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Research Article

**KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS
CHILDREN'S CAR SAFETY SEAT AMONG FEMALE
TEACHERS IN SECONDARY SCHOOLS IN TAIF CITY,
KSA, 2021**

Jawaher Awwadh Eidhah Althomali¹, Mohammed Deifallah Alzaydi².

¹Family Medicine Resident R4 MBBS, MOH, Taif, Saudi Arabia.

²Family Medicine Consultant.

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Abstract:

*This study aimed to explore the knowledge, attitude, and practice of using children car seats among female teachers in Taif, KSA, as well as to associate sociodemographic data with the use of children car seats. **Methodology:** An analytic cross-sectional study for determination of knowledge, attitude, and practice towards children car safety seat among female teachers in Secondary Schools in Taif City, KSA. The data was collected using a pre-designed self-administered questionnaire and analyzed using the Statistical Package for Social Sciences (SPSS) 26. **Results:** The study included 267 females working as teachers (93.3%), or leaders (4.5%), or leader assistants (2.2%) in secondary schools in Taif, KSA. The majority of participants were aged more than 35 years (68.5%), married (59.2%), have university education (100%), work as a teacher (93.3%). The study found that there was a significant association between safety seat usage and age ($P = 0.003$), number of offspring ($P = 0.000$), occupation as being teacher was associated with more use of safety seat than school leader or leader assistant ($P = 0.017$), average family monthly income ($P = 0.004$), using a large (family) car was in comparison to small car ($P = 0.000$), and use of seatbelt ($P = 0.000$). Moreover, the study found that using CSS during RTA was significantly associated with lower severity of injury to the children involved ($P = 0.000$). **Conclusion:** Using children safety seat was associated with less severity of injury and it was more practiced by the younger participants with higher average monthly income, who also use seatbelts in front seats. We recommend more emphases to be implemented to reduce the casualties resulting from road traffic accidents involving children by increasing awareness of age-appropriate safety seat use.*

Corresponding author:

Jawaher Awwadh Eidhah Althomali,

Family Medicine Resident R4 MBBS,

MOH, Taif, Saudi Arabia.

QR code



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BACKGROUND:

The World Health Organization (WHO) defines road traffic injuries as “fatal or non-fatal injuries resulting from a road traffic collision.” In contrast, a road traffic crash is defined as “an occurrence involving at least one moving vehicle that may or may not end in harm and happens on a public road.” (1). Around the world, motor vehicle collisions (MVCs) are the leading cause of injury-related mortality in children. Using a Web-Based Injury Statistics Query and Reporting System, these injuries account for 41% of all children’s injuries. (2) In 2010, 3,554 children were murdered in the United States due to MVCs, with 14% of them being under the age of four. (3)

Every year, around 1.25 million people die due to road traffic injuries, and more than 50 million people are wounded or crippled as a result of road traffic incidents across the world. (4) According to the World Health Organization, if proper and sustained efforts are not taken, road traffic injuries will become the seventh-largest cause of death by 2030. (4) Despite owning just 54 percent of the world’s motor vehicles, low and middle-income nations account for more than 90% of road traffic-related deaths, “death occurring within 30 days of the road traffic collision.” (4)

Road traffic injuries inflict physical and emotional harm to people and put a strain on the country’s and households’ economies. (5) Around the world, \$518 billion is spent on road traffic accident recovery. (6) Families, relatives, and other caregivers of victims and survivors of traffic accidents endure psychological and financial consequences. Households are pushed into poverty when their breadwinner dies or must pay for medical treatment for a sick or disabled family member. (5) Every hour, almost 150 children are treated in emergency rooms worldwide for road traffic accidents. (7) The global rate of child road traffic injury and disability is estimated to be over 10 million per year, resulting in 9482 disability-adjusted-life years lost for children and adolescents aged 0 to 15. (5)

Furthermore, road traffic injuries kill more children and teenagers between the ages of 5 and 19 than any other form of injury. (7) In 2004, more than 260 000 children and teenagers aged 0 to 19 years perished due to automobile accidents throughout the world. (5) Children injury risk factors include speeding, drinking and driving, not wearing safety equipment, and other issues relating to vehicle features and environmental safety all contribute to road traffic injuries. (5)

Numerous worldwide emphases have been put to reduce RTAs and subsequent human injuries (8-14). The number of reports of car accidents in the Middle East is staggering. Saudi Arabia had the greatest number of fatalities out of all Arab nations in 2004. (10) According to a Saudi traffic study from 2008, 6,458 people died in car accidents, with 995 of them being minors. (11) With an estimated death rate of 27.4 per 100,000 people, Saudi Arabia has one of the highest rates of road injury and mortality and morbidity connected with it, compared to 10.6 in the US and 2.9 in the UK. (12)

Since December 2000, Saudi legislation has made the usage of seat belts for drivers and passengers in front seats mandatory, with enforcement in place to guarantee compliance. However, compliance remains low. (14) Furthermore, there are no official statistics to show the prevalence of CRS usage in Saudi Arabia and no national requirements in terms of age, weight, or height to verify that children are using the proper seat. (8) As a result, this study assessed secondary school female teachers’ knowledge, attitudes, and practices on automobile safety seats in Taif, Saudi Arabia.

Aim

The aim of this study is to assess the knowledge, attitude, and practice of children’s car seats among Female Teachers at Taif city, KSA.

Objectives

- To Explore knowledge, attitude, and practice of children car seats among female teachers in Taif city regarding child car seat
- To assess the level of awareness regarding the children car set
- To correlate demographic data like the level of education, socioeconomic status, and other factors that can affect the behaviour regarding car seats.
- To assess the effectiveness of car seat policies on parents’ behaviour.

Rationale

During the medical encounter in the emergency department, the researchers observed many RTA cases that cause injury and death among passengers, including Children, And the position of the child during an accident is one of the major factors that affect the outcome of the MVC. so, in most circumstances, those accidents occur as a result of improper use of safety measures such as car safety restraints, and it can be protected with using Child safety restraints which reduce risk of death and decrease injury severity from road traffic crashes.

METHODOLOGY:**Study design**

An analytic cross-sectional study for determination of knowledge, attitude, and practice Towards Children's Car Safety Seat Among female Teachers In Secondary Schools in Taif City.

Study setting

This study will be conducted in Taif city, Taif city located in the western region of Saudi Arabia (Makkah Province), at an elevation of 1700-2500 meters above sea level.

The city population is 1,200,000, and it reflects a diversified demographic profile with a considerable portion of the population coming from rural descent, while others come from an urban one. This difference translates into biological, socioeconomic, and lifestyle differences in the Taif population. ⁽²²⁾

Study Period

The study was conducted from August 2021 to December 2021.

Study Population

Female Teachers in the secondary schools in Taif city. Based on the latest statistics on the Ministry of Education website, the General Administration of Education in Taif Governorate, the number of secondary girls' schools reached 77 schools in the city of Taif without counting the schools in the villages of the city of Taif.

They are distributed as follows: 35 schools in East Taif, 25 schools in West Taif, 11 schools in South Taif, and 6 schools only in North Taif.

In addition, according to the statistics on the website of the ministry of education, the total number of female teachers in Taif city is around 5572 teachers, approximately 2310 teachers in the secondary schools. An average of 30 to 40 teachers per school. ⁽²³⁾

Sample size

Using Raosoft sample size calculator with the following standard

(margin of errors = 5%, confidence level = 95% and response distribution = 50%).

According to the statistics on the website of the ministry of education, the total number of female teachers in Taif city is around 5572 teachers. Approximately 2310 teachers in the secondary schools. An average of 30 to 40 teachers per school. So, the population size = 267 participants.

Data collection tool

The researchers developed an Arabic self-administered questionnaire, and validity has been obtained. It was delivered to the target population by direct contact with the target population during working hours.

Sampling technique

To select the schools in which the questionnaire was distributed to the school teachers by simple random technique, after writing the names of girls secondary schools in the city of Taif, and based on the statistics on the website of the Department of Education of the city of Taif, ten schools were selected to distribute the questionnaire for their teachers.

The researchers distributed the self-administered questionnaire to the target population by direct contact with the target population.

In view of the current conditions and the Corona pandemic, school principals were contacted to facilitate the distribution of the questionnaire for female teachers, as the presence of female teachers in schools in light of this crisis is limited to a day or two during the week and for a few working hours.

The researchers were available to clarify any issues in the questionnaires. This data collection technique was on the same ways of distribution. The data was verified by hand then was coded and entered into a personal computer.

Inclusion criteria

- Female Gender.
- Teachers only.
- Consent to participate in the study

Exclusion criteria

- Male gender
- Supervisors, administrations, and cleaners.
- Those in vacations and absence.
- Those who refuse to participate in the study.

Statistical Analysis

Data was collected and analyzed using SPSS version 26. Descriptive analysis was performed expressing frequencies and percentages. Association analysis was conducted using Chi-Square test where the threshold of significance was set at $P = 0.05$.

Ethical consideration

Approval for the study was obtained from the research committee. Consent was obtained from each participant.

RESULTS:

The study included 267 females working as teachers (93.3%), or leaders (4.5%), or leader assistants (2.2%) in secondary schools in Taif, KSA. As shown in table 1, the majority of participants were aged

more than 35 years (68.5%), married (59.2%), have university education (100%), work as a teacher (93.3%).

Nearly two-thirds of participants related as a mother to the child inquired for (62.9%), and nearly half of the participants (45.7%) had 1 to 3 offspring. The majority of participants did not personally possess a driving license (79.4%), and used a family car (63.3%).

Table 2 shows that half of participants (50.9%) usually use seatbelts in the car, whereas only 29.6% place their children in the safety seat. Of all participants, 26.6% used children safety seat because it is safer, and only 3% use it to avoid paying a fine. Regarding reasons for not using the safety seat, 40.8% of participants do not use it because it was too expensive, and 24% thought it was not important.

Table 3 shows that 43.4% had history of recent RTA, of which only 81.3% and only 20.2% used safety seat for their children during the RTA. Among the children involved in the RTA, 33% had a severe injury, while 38.3% had a mild injury.

The association between using children safety seat and sociodemographic characters is presented in table 4. There was a significant association between safety

seat usage and age ($P = 0.003$) as the younger the participant is, the more likely they would use the safety car seat; the majority of participants aged less than 25 years were using safety seat in comparison to 23.8% of those aged 35 years or more. None of the participants who have four or more offspring used the safety seat (0%), whereas 38.5% of participants who have one to three offspring uses it ($P = 0.000$).

More teachers (31.7%) than leaders (0%) and leader assistants (0%) used safety seat ($P = 0.017$). Higher average monthly family income was associated with higher usage levels of safety seat as 31.7% in comparison to 0% among participants with an average income of more than 10000 SAR, and 5000-10000 SAR, respectively ($P = 0.004$).

Participants with small cars had higher level of using safety seats (59.7%) than family size cars (19.5%) ($P = 0.000$). Moreover, using seatbelt was associated with higher usage of safety seat (48.5% in comparison with 11.1%) ($P = 0.000$).

As presented in table 5, using safety seat during RTA was significantly associated with the severity of injury to the children involved ($P = 0.000$), as less participants of those who used the safety car suffered severe injuries (0%), and mild injuries (47.2%).

Table (1): Sociodemographic characters of participants (n=267)

Parameter	Frequency (%)
Age, y	Less than 25
	14 (5.2%)
	25 to 30
	49 (18.4%)
Marital status	31 to 35
	21 (7.9%)
	More than 35
	183 (68.5%)
Relation to child(ren)	Single
	95 (35.6%)
	Married
Do you have children?	158 (59.2%)
	Divorced
	14 (5.2%)
How many offspring do you have	Sister
	49 (18.4%)
	Other
Educational level	50 (18.7%)
	Mother
	168 (62.9%)
Occupation	No
	99 (37.1%)
	Yes
Average monthly income, SAR	168 (62.9%)
	None
	98 (36.7%)
	1 to 3
	122 (45.7%)
	4 or more
	47 (17.6%)
	University or more
	267 (100%)
	Leader
	12 (4.5%)
	Leader assistant
	6 (2.2%)
	Teacher
	249 (93.3%)
	5000 to 10000
	18 (6.7%)
	More than 10000
	249 (93.3%)

Type of personal or family vehicle	Small	77 (28.8%)
	Family size	169 (63.3%)
	Other	21 (7.9%)
Possession of driving license	No	212 (79.4%)
	Yes	55 (20.6%)
Years separation of family children birth	One year	31 (11.6%)
	Two years	33 (12.4%)
	Three years	37 (13.9%)
	Four years	28 (10.5%)
	More	138 (51.7%)

Table (2): Habits of using seatbelt and children safety seat among participants

Parameter		Frequency (%)
Using seatbelt	Sometimes	95 (35.6%)
	No	36 (13.5%)
	Yes	136 (50.9%)
Placing children in safety seat	No	188 (70.4%)
	Yes	79 (29.6%)
Frequency of using safety seat	I don't use it	188 (70.4%)
	Sometimes	10 (3.7%)
	Mostly	27 (10.1%)
	Always	42 (15.7%)
I use the safety seat because	I don't use it	188 (70.4%)
	It is safer	71 (26.6%)
	To avoid paying fines	8 (3%)
Using safety seat for all children below 8 years	I don't use it	188 (70.4%)
	Yes	79 (29.6%)
Reason for not using safety seat	I use it	79 (29.6%)
	Many children	7 (2.6%)
	Too expensive	109 (40.8%)
	Not important	64 (24%)
	I have no children	8 (3%)
Seating of the child	I use it	79 (29.6%)
	Front seat next to the driver	68 (25.5%)
	Back seat	115 (43.1%)
	With the driver in the driver seat	5 (1.9%)
Would you use it to avoid paying fines	I use	79 (29.6%)
	Yes	188 (70.4%)

Table (3): History of RTA among participants

Parameter		Frequency (%)
History of recent RTA	No	151 (56.6%)
	Yes	116 (43.4%)
Children involved in the accident (n = 116)	No	173 (18.7%)
	Yes	94 (81.3%)
Used safety seat (n = 94)	No	75 (79.9%)
	Yes	19 (20.1%)
Injury to the child	Minor	27 (10.1%)
	No children involved	173 (64.8%)
	Yes	67 (25.1%)
Severity of injury to the child (n = 94)	Severe	31 (33.0%)
	Mild	36 (38.3%)
	No injury	27 (28.7%)

Table (4): Association between using children safety seat and sociodemographic characters.

Parameter		Using safety seat		P-value
		Yes	No	
Age, y	Less than 25	10 (71.4%)	4 (28.6%)	0.003
	25 to 30	10 (20.4%)	39 (79.6%)	
	31 to 35	5 (23.8%)	16 (76.2%)	
	More than 35	54 (29.5%)	129 (70.5%)	
Marital status	Single	32 (33.7%)	63 (66.3%)	0.427
	Married	42 (26.6%)	116 (73.4%)	
	Divorced	5 (35.7%)	9 (64.3%)	
Relation to child(ren)	Sister	5 (10.2%)	44 (89.8%)	0.000
	Other	27 (54%)	23 (46%)	
	Mother	47 (28%)	121 (72%)	
Do you have children?	No	32 (32.3%)	67 (67.7%)	0.452
	Yes	47 (28%)	121 (72%)	
How many offspring do you have	None	32 (32.7%)	66 (67.3%)	0.000
	1 to 3	47 (38.5%)	75 (61.5%)	
	4 or more	0 (0%)	47 (100%)	
Occupation	Leader	0 (0%)	12 (100%)	0.017
	Leader assistant	0 (0%)	6 (100%)	
	Teacher	79 (31.7%)	170 (68.3%)	
Average monthly income, SAR	More than 10000	79 (31.7%)	170 (68.3%)	0.004
	5000 to 10000	0 (0%)	18 (100%)	
Type of personal or family vehicle	Small	46 (59.7%)	31 (40.3%)	0.000
	Family size	33 (19.5%)	136 (80.5%)	
	Other	0 (0%)	21 (100%)	
Possession of driving license	No	66 (31.1%)	146 (68.9%)	0.278
	Yes	13 (23.6%)	42 (76.4%)	
Years separation of family children birth	More	31 (22.5%)	107 (77.5%)	0.000
	Four years	25 (89.3%)	3 (10.7%)	
	Three years	9 (24.3%)	28 (75.7%)	
	One year	14 (45.2%)	17 (54.8%)	
	Two years	0 (0%)	33 (100%)	
Using seatbelt	Sometimes	9 (9.5%)	86 (90.5%)	0.000
	No	4 (11.1%)	32 (88.9%)	
	Yes	66 (48.5%)	70 (51.5%)	

Table (5): Association between using safety seat during RTA and outcomes.

Parameter		Using safety seat during the RTA			P-value
		Yes	No	Negative history of RTA	
History of recent RTA	No	0 (0%)	0 (0%)	151 (100%)	0.000
	Yes	19 (16.4%)	75 (64.7%)	22 (19%)	
Children involved in the accident	No	0 (0%)	0 (0%)	173 (100%)	0.000
	Yes	19 (20.2%)	75 (79.8%)	0 (0%)	
Injury to the child	No	2 (7.4%)	25 (92.6%)	0 (0%)	0.000
	No children	0 (0%)	0 (0%)	173 (100%)	
	Yes	17 (25.4%)	50 (74.6%)	0 (0%)	
		0 (0%)	0 (0%)	173 (100%)	
Severity of injury	Severe	0 (0%)	31 (100%)	0 (0%)	0.000
	Mild	17 (47.2%)	19 (52.8%)	0 (0%)	
	No injury	2 (7.4%)	25 (92.6%)	0 (0%)	
		0 (0%)	0 (0%)	173 (100%)	

DISCUSSION:

Children can be injured in several ways as road users, including as car passengers, pedestrians, and bicyclists. The majority of accidents to young children in cars come as a consequence of ineffective usage of safety features such as vehicle safety straps. (5) The number of reports of car accidents in the Middle East is staggering and is markedly higher than in the Western world. (10-12) According to the Institute for Health Metrics and Evaluation, MVC accounts for 7.6% of all fatalities recorded in Saudi Arabia across all age categories, with a mortality rate of 4.09 per 100,000 for children under the age of five. (13)

This study aimed to explore the knowledge, attitude, and practice of using children car seats among female teachers in Taif, KSA, as well as to associate sociodemographic data with the use of children car seats.

The study found that there was a significant association between safety seat usage and age ($P = 0.003$) as the younger the participant is, the more likely they would use the safety car seat. This could be attributed to the fact that younger populations might be more exposed to the awareness campaigns, social media effect.

Our study found that 29.6% of participants use CSS with children with varying frequencies of use. A study conducted in Yerevan, Armenia in 2018 reported that 26.6 % of the studied parents have been categorized as CSS users. (15) Another study conducted in Turkey in 2007 reported

That 28% of the parents did not know what a car safety seat was, while 20% of parents reported using a car safety seat, only 10% used them correctly.

Many of the participants reported that car safety seats are too expensive, which limits their safety seat use. CSS use was found to be significantly associated with average family monthly income ($P = 0.004$). Similar to our findings, other studies found that car safety seat use was correlated with higher socioeconomic status. (15, 17) A study was conducted in Unaizah city, KSA in 2018 among parents with children aged 7 years old or less found that over half of the participants complied with the seatbelt policy (56.7%), whereas only 16.3% used child seat every time the child rides in the car, which is similar to our findings (15.7%). (18) Our study also found that increased number of offspring was associated with less use of safety car seat among participants ($P = 0.000$). and that using a large (family) car was associated with less CSS use in comparison to small car ($P = 0.000$).

Using CSS during RTA was significantly associated with the severity of injury to the children involved ($P = 0.000$), as less participants of those who used the safety car suffered severe injuries (0%), and mild injuries (47.2%). The United Nations General Assembly passed a resolution in 2010 establishing the Decade of Action for Road Safety (2011-2020). It urges 110 member nations to create a Global Plan for the Decade of Action with the goal of saving millions of lives throughout the world.

The World Health Organization (WHO) leads the United Nations Road Safety Collaboration and acts as a monitoring and reporting organization through its "Global Status Report on Road Safety" publications.

(8) Despite the fact that having an adequate child restraint regulation is one of the primary steps that The Decade of Action for Road Safety (2011–2020) calls on nations to implement, only 53 countries have child safety restraint laws based on a kid's age, height, and weight. (4) This law covers only 17% of the world population. According to the World Health Organization, child restraints can reduce newborn death by about 70% and child death by up to 80% when properly placed and utilized. (4) This implies that more policies for CSS use should be implemented to cover wider range of populations worldwide in order to reduce risk of children injuries in RTAs.

For the prevention measure to be effective, the car safety seats (CSS) must be appropriate for the child's age, height, and weight, and they must be correctly installed in the vehicle in the correct position and in the correct location, and the child must be fastened correctly at all times when traveling in a car. (9)

CONCLUSION:

The study found that there was a significant association between increased safety seat usage and low age age, less number of offspring, occupation as being teacher, higher average family monthly income, using a family car was in comparison to small car, and use of seatbelt. Moreover, using children safety seat was associated with less severity of injury and it was more practiced by the younger participants with higher average monthly income, who also use seatbelts in front seats. We recommend more emphases to be implemented to reduce the casualties resulting from road traffic accidents involving children by increasing awareness of age-appropriate safety seat use.

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