

Car Safety Seats and Restraints for Children in Al Ahsa, Saudi Arabia: Knowledge, Attitudes, and Practices

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ABSTRACT

Background: Injuries caused by road traffic are a significant public health concern. In the 0-12-year age group, among the leading causes of death, unintentional injuries are considered the second and main cause of morbidity due to the safety of children in cars. According to statistics, approximately 4.7% of deaths in Saudi Arabia are caused by road traffic, while fatalities from road traffic do not exceed 1.7% in Australia, the United Kingdom, or the United States. Road traffic injuries killed more people in Saudi Arabia than in any other country with a high income.

Aim: In this study, parents' knowledge, attitudes, and practices were evaluated regarding child safety regarding child car seats in Al Ahsa community.

Methods: A cross-sectional descriptive study was done from November 10 to December 31, 2022. The data were collected using a 19-question survey. A convenience sampling of 379 samples was conducted.

Results: In one-quarter of the participants, (24.8%) had the wrong answer when we asked them whether it is safer to hold a newborn baby in their arms than placing them in baby car safety seats, while (5.8%) did not know what is safe. Regarding the knowledge about the right way to put the car safety seat for children aged 2-4 years, near to one quarter (23%) answered wrong answer, while (11.1%) did not know how to fix it in the car. In relation to fixing the car safety seat for children aged below 2 years, only half the participants (54.6%) knew the right way. The mean score of knowledge was 3.37/5 with Std dev. ± 1.52 . In relation to practices and attitudes, (11.9%) said that the child is afraid to sit in the back seats, while (68.3%) said they do. (92.9%) of respondents believe that child safety seats are important. (14%) reported not using the seatbelt for children while (18.7%) reported using it sometimes. (67.3%) of those surveyed reported using seatbelts for all their children under the age of eight. There were (66.6%) of participants with acceptable knowledge and attitude scores, while (31.4%) had low scores. Parents' education level and their knowledge level were found to be significantly correlated. Parents' knowledge about care safety increased with the number of children, but there was no significant correlation between knowledge level and gender or number of children.

Conclusion: According to the study, car safety seat noncompliance includes multiple variables that can be modified. The study could raise awareness by focusing on a major public health issue and providing outreach on child safety in cars. Residents of Al Ahsa generally had a positive attitude and good knowledge of car safety seats.

Keywords

Attitude, Car Seats, Children safety, Knowledge, Parents, Practices, Saudi Arabia.

Introduction

There is a significant public health problem associated with road traffic injuries [1]. Worldwide, more than 1.3 million people died and 50 million were injured or disabled because of road traffic crashes. In accordance with the World Health Organization (WHO). Two-thirds of all road traffic deaths occur in the Southeast Asian and Western Pacific regions. Between 40% and 65% of serious or fatal injuries can be prevented by wearing a seatbelt [2].

Across the globe, motor vehicle collisions (MVCs) lead to a high number of children's deaths. An accident's outcome is heavily influenced by the position of the child during the accident. Car seats stabilize children during accidents and reduce morbidity and mortality significantly. There is a high risk of unintentional injuries among children [3]. The injuries caused by MVCs can be life threatening for children. Children are most likely to be kept safe when traveling in cars if they are restrained in car safety seats (CSS) [4].

In the 0–12-year age group, unintentional injuries is a leading cause of mortality and a major cause of morbidity. Childhood injuries negatively effects families and overall communities. Each year, many non-fatal injuries occurred which may require hospitalisation or primary care appointment. Therefore, Parents' knowledge of unintentional injuries is crucial element in preventing these type of injuries [5].

Despite the fact that road deaths are common in developed countries, nearly three-quarters occur in developing countries. According to statistics from the Kingdom of Saudi Arabia, road traffic fatalities represent 4.7% of all fatalities, even though fatalities from road traffic are below 1.7% in Australia, the United Kingdom, or the United States [6]. In KSA, road fatalities have also increased over the last decade [7]. Road traffic injuries (RTIs) killed more people in Saudi Arabia than in any other country with a high income (the accident to death ratio is 32:1 versus 283:1 in USA) [2].

According to the Saudi Arabian Ministry of Health (MOH) hospital diseases and death statistics, 20% of the beds in the hospitals are occupied by RTA victims, and 81% of deaths occur from road traffic injuries (RTIs). Additionally, 3,202 injuries caused by road traffic (2018-2020) were under 18 years old [8]

The Ministry of Health (MOH) reports that a fifth of those died in traffic accidents are children under the age of 15. Furthermore, traffic accidents cause 10% of child deaths in Saudi Arabia [3]. According to a study done in the UAE, improperly installed child car seats increase head injury risk by four times. Additionally, children riding in the rear seat of a motor vehicle are less likely to suffer injuries than those in the front [9]. KSA is facing an increasing burden of traffic accidents. According to the Minister

of Health, MOH Using CCS can effectively decrease the chance of getting injured by 82%, and decrease death by 60%, which can reduce the length of time spent in the intensive care unit, which may affect hospitals, healthcare providers, and the government.

The most common cause of death among children and young adults aged 5-29 is motor vehicle crashes, and this is likely to continue in the future [10]. Despite being a developed high-income country, Saudi Arabia has a high rate of traffic injuries [11]. There is widespread recognition that MVC injuries can be prevented. However, KSA still lags behind when it comes to safety awareness and using of safety measures [12,13].

Safety measures have long been recognized as essential for reducing injuries following MVCs in developed countries. The levels of compliance with seatbelts and child car seats in Australia and the United States are high (86-97%) [14]. Kids' restraints, including car seats, seat boosters, and seat belts, provide good protection from bodily injuries and reduce the risk of death by 71% and 54% for infants and young children, respectively [12].

There are many options available when it comes to car safety seats (CSS). Use stage-appropriate security seats that provide more protection than sitting in the backside chairs. Nevertheless, backseat safety seats are the best way to prevent injury in MVCs [15].

The use of child restraints differs from developed to developing countries [16]. Even though Saudi law mandates the use of safety measures such as seatbelts and car seats for children, only 15.3% of children use them consistently [17].

Globally, researchers are recognizing the importance of parental knowledge and attitudes when it comes to establishing compliance with CCRs [4,18,19].

Nevertheless, safety measures such as car seats for children are largely ignored in the community. Locally standardized information on RTAs among children is scarce; therefore, assessing community awareness is very important. Aside from the potential for mortality, children may suffer nonfatal injuries that result in permanent disabilities that affect their health and healthcare utilization for extended periods. In this study, we assessed parents' knowledge, attitudes, and practices about child safety regarding child car seats in Al Ahsa community.

Methods

Study design

From November 10 through December 31, 2022, a descriptive cross-sectional study was conducted. The data were collected using a 19-question survey divided into three parts: The first part involved of 8 demographic questions (gender, age, marital status, relation to child), while the second section consisted of five multiple choice questions about knowledge. Section three contains six questions about practices and attitudes related to children's car seat utilization.

Participants

The convenience sampling included 379 samples with inclusion criteria of parents with at least one child under 12 years of age, residents of Al Ahsa city, and capable of reading and writing Arabic or English. The study was not discriminatory in terms of gender; participants who gave consent were included. Through social media, convenient sampling techniques were used to collect data from participants. Prior to beginning the questionnaire, the participants were informed about the research's purpose. A number of ethical considerations were also taken to ensure the confidentiality and privacy of the collected data.

Ethical approval

The research was permitted by Ethics Committee at King Faisal University, Ref. No. KFU-REC-2022-OCT-ETHICS253

Data Analysis

Statistical analysis was performed with SPSS Ver 23. Categorical variables were presented using descriptive statistics in the form of percentages and frequencies. Testing for normality was performed on continuous variables. A Pearson Chi-square test was used to analyze any possible statistical relationship between categorical variables. A p-value of 0.05 was considered statistically significant.

Results

The purpose of this study was to assess parents' knowledge and attitudes regarding the use of safety procedures in cars for children in Al Ahsa, Saudi Arabia. A total of 379 participants from 412 received the survey were included in our final analysis. Table 1 illustrates the demographic data of the participants. The participants included 313 (82.6%) females and 66 (17.4%) of males. The employed participants were 218 (57.5%). Majority of the participants 208 (54.9%) had bachelor or higher degree of education. Near to half of the participants 188(49.6%) had 2 to 4 children. Near to one-third of the participants 111 (29.3%) had moderate income from 4000 to 7000 SR. more than one-third of the participants 162 (42.7%) had big car "4 by 4 car". More than half of the participants 228 (60.2%) had flat to live in.

Table 1: Socio-demographic details of the participants.

Item	Frequency	Percent
Gender		
Female	313	82.6
male	66	17.4
Occupation		
Unemployed	161	42.5
Employed	218	57.5
Educational Level		
Illiterate	15	4.0
Primary	5	1.3
High school	99	26.1
Diploma	52	13.7
Bachelor or higher	208	54.9
Number of children		
one child	122	32.2
2-4 children	188	49.6
5 children or more	69	18.2

The youngest child age		
from 1 - 2 years old	100	26.4
from 2.1- 4 years old	103	27.2
from 4.1- 6 years old	88	23.2
from 6.1- 12 years old	88	23.2
Family income		
less than 2000	32	8.4
from 2000-4000	50	13.2
from 4000-7000	111	29.3
from 7000-10000	77	20.3
more than 10000	109	28.8
Car type		
small	217	57.3
family (big)	162	42.7
Type of house		
Traditional extended family house	49	12.9
Apartment (flat)	228	60.2
Villa	102	26.9

Table (2) illustrates the participants' knowledge about car safety seats for children. Most of the participants 317 (83.6%) knew about the best place to put the child while driving, and answer that it should be in the back seat. In one-quarter of the participants, 84 (24.8%) had the wrong answer when we asked them whether it is safer to hold a newborn in their arms than placing them in baby car safety seats, while 22 (5.8%) did not know what is safe. Regarding the knowledge about the right way to put the car safety seat for children aged 2-4 years, near to one quarter 87 (23%) answered wrong answer, while 42 (11.1%) did not know how to fix it in the car. In relation to fixing the car safety seat for children aged below 2 years, only half the participants 207 (54.6%) knew the right way. Regarding the best place for putting child car safety seats, near to two-thirds of the participants 239 (63.1%) knew the right place. The mean score of knowledge was 3.37/5 with Std dev. ± 1.52 .

Table 2: Parents' knowledge about Car Safety Seats for children.

Item	Frequency	Percent
The best place to put your child while driving is ...		
In the front seat	45	11.9
In the back seat	317	83.6
I don't know	17	4.5
Is it safer to hold a newborn baby in your arms than placing them in baby car safety seats?		
I don't know	22	5.8
no	263	69.4
yes	94	24.8
Do you know how to use car safety seats for children aged 2-4 years?		
Don't know	42	11.1
Rear-facing	87	23.0
Forward facing	250	66.0
Do you know how to use Child seat car for children below 2 years ?		
I don't know	83	21.9
Rear-facing	207	54.6
Forward facing	89	23.5
The best place for putting child car safety seats is in the...		
Front seat	39	10.3
Center of the back seat	67	17.7
The right or left side of the back seat	239	63.1
No difference	34	9.0
Total knowledge score mean	3.37/5	Std dev. ± 1.51537

Table 3 illustrates participants' attitudes and practices regarding child car safety seats. When asked why they do not use child car seats, 45 (11.9%) said the child is afraid to sit in it, while 259 (68.3%) said they do. 352 (92.9%) of respondents believe that child safety seats are important. 53 (14%) reported not using the seatbelt while 71 (18.7%) reported using it sometimes. 255 (67.3%) of those surveyed reported using seatbelts for all their children under the age of eight. The majority of respondents (132, 34.8%) said that the child's car safety seat is used every time the child travels in the car. When asked if they used their child's safety seatbelt correctly, 158 (41.7%) reported doing so.

Table 3: Parents' attitudes and practices regarding car safety seats for children.

Item	Frequency	Percent
What do you think are the causes of not using child car seats?		
I use it	259	68.3
The child is too young	8	2.1
the child refused	36	9.5
I do not see it as an importance	31	8.2
the child is afraid of sitting in the seat	45	11.9
Do you think that car safety seat is important?		
Yes, so children's seats will be used	352	92.9
No, so it will not be used	27	7.1
Do you use a car seatbelt when sitting behind the driver?		
Sometimes	71	18.7
No	53	14.0
Yes	255	67.3
Do you use car safety seatbelts for all your children under the age of eight?		
No	122	32.2
Yes	257	67.8
How often do you use a child's car safety seat?		
Sometimes	122	32.2
Frequently	75	19.8
Every time the child rides the car	132	34.8
Never	50	13.2
Is the child's car safety seatbelt used correctly in the car?		
Never used	60	15.8
Sometimes used	130	34.3
The seatbelt is used correctly	158	41.7
The seatbelt is used but wrongly	31	8.2
Mean score for knowledge	4.86 ± 1.59	

Table 4 shows the knowledge and attitudes of the participants in the study. In total, 260 (68.6%) participants had acceptable knowledge and attitude scores, while 119 (31.4%) had low scores.

Table 4: Participants knowledge and attitude level.

	Frequency	Percent
Acceptable (mean or above)	260	68.6
Low (less than the mean score)	119	31.4
Total	379	100.0

The correlation between knowledge level and demographic data is illustrated in Table 5. A significant correlation was found between the knowledge level of parents and their educational level. Despite

the fact that the knowledge level of parents about care safety increased with the number of children, there was no significant relationship between knowledge level and gender or number of children.

Table 5: Correlation between the level of knowledge and demographic data.

		Sum
Gender	Pearson Correlation	.070
	Sig. (2-tailed)	.174
Educational Level	Pearson Correlation	-.211**
	Sig. (2-tailed)	.000
Number of children	Pearson Correlation	-.074-
	Sig. (2-tailed)	.149

Discussion

In a vehicle, keeping the child safe is one of the most significant jobs a parent has [20]. The aim of this study was to assess parents' knowledge, attitude, and practices toward child safety regarding child car seats in Al Ahsa community.

Among the participants in our study, 47.3% utilized car safety procedures for children., also in one-quarter of the participants, (24.8%) had the wrong answer when we asked them whether it is safer to hold a newborn baby in their arms than placing them in baby car safety seats, while (5.8%) did not know what is safe.

In a study done in Shanghai, only 15.7% of parents indicated that they used a safety seat every time the child travelled in the vehicle [21]. Another study in Labanon revealed that the rates for child car restraint and helmet use were 25.8% and 20.1%, respectively [22].

Regarding the knowledge about the right way to put the car safety seat for children aged 2-4 years, near to one quarter (23%) answered wrong answer, while (11.1%) did not know how to fix it in the car. In relation to fixing the car safety seat for children aged below 2 years, only half the participants (54.6%) knew the right way. In total, (68.6%) of participants had acceptable knowledge and attitude scores, while (31.4%) had low scores. In the AlSallum GA study, they found (64.3%) of participants were having inadequate information while (35.7%) were having good information. these results' similarities may be related to the same country and the same level of culture and beliefs.

There were major differences in traffic characteristics and road safety compliance across governors based on geographical location [20,22]. In relation to practices and attitudes, (11.9%) said that the child is afraid to sit in the back seats, while (68.3%) said they do. As reported in AlSallum GA, 2019 in KSA, one of the most common reasons cited was "child refusal." (22.8%). The study in China also found that the main reasons for not using a safety seat included difficulty finding safety seats (56.6%). These results in developing countries in contrast with that range globally from 99.0% in developed countries [22,24].

In the present study (92.9%) of respondents, believe that child safety seats are important. (14%) reported not using the seatbelt for children while (18.7%) reported using it sometimes. (67.3%) of those surveyed reported using seatbelts for all their children under the age of eight. In another study in KSA there were many parents

who weren't aware of the importance of child safety seats [3]. In Lebanon they reported that only 25.8% of children were restrained in a car child safety seat (i.e. car seat, booster seat or seat belt) There were (66.6%) of participants with acceptable knowledge and attitude scores, while (31.4%) had low scores. Parents' education level and their knowledge level were found to be significantly correlated. Parents' knowledge about care safety increased with the number of children, but there was no significant relationship between knowledge level and gender or number of children.

Conclusion

According to the study, car safety seat noncompliance includes multiple variables that can be modified. The study could raise awareness by focusing on a major public health issue and providing outreach on child safety in cars. In general, Al Ahsa residents had a positive attitude toward car safety seats and good knowledge of them. To avoid trauma and disability-related road traffic accidents, universities can work with health organizations to handle campaigns emphasizing the magnitude of using the car safety seats. In addition, children's safety restraints should be promoted in KSA through injury prevention interventions that promote their benefits.

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