4%) cases were unknown, while the primary poisoning type was “analgesia” by 52 (36.0%), followed by “anticonvulsant” by 15 (10.2%), then drugs by 10 (6.8%), and “Fire smoke inhalation” and “pesticides” by 7 (4.8%) equally (**Table 4**).

**Table (4) Types of Poisoning**

| Variable                                    | N         | %            |
|---|-----------|--------------|
| <b>Medication</b>                           | <b>90</b> | <b>62.1%</b> |
| Analgesia                                   | 52        | 36.0         |
| Anticonvulsant                              | 15        | 10.2         |
| Amphetamines                                | 2         | 1.4          |
| Antibiotic                                  | 1         | 0.7          |
| Antiemetic                                  | 1         | 0.7          |
| Antidepressant                              | 3         | 2.1          |
| Cardiac medicine                            | 4         | 2.8          |
| Drugs (opioid, cocaine, marijuana,....etc.) | 10        | 6.8          |
| Antipsychotic                               | 2         | 1.4          |
| <b>Chemicals</b>                            | <b>20</b> | <b>14.5%</b> |
| Diesel ingestion                            | 1         | 0.7          |
| Alcohol                                     | 3         | 2.1          |
| Fire smoke inhalation                       | 7         | 4.8          |
| Lead  | 2         | 2.1          |
| pesticides                                  | 7         | 4.8          |
| <b>Unknown</b>                              | <b>34</b> | <b>23.4</b>  |

Data presented as number (%)

Regarding ER management, 61 (39.7%) of the cases were “Not documented.” The main ER management was “Observation” consisted of 32 cases (21.0%), followed by “Gut decontamination” and “antidote” by 18 (11.6%) equally, then “Symptomatic treatment” by 16 (10.5%). On the other hand, the results revealed that the main patient’s outcomes were as follow; more than third 52 (36.8%) were kept under “Observation,” 30 (20.8%) were admitted to “Intensive care unit,” and 25 (17.4%) were admitted to the regular ward (**Figure 7**).



The results showed a significant association ( $p < 0.05$ ) between gender and place of poisoning. Where “at home” incidents were higher among females than males (69.3% vs. 47.8%). “Outside” incidents was higher among males than females (7.2% vs 4%) ( $p = 0.31$ ). However, it was not statistically significant; on the other hand, there was no association between gender and route, nor the gender and mode of poisoning (**Table 5**).

**Table (5) The association between gender and route, mode and place of poisoning**

| Variable           |                   | Gender      |             | P value |
|--------------------|-------------------|-------------|-------------|---------|
|                    |                   | Female      | Male        |         |
| Route of poisoning | Inhalation        | 5<br>6.7%   | 5<br>7.2%   | 0.419   |
|                    | Injection         | 1<br>1.3%   | 1<br>1.4%   |         |
|                    | Oral              | 52<br>69.3% | 35<br>50.7% |         |
|                    | Unknown           | 17<br>22.7% | 28<br>40.5% |         |
| Mode of poisoning  | Accidental        | 33<br>44.0% | 35<br>50.7% | 0.735   |
|                    | Drug abuse        | 0<br>0.0%   | 2<br>2.8%   |         |
|                    | Intentional       | 18<br>24.0% | 0<br>0.0%   |         |
|                    | Therapeutic error | 3<br>4.0%   | 2<br>2.9%   |         |
|                    | Unknown           | 21<br>28.0% | 30<br>43.4% |         |
| Place of poisoning | At home           | 52<br>69.3% | 33<br>47.8% | 0.031*  |
|                    | Outside           | 3<br>4.0%   | 5<br>7.2%   |         |
|                    | Unknown           | 20<br>26.7% | 31<br>44.9% |         |

Data presented as number (%)

The Comparison done using Chi square test.

P value < 0.05 considered significant

The results showed a significant difference in age regarding mode and place of poisoning, where older age cases tend to be more intentional. Younger age cases tended to have more accidental poisoning (14.6 years vs. 2.4 years,  $p < 0.0001$ ). Older age cases tend to have poisoning occurrence outside the house, while younger age cases tended to be more at home (6.2 years vs. 3.0 years,  $p = 0.025$ ). On the other hand, there was no significant difference in the age regarding the route of poisoning (**Table 6**).

**Table (6) The relation between age and route, mode and place of poisoning**

| Variable           |                     | Median of age | Mean rank | P value  |
|--------------------|---------------------|---------------|-----------|----------|
| Route of poisoning | Inhalation          | 5.7           | 71.55     | 0.390    |
|                    | Injection           | 5.8           | 56.25     |          |
|                    | Oral                | 3.0           | 67.86     |          |
| Mode of poisoning  | Accidental          | 2.4           | 47.61     | 0.0001** |
|                    | Drug use/medication | 12.4          | 108.50    |          |
|                    | Intentional         | 14.6          | 122.67    |          |
|                    | Therapeutic error   | 8.0           | 89.40     |          |
| Place of poisoning | At home             | 3.0           | 64.66     | 0.025*   |
|                    | Outside             | 6.2           | 80.50     |          |

Data presented as number (%)

The comparison was made using the Kruskal Wallis test.

P value < 0.05 considered significant



## DISCUSSION

Our study concluded that females were significantly at higher risk of exposure to poison at home at ( $P < 0.05$ ). Inversely, males were at higher risk of exposure to toxins outside home but this was not statistically significant ( $P = 0.31$ ). Older children with median age of 14.6 years were significantly at risk of intentional poisoning at ( $P = 0.0001$ ). While children younger than the median age of 14.6 years were more likely to have accidental and/or medication use at ( $P = 0.0001$ ). Children with median age of 6.2 years were significantly at higher risk of poisoning outside their home at ( $P = 0.025$ ). With regard to route of poisoning there were no significant difference among age groups (Table 5 and 6).

This study showed more than half of the reported cases of poisoning were females (52.1%).

The higher female percentage was found by Alghadeer and Alqahtani with their colleagues in Riyadh and Abha in 2017, 2016, respectively (3,4).

While other previous studies in Al-Dammam and Al-Majmaah, the rate of the male exposure to toxins was higher than female, same findings were reported in India (2,18,7). These differences in the proportion could be attributed to variability in sampling techniques and study design.

Regarding the age category, the majority of the cases reported at the age group of less than five. This finding was consistent with the results from other studies in Makkah, Abha, Riyadh, and Australia (15,4,3,6). The difference could be due to various reasons: the exploratory and curious behaviors of children at this age, family practice in medication storage, the drug placement in an easy-open containers (not childproof) and the absence of direct child supervision (12,14-16).

With regard to seasonal variation, our results showed that the highest rate of children poisoning was during summer. This can be related to the summer holiday. The findings are consistent with Makkah and Al-Dammam studies (15,2).

The most commonly reported symptoms were: vomiting (16.7%) and drowsiness (11.6%), followed by nausea, abdominal pain, convulsion, and irritability. Which represent (5.6%) for each reported symptoms. Similarly, Al-Dammam and Indian studies reported that the most common symptom was vomiting with (24.9%) and (49.6%), respectively (2,7). The variation in the GIT upset percentage could be attributed to under-reporting by the physicians in our study.

The findings of the present study showed a significant difference in age about the mode and

place of poisoning, where the rate of accidental and at home cases was significantly higher among younger children who are under the age of 5 years. Similar results were found in other studies (3,14-16,18).

Also, the study in India showed a significant difference in age regarding the mode of poisoning, of which the 71 children aged one to six years, 97.2% had accidental poisoning, as compared to destructive (2.8%), and none with suicidal poisoning. While, among the 42 children aged 12 – 18 years, 80.9% had intentionally ingested the poison when compared to 19.1% with accidental poisoning ( $\chi^2 = 82.729$ ,  $p$ -value  $< .05$ ) (7).

In the current study, less than half (47.2%) was accidental. This finding is consistent with previous studies (14,18). In our study, the oral route was the main route of administration (60.4%). This was consistent with Riyadh, Al-Qassim, Australia and other studies (3,14-16,18).

The results revealed that (61.1%) had drug poisoning, where the most common drug poisoning cases were analgesic drugs (36%) since these drugs classified as over the counter medication, and it is easy to get. The chemicals were the cause of poisoning in (14.5%) of the cases. In Al-Dammam, found that drug poisoning was the cause of poisoning in (63.3%), and the most common medication exposures were analgesic (2). The study done in Al-Majmaah reported that 54.4% of the poisoning cases were medication poisoning, while the household chemicals count (30%) (16). In Riyadh study, the most common toxic form of medication was; analgesics (18.8%), From chemicals, the pesticides were the most common (39.6%) (3).

Concerning treatment and outcomes, we found that antidote was given to (11.6%) of the cases, and (21.0%) were under observation, there were no reported deaths and all the patients recovered. The study in Riyadh reported that most of the cases didn't receive any treatment, while 28% were treated by gut decontamination with activated charcoal and (1.8%) were given a specific antidote; also symptomatic treatment was needed for (3.1%) (3). In different studies, most of the cases were managed by observation only or received ER management. Variation in treatment and interventions between different region within Saudi Arabia raise the importance of standardizing the care for pediatric poisoning cases management (3,7,11,15,18).

These findings indicated the importance of providing families, caregivers, particularly childhood bearing age mothers with an adequate

education in all health sectors and also in mass media, to reduce morbidity and mortality rates.

### CONCLUSION:

*Based on the findings of the researcher study, the following can be concluded:*

- The adequate knowledge of chemical poisoning patterns in a particular place would help in detecting risk factors related to the situation, which help in early diagnosis, correct management, Hence reduction in morbidity and mortality rates.
- The majority of the cases in this study were from age group younger than five years .
- The most common symptoms were vomiting, nausea, drowsiness, abdominal pain, convulsion, and irritability.
- The most common poisoning types were analgesics, anticonvulsants, fire smoke inhalation, and pesticides.
- The rate of accidental and at home cases was significantly higher among younger children less than five years of age and females.

### RECOMMENDATION

*Based on the findings of the researcher study, the following can be recommended:*

- More community-based health education programs in order to increase the level of awareness on how to store the drugs , the suitable way of use , following doctors order in using , decrease the rate of over the counter medication use , with high level of supervision on children (childproof containers).
- Conducting workshops on the first aids skills to teach the public about how to manage poisoning cases before transferring the patients to hospital.
- Improve the documentation process to be more relevant and easy access for reporting systems.

### Conflict of entrance:

There was no conflict of entrance

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