Knowledge, attitude and practice among mothers toward home head trauma management in Riyadh, 2020-2021: A cross sectional study

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Abstract

Background: Head trauma is one of the major home accidents among children worldwide and could lead to long-life disabilities or death in severe cases. The worldwide incidence of pediatric traumatic brain injury ranges between 47 and 280 per 100,000 children. To the best of our knowledge, few studies have investigated the knowledge, attitude, and practice toward head trauma among mothers in Riyadh, Saudi Arabia. This study aims to assess the mother's knowledge, reaction, and immediate action toward head trauma of children under five years in Riyadh city, 2020-2021.

Methodology: A cross-sectional study using an online questionnaire was developed locally in Cluster one in Riyadh, Saudi Arabia. The study included 390 mothers who met the inclusion criteria. Data was collected by MS Excel and analyzed using SPSS version 26.

Results: In this study, we collected data from 390 mothers of children under five years old who responded to our distributed questionnaire. Most of the participants were between 31-40 years old (40 %), while 31.5 % were between 20-30 years old. Considering the source of knowledge of mothers toward home accidents, we found that 6 % did not know about home accidents, while 45 % took their knowledge from social media, and 14.9 % from school books. Furthermore, we found that 71.28 % of the mothers strongly agreed about the importance of attending courses on head trauma.

Conclusion: We found that the level of knowledge among mothers in Al Riyadh region toward managing head trauma and preventing home injuries among children is sub-adequate. Many factors affect this knowledge, including maternal education, monthly income and occupation, and attending first aid training.

Key words: head trauma, knowledge, attitude and practice, mothers Saudi Arabia

Introduction

Home is the most common place for accidents concerning the children because they spend a long time at home with their parents, particularly with their mother [1]. A head injury is defined as any trauma to the scalp, skull, or brain [2]. There are many reasons behind child home accidents, for example: falling from bed or sofa, tripping over furniture, high window, choking, toxic substances, swimming pools, and slip due to water in the bathrooms [3]. These injuries negatively impact children through affecting them physically, socially, and psychologically [4]. The incidence of pediatric traumatic brain injury worldwide ranges between 47 and 280 per 100,000 children. After the age of 3, male children suffer higher rates of traumatic brain injury than females [5].

Head trauma is one of the major home accidents among children worldwide and could lead to life-long disabilities and death in severe cases. The number of child home accidents exceeds the number of occupational and traffic accidents [6,7]. Approximately 90% of unintentional injuries among children are responsible for 950,000 death cases per year worldwide [8]. Children at home are always interested in discovering new things, especially those under five years, which exposes them to the risk of unintentional injuries and might lead to death [9]. Approximately 830,000 children worldwide die every year due to home injuries. Therefore millions of children require intensive hospital care to avoid lifelong disabilities [8]. In Saudi Arabia, the number of child home injuries have significantly increased in the hospitals' emergency departments. However, poor knowledge about the risk and the outcomes of home accidents was found among the populations [10].

In a review of previous studies, Al-Johani et al. [9] reported that most parents in Madinah City, Saudi Arabia had improper knowledge regarding first-aid management of epistaxis due to trauma, while almost one-third had proper knowledge. Almass et al. [11] reported that approximately 16.5% of the parents in Riyadh had a high level of awareness regarding the appropriate action after head trauma by keeping the child in a sitting position with the head slightly backward due to epistaxis. Nour et al. [12] carried out a study in Makkah, Saudi Arabia, to assess mothers' knowledge, attitude, and practice (KAP) regarding home accidents among children. The study results showed that approximately 36% of the mothers had poor knowledge, while 38% had a positive attitude, and one-third recorded appropriate practice toward child home accidents. Mothers with a high educational level, a higher income, those who attended first aid training about home accidents and who had a previous child home injury experience, showed a significantly high KAP level. Aktürk [13] conducted a study to assess mothers' knowledge, attitudes, and behaviors towards the associated factors with home accidents and theirprevention among children under five years. Most mothers had poor knowledge and attitude regarding home accidents and their prevention. Educational level, number of children and family persons, maternal age, economic status, and residence level were the most common factors affecting a mother's knowledge regarding home accident prevention. Megahed et al. [14] reported that mothers' educational and economic levels were significantly associated with a high score of mothers' knowledge and attitude regarding home accidents. These results agreed with previous studies by Eldosoky [15] and Halawa et al. [16], who indicated that mothers with university educational levels had a high score of KAP toward home child accidents. Mothers with high educational levels could attend first aid training and read texts regarding home child accident prevention. Kim et al. [17] reported a limited awareness regarding traumatic head injury (THI) among the public in Korea. Mothers above 18-years-old, living in Riyadh, with children below 5-years-old participated in this study through a questionnaire. By conducting this study, Mothers' knowledge regarding head trauma increase the chance of proper and rapid intervention, limit and prevent injury, increase the survival rate, and improve the outcome [9]. Therefore, the current study aims to assess the knowledge, attitude, and practice toward head trauma among mothers in Riyadh, Saudi Arabia.

Methodology

This is an observational cross-sectional study that was conducted on mothers with or without experience of head injury. A questionnaire was developed locally which is divided into four sections; the first section is demographic data including the age of the mothers, occupation, level of education, family income, and number of children, in addition to previous mother training in first aid, previous child with a head injury and the source of knowledge. The second section assessed the knowledge including; What mothers would do in case of head trauma, whether mothers will call for help, do ice packing, carefully watch for alarming signs such as unconsciousness or falling asleep or vomiting. The third section assessed the attitude including, safety measures like covering sharp edges, availability of first aid kit, using helmet while playing, and using anti-slipping mat, and lastly knowing the alarming signs of head trauma. The fourth section assessed the practice including calling an ambulance after head trauma, keeping a child away from wet floors, attending first aid courses, and sharing information with others. The same questionnaire was distributed online through social media and personal interviews for 3 months to reach a sample size of 384.

Inclusion criteria:
o All Mothers living in Riyadh city.
o Mothers aged above 18 years.
o Mothers of children below 5 years of age.

Exclusion criteria:
o Mothers not living in Riyadh city
o Mothers aged below 18 years.
o Mothers of children older than 5 years.
o Mothers who didn't complete the questionnaire.

Sample size:
o Population size: (We divided by neighborhoods in the questionnaire).
o Sample size: Total population of cluster one in Riyadh is 1,600,000, 20% of them are women of childbearing age, that is 320,000 women, and 60% of the childbearing age women are married, that is 192,000 women. By using a computerized auto-calculator with a CI level of 95% and 5% margin of error, the sample size is: 384
o Sampling technique: Random sampling technique.

Ethical consideration:
After IRB approval, confidentiality was assured to all participants who agreed to participate in the study. The privacy and confidentiality of the data and study results were secured by restricting unauthorized access. A brief description of the study and its objectives were explained to all participants.

Statistical Consideration:
Data were collected using Excel sheets and were analyzed using SPSS, version 26. Frequency and percentages were used to present all categorical variables. with main variables demographic data, mother's Knowledge, mother's Attitude, and mother's practice. Chi-square was used to assess the differences within the categorical variables. A P-value lower than 0.05 was considered to be significant.

Results

In this study, we were able to collect data from 390 mothers of children under five years old who responded to our distributed questionnaire. Most of the participants were aged between 31-40 years old (40 %) while 31.5 % were aged between 20-30 years old. More than half of the sample were working at a public job other than a healthcare-related job while 37.95 % of them reported not working. Moreover, 53.3 % of mothers reported having university degree while 43.5 % had a high school education or lower. Considering family income, we found that 48 % of the participants had a monthly income between 5000 and 10000 SR and 40 % had lower than 5000 SR income. Moreover, 36.4 % of the participants reported having two children and 34.9 % had more than two while 12 % of them had indicated having previous first aid training. Considering the prevalence of head injuries among children, the mothers reported a prevalence of 7.2 %. We found that the prevalence of head injuries among children under 5 years was significantly related to the mother's age, occupation, education, family income, and the number of children in the family. In general, a higher prevalence of head injuries was reported in older mothers (30.4 % in mothers over 50 years old compared with 4.1 % in 20-30 years old), in working mothers especially those who work at a healthcare institution (15.6 %), in lower educated mothers (11.7 %), lower maternal income and higher number of children (11.8 % in families with more than two children compared with 3.6 % in families with one child). Table 1.

Considering the source of knowledge of mothers toward home accidents, we found that 6 % did not know about home accidents, while 45 % took their knowledge from social media, 14.9 % from school books, 14 % from books and newspapers while physicians and nurses were the main source of knowledge only for 13 % of mothers (Figure 1).

Considering the level of knowledge of mothers toward management of head injuries among children under the age of five, mothers were divided into having an adequate and an inadequate level of knowledge. Adequate knowledge is considered when answering 7 of 10 questions correctly. We found that 35.13 % of mothers had adequate knowledge about the management of children with head injuries. In this review, we did not find a significant relationship between the age of the mothers and their level of knowledge (P=0.125) while the occupation of the mothers had a significant impact on their knowledge (P=0.000). Mothers working at a healthcare institution had the highest level of knowledge where 87.5 % of them had adequate knowledge compared with 30.48 % and 30.41 % of mothers working at other jobs and non-working mothers respectively. Moreover, we found that the higher the level of education of the mothers, the significantly higher the adequacy of knowledge about head injuries in their children (P=0.000). Furthermore, we found that the level of knowledge was significantly higher in mothers with better monthly income (p=0.00) however number of children did not significantly affect the knowledge. Finally, we found that the participants who reported having previous first aid training had a significantly higher level of knowledge (74.47 % was adequate compared with 29.74 %, P=0.000).

Considering the attitude of mothers toward protective measures to reduce the incidence of head trauma and its relation with their knowledge, we found that 70.26 % of mothers would cover furniture edges while 3.1 % would leave their children alone at home. Moreover, 48.46 % thought first aid kits should be available at their homes, and 45.64 % reported using personal protective equipment. Furthermore, 51.54 % of the mothers reported using anti-slipping mats, and 40 % thought that children could go to sleep after head trauma and 60.51 % of the mothers thought they could act properly in the time of injury. Considering the impact of knowledge on attitude, we found that mothers' knowledge toward management of head trauma had a significant impact on their attitude where adequate knowledge was significantly related to the positive attitude of mothers (Table 3).

Moreover, we found that 38.46 % of the mothers would call an ambulance or emergency services in case of child having head trauma, while 32.82 % strongly disagreed with that while only 20.51 % of the mother would keep children away from wet floors. Furthermore, we found that 71.28 % of the mothers strongly agreed about the importance of attending courses on head trauma. Moreover, 67.1 % and 49.23 % of the participants would agree to transfer experience in dealing with head trauma to others and teach family members and friends about head trauma in children (Table 4).

Table 1: Demographic factors of the participants (n=390) and their relation to the incidence of head inju reported by the participants

		Total sample		Has your child ever had head inj home			
				Yes		No	
		N	N %	N	N %	N	N %
Total				28	7.2%	362	92.8%
Mother's age	20-30	123	31.50%	5	4.1%	118	95.9%
	31-40	156	40.00%	4	2.6%	152	97.4%
	41-50	88	22.60%	12	13.7%	76	86.3%
	> 50	23	5.90%	7	30.4%	16	69.6%
Occupation	Not working	148	37.95%	3	2.1%	145	97.9%
	Workingat a healthcare institution	32	8.21%	5	15.6%	27	84.4%
	Not working at a healthcare institution	210	53.85%	20	9.5%	190	90.5%
Mother's education	Below/in high school	170	43.50%	20	11.7%	150	88.3%
	University	208	53.30%	7	3.4%	201	96.6%
	Higher education	12	3.00%	1	8.3%	11	91.7%
Family income/month (Riyal)	< 5000 SR	156	40.00%	22	14.1%	134	85.9%
	5000-10,000 SR	187	48%	5	2.7%	182	97.3%
	> 10,000 SR	47	12.10%	1	2.1%	46	97.9%
No. of children	One child	112	28.70%	4	3.6%	108	96.4%
	Two children	142	36.40%	8	5.6%	134	94.4%
	More than two children	136	34.90%	16	11.8%	120	88.2%
Previousfirst aid training	Yes	47	12%	1	2.1%	46	97.9%
	No	343	88%	27	7.9%	316	92.1%

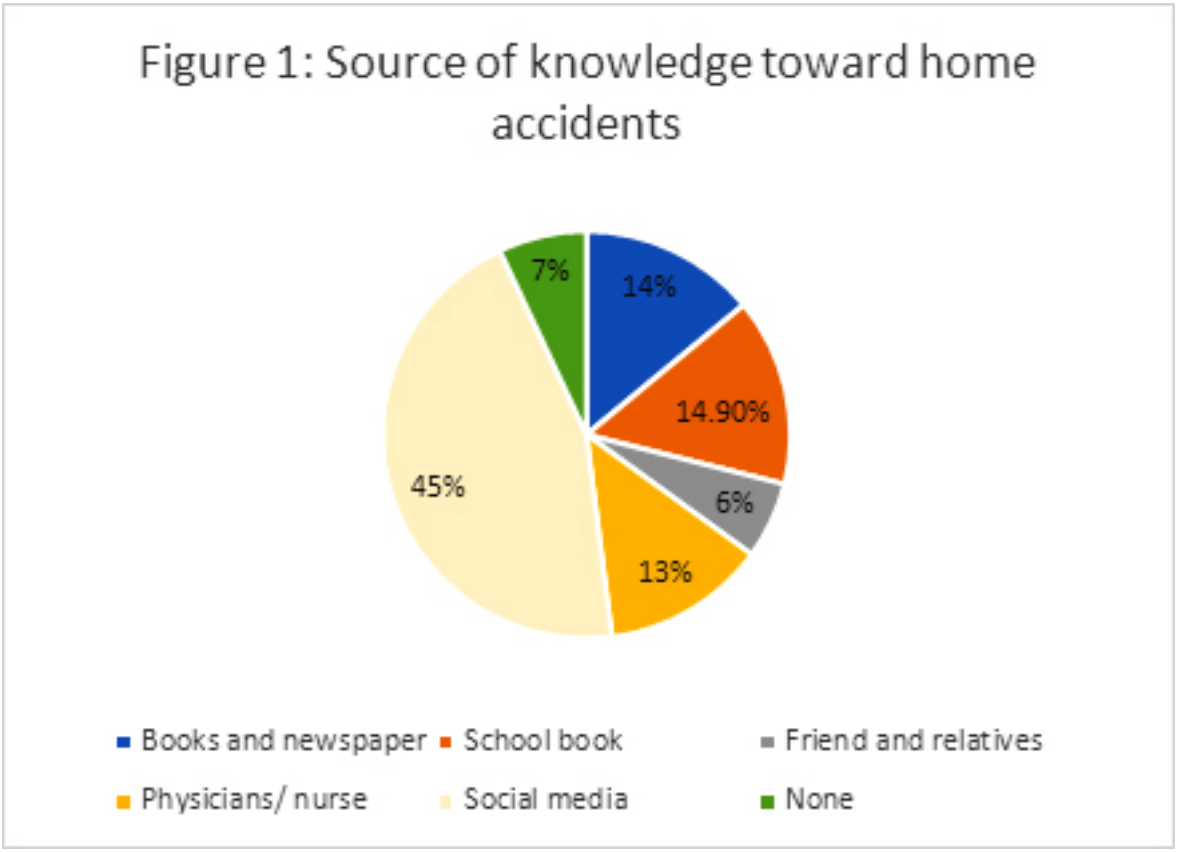
Figure 1: Source of knowledge toward home accidents
7%
14%
14.90%
45%
6%
13%
Books and newspaper
School book
Friend and relatives
Physicians/ nurse
Social media
None

Table 2: The level of knowledge of mothers toward management of head injuries among children under 5 years and its relation with maternal demographic factors

		Knowledge about head injuries among children under 5 years				
		Adequate		Inadequate		
		N	N%	N	N%	P-value
Total		137	35.13%	253	64.87%	
Mother's age	20-30	45	36.59%	78	63.41%	0.125
	31-40	54	34.62%	102	65.38%	
	41-50	30	34.09%	58	65.91%	
	> 50	8	34.78%	15	65.22%	
Occupation	Not working	45	30.41%	103	69.59%	0.000*
	Working at healthcare institution	28	87.50%	4	12.50%	
	Not working at healthcare institution	64	30.48%	146	69.52%	
Mother's education	Below/ in high school	38	22.35%	132	77.65%	0.015*
	University	91	43.75%	117	56.25%	
	Higher education	8	66.67%	4	33.33%	
Family income/month (Riyal)	< 5000 SR	45	28.85%	111	71.15%	0.001*
	5000-10,000 SR	70	37.43%	117	62.57%	
	> 10,000 SR	22	46.81%	25	53.19%	
No. of children	One child	38	33.93%	74	66.07%	0.15
	Two children	51	35.92%	91	64.08%	
	More than two children	48	35.29%	88	64.71%	
Previous first aid training	Yes	35	74.47%	12	25.53%	0.000*
	No	102	29.74%	241	70.26%	

Table 3: Attitude of mothers toward protective measures to reduce the incidence of head trauma and its relation with their knowledge

	Total sample						Knowledge		
	Yes		Sometimes		No		Adequate	Inadequate	
	N	N%	N	N%	N	N%	Yes %	Yes %	P-value
Furniture edges are covered.	274	70.26%	53	13.6%	63	16.2%	88.3%	60.5%	0.00*
Leave children alone at home.	12	3.08%	18	4.6%	360	92.3%	1.5%	4.0%	0.00*
First aid kit is necessary in my home.	189	48.46%	58	14.9%	143	36.7%	62.8%	40.7%	0.00*
Using Personal Protective equipment	178	45.64%	95	24.4%	117	30.0%	59.9%	37.9%	0.00*
Use Anti-slipping mat	201	51.54%	48	12.3%	141	36.2%	61.3%	46.3%	0.00*
Child got sleepy after head trauma	156	40.00%	48	12.3%	186	47.7%	52.6%	33.2%	0.00*
Ability to act properly.	236	60.51%	98	25.1%	56	14.5%	88.3%	45.5%	0.00*

Table 4: Maternal practice toward head injuries among children under 5 years old

	Strongly disagreed (0-4)		Neutral (5)		Strongly agreed (6-10)	
	N	N %	N	N %	N	N %
Call ambulance/emergency services if had head trauma.	128	32.82%	112	28.72%	150	38.46%
Keep children away from wet floors.	196	50.26%	114	29.23%	80	20.51%
Attend courses on head trauma.	14	3.59%	98	25.13%	278	71.28%
Transfer experience in dealing with head trauma to others.	11	2.82%	117	30.00%	262	67.18%
Teach Family and friends about head trauma.	36	9.23%	162	41.54%	192	49.23%

Discussion

Unexpected injuries continue to be a leading cause of death, disease, and long-term disability in childhood, but they can often be prevented with appropriate information and safe practices [18]. Young children are especially vulnerable because of their inner desire to explore the world and their inability to understand the dangers of their actions [14]. When children learn by experience, minor injuries are bound to occur, but providing a safe environment can reduce close observation risks and safety margins [2]. Most accidents affecting children at home can be prevented or reduced if parents, especially mothers, know what to do right away [15]. Recent publications indicate that domestic accidents, accidents, and injuries can be successfully avoided or are at least a concern [15,18–20].

According to our knowledge, this is the first study that has focused on maternal knowledge considering head trauma in children under the age of five. In our study, the prevalence of head injuries among children reported by mothers was 7.2 %. Higher prevalence was noticed in older mothers, working mothers, especially those who work at healthcare institutions, lower educated mothers, lower maternal income, and a higher number of children. In a study conducted by Trefan L et.al., the authors reported that the prevalence of head injuries in children under 15 years old who were admitted to the hospital was 11.2 % [21]. However, the prevalence was significantly lower in another study conducted by Krupa J et al. in the USA; the authors reported that the lifetime estimate of parent-reported traumatic brain injuries among children was 2.5% [22]. According to the national center for health statistics report, based on parental reports, the prevalence of head trauma among children was 8.3 % among boys and 5.6 % among girls [23]. According to the study of Akturk U, the author confirmed our results that the prevalence of head injuries in children was significantly higher among older mothers, mothers with a higher number of children, less educated mothers, and housewives [13].

Considering maternal knowledge toward managing head injuries of children less than five years, we found that 35.13 % of mothers had an adequate level of knowledge. Generally, knowledge of managing head injuries was not affected by the mothers' age or the number of children, but rather by occupation, educational level, family income, and previous first aid training. In a study conducted by Megahed M et al., the authors found that only 25.1 % of mothers had adequate knowledge of home injuries among children less than five years. The authors confirmed our results that the level of knowledge was not affected by the mother's age but by the mother's education, job, and socioeconomic level [24]. Some previous studies found that the level of knowledge among mothers toward managing head trauma and preventing home injuries among children is sub-adequate [9,11]. The low percentage of mothers who reported having adequate knowledge could be explained by our analysis, which shows that only 13 % of mothers had knowledge of head injuries from healthcare professions. Instead, most of them took their knowledge from social media, friends, books, and newspapers. This result was also reported in many previous studies that were conducted in a similar environment as our study [9,11,15,18]. Having knowledge from the profession could increase the correct awareness about head trauma in children and improve maternal knowledge. Our results and the results of other studies confirmed that mothers who had previous training about first aid would have a higher level of knowledge than those who did not [13,25–27]. This indicates that there is a necessary need to encourage mothers to attend first aid training, which could increase their level of knowledge and provide them with the knowledge that enables them to deal with these injuries and reduce the negative consequences.

Fortunately, we found that 70.26 % of the mothers in this study covered furniture edges, 92.3 % would never leave children home alone, 51.54 % would use anti-slipping mats, and 48.46 % would always keep a first aid kit at home. This positive attitude to reduce head injuries at home is significantly related to mothers' level of knowledge. Many previous studies reported the relation between attitude and knowledge of mothers considering accidental injuries at home [13,23,27]. Furthermore, we found that 71.28 % of the mothers strongly agreed about the importance of attending courses on head trauma. These results were similar to other studies conducted in Riyadh, Egypt, and India, where most mothers agreed that they should know about first aid and were all willing to undergo training on first aid [7,11,15]. These are valuable findings that should encourage authorities to organize and implement effective programs in first aid for mothers in Riyadh region.

This study had some limitations, including the dependence on a self-reported questionnaire for collecting the data. Using a self-reported questionnaire could lead to some personal bias. For example, some mothers may not be able to diagnose head trauma, thus lowering the actual prevalence of head trauma. Moreover, the online distribution of the questionnaire may lead to some sampling bias toward younger participants and those who use social media, which may affect their attitude in choosing social media as the primary source of information.

In order to reduce the prevalence of home injuries generally and head trauma specifically, we recommend increasing the awareness level of the parents and the whole community using educational programs that aim to prevent home injuries of children. Moreover, these programs would increase mothers' awareness toward safety measures that should be applied at home and increase their awareness of first aid, leading to decreased mortality and morbidity of these injuries.

In conclusion, we found that the level of knowledge among mothers in Al Riyadh region toward managing head trauma and preventing home injuries among children is sub-adequate. Many factors affect this knowledge, including maternal education, monthly income, occupation, and first aid training. Moreover, we found that the attitude of mothers toward head injuries is significantly associated with their knowledge. Therefore, we recommended increasing mothers' awareness in Al-Riyadh region toward head injury management.

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