

Assessment of mother's knowledge on importance and need for Child Car Safety Seat in UAE

Abstract

Objectives: To evaluate maternal awareness and perception on child car safety seat usage in Latifa Women and Children Hospital (LWCH), Dubai, UAE and determine the factors contributing to it.

Methods: A cross-sectional analytical survey using self-administered questionnaire was performed in two post-natal wards of Latifa Hospital for Women and Children in Dubai. A total of 201 mothers were included in the study. Descriptive analysis, Chi-square test, and logistic regression analysis were performed to find an association of child restraint use with various factors.

Results: Mothers with higher education (93.4%) and non-UAE origins (93.9%) were more aware of the child car safety seat use. Although all of them knew that child restraint is safe (100%) and will use it in future (100%), they all didn't perceive and behave similarly. A considerable portion (31.3%, n=63) opined that holding the newborn in arms is safer ($p<0.001$), about 18% considered seat belts restraining not necessary for children ($p<0.001$), 54.2% didn't have child safety seat while leaving hospital with newborn and 34.5% reasoned absence of law enforcing safety seat for it ($p<0.001$). Despite the fact that all the factors were significantly associated with the use of child safety seat use, in logistic regression analysis mothers with education below university level, having only one child and holding a view against the law necessitating the use of safety seat were the significant predictors of less use of child car safety seats.

Conclusion: Intensive measures combining educational campaigns focusing on mothers with lower level of education (i.e. high school, secondary school), and females expecting their first child, amendments in car seat laws, free car seat distribution, and teaching importance of child restraints to parents going to have first child by the hospitals, and mandatory country law enforcing usage of child restraints while driving is needed to improve the awareness and use of child restraints in UAE.

Keywords: child restraint systems, safety seats, automobiles, mother, knowledge, interventions, UAE

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Introduction

Automobile-related accidents are one of the prime reasons for morbidity and mortality in infants and children worldwide accounting for 22.3% of the total.¹ Low- and middle-income countries have the highest incidences of road accidents worldwide causing 96% of the child deaths. Although United Arab Emirates (UAE) is a high-income country, the prevalence of child fatalities due to road accidents is more than twice of the global projection.² Every two out of three deaths (~63%) in children below 14 years of age is due to road accidents in UAE.² Infants taken in arms and child held on lap while driving is vulnerable to get severely injured in case of an accident.³ Restraining child by proper application of seat belts is the sole useful measure for decreasing the number of deaths and disabilities in infants and children due to road accidents.⁴ Child car safety seat correctly positioned in the back seat of the car along with age-appropriate accessories such as booster seats and lap belt decreases the risk of death and severe injuries in infants by 71% and in children between age 1- 4 years by 54% to 80%.^{5,6} An inappropriately installed child car safety seat increases the risk of head injuries in children by four times.⁷ Further, children sitting freely in the rear seat of the motor vehicle experience 35% less of injuries than those in the front.⁸ To the above situation, an

addition of seat belts further decreases the chance of getting injured by 44%.⁴ This, in turn, lowers the number of hospital admissions in children aged ≤ 4 years by 69%.⁹ Nonetheless, Emirati parents remain skeptical about the potency of child car safety seat as evident from their less usage. A preliminary survey conducted by UAE University demonstrated that a child is safer in the arms of the mother was the prevalent misconception among the UAE parents. Moreover, the study also indicated that Emirati parents found inconvenient to use the child safety seat which caused only 20% usage of car safety seats.¹⁰ Besides, other hurdles that come in the way of using child car safety seat includes big Emirati family size, Emirati culture, embarrassments felt by the child, and a shortage of police on roads as well as the use of tinted glass by the motorist affecting law enforcement. Albeit numerous initiatives were undertaken for promoting usage of child car safety seat in UAE none are fruitful enough to bring down the child-related fatalities at par with other high-income countries like the USA and Europe.¹¹⁻¹⁴ In USA and Europe, motor vehicle-related child deaths due to road accidents account for only 3% and 5.2% of the total respectively.⁶ The reason is the lack of use of child safety seat by UAE parents. Among parents, mothers are very concerned about the safety of the infant/child.¹⁵ Understanding their awareness and perspective on child safety seat might aid in formulating laws and/or practices

which will enhance its use. Therefore, we aimed to evaluate the knowledge and perspective of the mother on the importance of child safety restraints and the factors associated with it who was admitted to the maternity ward of Latifa Women and Children Hospital (LWCH) in UAE.

Methods

This cross-sectional analytic survey was carried out at Latifa Women and Children Hospital in Dubai. It is one of the largest hospitals of UAE providing tertiary care to maternity and children's, with a provision of 344 beds. The survey was conducted for the duration of 6 months, from November 2017 until April 2018 in the two post-natal wards. In the study period, the numbers of patients discharged in the post-natal wards were about 710 and 1158. The survey was voluntary and anonymous. The study protocol was approved by the hospital's ethics committee.

Participants

Samples of 230 mothers of newborns were recruited to complete the questionnaire. Out of them, 29 refused to participate. Therefore, the final number of participants was 201. The inclusion criteria were:

1. Mother of a newborn,
2. Mothers were healthy without any postpartum complications,
3. Gave verbal consent for participation. Mothers who were not willing to participate in the study were exclude from the study.

Survey instrument

The survey instrument was developed by the principal investigator based on recommendations from a specialist team. It consisted of 11 questions relating to demographic, awareness, and perspective on the usage of infant car safety seat. The answers to the questions were categorical with either yes, no, don't know or occasionally. The instrument was available in both Arabic and English languages. The

validity and reliability of the instrument was determined earlier in a pilot study.

Data collection

Data were collected using the validated open-ended questionnaire. The questionnaire was distributed for mothers after delivery based on the inclusion criteria the sample was selected and the questionnaire was distributed after obtaining the consent. After completion, the questionnaires were reviewed by the research assistant and principal investigator to ensure the quality of data i.e. to exclude incomplete, illegible, or blank questionnaires. None of the returned questionnaires were rejected due to poor data quality.

Statistical analysis

All the data were analyzed in SPSS version 21. Frequency and percentages were used to describe the data. Chi-square and Fisher's test were used to compare the differences in awareness and perception on the usage of child car safety seat across various sub-groups. Logistic regression analysis was used to find the predictors and barriers of using infant car safety seat and child restraint.

Results

Characteristics of mother participating in survey

In total 201 mothers participated in the survey conducted at LWCH. About 60.2% (n=121) belonged to age group 26-35 years, 30.3% (n=61) were of age group 15- 25 years while 9.5% (n=19) aged between 36-45 years (Figure 1A). Nearly, three-fourth (75.6%, n=152) of the participants were of UAE nationality while only one-fourth (24.4%, n=49) belonged to other nationality (Figure 1B). A total of 137 (68.2%) respondents had received university level education, 45 (22.4%) had high school education while 19 (9.5%) had acquired secondary school education (Figure 1C).

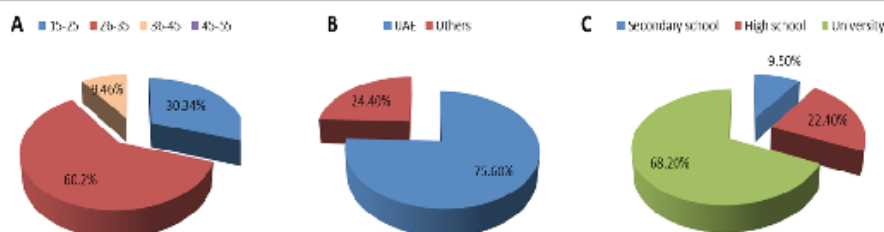


Figure 1 Pie charts displaying characteristics of mother: (A) Age, (B) Nationality, (C) Education.

Familiarity on child car safety seat

Evaluation of mother's awareness about child car safety seat is shown in Table 1. Approximately 92.6% (n=112) of mothers belonging to age group of 26-35 were aware of the child car seat while only 7.4% (n=9) were unaware. Although higher percentage of mothers belonging to age group 15-25 (78.7%, n=48) and 36-45 (68.4%, n=13) were familiar with child car seat, an increasing number were also unfamiliar with it (21.3%, n=13, 31.6%, n=6, respectively). In comparison to respondents of other nationality, UAE nationals were more unfamiliar with of the child car seat (6.1%, n=3 vs. 16.4%, n=25). Further, mother with an education of high school (86.7%, n=39) or higher (93.4%, n=128) were more familiar with child car seat than with an education of secondary school (31.6%, n=6). Mother

with only one child was equally aware of child car seat as a mother with more than one child (81.3%, n=39 vs. 87.1%, n=128). Previous regular or occasional users were more familiar with child car seat than non-users (90.8%, 100% vs. 75.6% respectively).

Perception about importance of child car safety seat and child restraint

Table 2 displays the perception of mother on child car safety seat. All the participants (100%) believed that child car seat is safer and would like to use it in future. A remarkable gap was observed in what mothers think and believe and actual usage regarding child car safety seat. A significant percentage (31.3%, n=63) opined that holding the newborn in arms is safer than placing them in a child car seat (p<0.001).

On determining the participant's viewpoint on the most appropriate place for child safety seat in car, 40.8% (n=82) considered it to be behind the driver's seat, 35.3% (n=71) opined middle of the back seat while 23.8% (n=48) responded behind the passenger seat (p<0.05). A majority (82.08%, n=165) believed that children <13-year-old should wear a seat belt while sitting on child car safety seat (p<0.001). Nearly 45.7% (n=92) had a child car safety seat for the new born in their car while leaving the hospital, on the other hand 54.2% (n=109) had no such arrangements (p=0.259). Even though majority (62.9%, n=73) mentioned other reasons for not having a child car safety seat while leaving hospital, a significant proportion (34.5%, n=40) specified that no law enforcing the usage of child car safety seat exists in Dubai (Figure 2). Three-fourth (75.1%, n=151) of the respondents supported the presence of law enforcing the usage of child car safety seats for children below 4 years of age while only 11% (n=22) were against it (p<0.001).

Table 1 Factors affecting awareness of child car safety seat in UAE

Factors	Awareness of child car safety seat		P value
	Yes	No	
Age			
15-25	48 (78.7%)	13 (21.3%)	0.002
26-35	112 (92.6%)	9 (7.4%)	
36-45	13 (68.4%)	6 (31.6%)	
46-55	0	0	
Nationality			
UAE	127 (83.6%)	25 (16.4%)	0.095
Others	46 (93.9%)	3 (6.1%)	
Education			
No education	0	0	0
Secondary school	6 (31.6%)	13 (68.4%)	
High School	39 (86.7%)	6 (13.3%)	
University	128 (93.4%)	9 (6.6%)	
No. of Children			
1	39 (81.3%)	9 (18.8%)	0.346
>1	128 (87.1%)	19 (12.9%)	
Previous use of child car seat			
Yes	89 (90.8%)	9 (9.2%)	0.012
No	31 (75.6%)	10 (24.4%)	
Occasionally	20 (100%)	0	

Factors influencing usage of child restraint

Usage of child car safety seat was higher in mothers who had higher education, belonged to nationality other than UAE, have more than one child, have heard about and used previously child safety seat (Table 3). Further, mothers, who were believed that child is not safer in arms while driving in car, opined that rear passenger or middle seat is safer for child, admitted that children below 13 years of age should wear seat belts and who are not against the law enforcing use of seat belts used less child car safety seat (Table 3). Multivariate logistic regression analysis with age as covariate revealed that mothers having higher education and more than one child as well as holds an opinion for supporting a law enforcement were the significant predictors for child car safety seat usage (Table 4).

Table 2 Perception of mother on use of child restraint in car

Perception	N (%)	P value
Is it safe to hold a newborn baby in arms than placing in baby car seats?		
Yes	63 (31.3%)	
No	116 (57.7%)	0
I don't know	22 (10.9%)	
Do you believe it is safer to use a child safety seat in your car?		
Yes	201 (100%)	
No	0	
All children below 13 years while travelling in a car should wear seat belts (not car seats).		
Yes	165 (82.08%)	
No	26 (12.9%)	0
I don't know	10 (4.9%)	
Where is the safest place to put your child's safety seat in the car?		
Front passenger	0 (0%)	0.012
Behind passenger	48 (23.8%)	
Behind driver	82 (40.7%)	
Middle of back seat	71 (35%)	
Do you have a baby car seat available for your new born when leaving hospital for the journey home?		
Yes	92 (45.7%)	0.259
No	109 (54.2%)	
Are you against having a law mandating the use of car seats for all children less than 4 years?		
Yes	22 (10.9%)	
No	151 (75.1%)	0
I don't know	28 (13.9%)	
Would you consider using the child safety seat for your child in future?		
Yes	201 (100%)	
No	0	

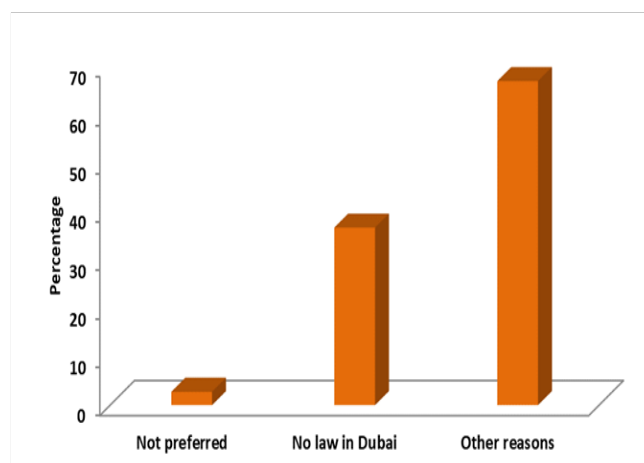


Figure 2 Reasons for not having child car safety seat: Most mothers have other reasons for not having a child car safety seat, followed by no law enforcement for the same in Dubai. Very few mothers didn't prefer to have a child car safety seat (p<0.001).

Table 3 Factors affecting use of child car safety seat in UAE

Variables	Child car safety seat usage		P value
	YES	NO	
Nationality			
UAE	60 (39.5%)	92 (60.5%)	0.002
Others	32 (65.3%)	17 (34.7%)	
Education			
Secondary	0 (0%)	19 (100%)	0
High School	10 (22.2%)	35 (77.8%)	
University	82 (59.9%)	55(40.1%)	
Children number			
I	12 (25%)	36 (75%)	0.001
>I	77 (52.4%)	70 (47.6%)	
Familiarity			
Yes	89 (51.4%)	84 (48.6%)	0
No	3 (10.7%)	25 (89.3%)	
Previous use			
Yes	75 (76.5%)	23 (23.5%)	0
No	11 (26.8%)	30 (73.2%)	
Occasionally	0 (0%)	20 (100%)	
Is it safe to hold a newborn baby in your arms than placing in baby car seats?			
Yes	21 (33.3%)	42 (66.7%)	0
No	52 (44.8%)	64 (55.2%)	
Unclear	19 (86.4%)	3 (13.6%)	
Where is the safest place to put your child's safety seat in the car?			
Front passenger	0 (0%)	0 (0%)	0
Behind passenger	12 (25%)	36 (75%)	
Behind driver	50 (61%)	32 (39%)	
Middle of the back seat	30 (42.3%)	41 (57.7%)	
All children > 13 years while travelling in a car should wear seat belts?			
Yes	62 (37.6%)	103 (62.4%)	0
No	20 (76.9%)	6 (23.1%)	
Unclear	10 (100%)	0 (0%)	
Against law enforcing use of child car safety seats (vs. yes)			
Yes	22 (100%)	0 (0%)	0
No	58 (38.4%)	93 (61.6%)	
Unclear	12 (42.9%)	16 (57.1%)	

Table 4 Logistic regression analysis of child car safety seat use

Predictors	Child car safety seat usage		P value
	AOR	95% CI	
Nationality (vs. others)			
UAE	0.442	0.188 - 1.038	0.061
Education (vs. University)			
High School	0.217	0.080 - 0.586	0.003
Children number (vs. >I)			
I	0.301	0.099 - 0.914	0.034
Familiarity (vs. no)			
Yes	3.486	0.625 - 19.450	0.155
Against law enforcing use of child car safety seats (vs. yes)			
No	0.263	0.074 - 0.938	0.04

Adjusted for age

Discussion

Despite different recent initiatives to use child car safety seat in UAE, the child death rate due to road accidents continues to be high in UAE and more so in urban cities.^{2,11-14,16} It becomes necessary to evaluate dwellers of UAE after putting so much of effort in various initiative programs for promoting child restraint use to find the reasons for its failure. Mother is the most concerned about the safety of the child. Hence, focusing on this population will give an idea about the maximum impact of the previous programs on child safety seat usage. Mothers, in our study, with higher education, belonging to age group 26-35 were more aware of the child car safety seat. A positive impact of higher education of mother (university level or higher) has been reported on the usage of child restraints by many studies.^{10,17,18} Effect of mother's age on the use of child safety seat is variable. While few studies showed that young age was associated with enhanced use of child safety seat others failed to find any significance.^{10,17,18} Surprisingly, despite various child safety seat initiatives in UAE, expatriate mothers were more aware of child restraint use than those belonging to UAE. Asians form the majority (~87%) of the expats in UAE, while Europe and Africa make the minority.¹⁹ We speculate that inclusion of more European mothers might have occurred in our study where child restraint law is prevailing which have caused an increased awareness in expatriates' group as Asian countries don't have necessary legislation on child safety seat usage. Furthermore, mothers of more than one child used child safety seats more than mothers of only one child in our study. A greater proportion of participants in our study opined that while driving holding infants in arms was unsafe, seat belts should be worn by children <13 years of age, should be placed in the rear seat and advocated legislation mandating the use of child restraints, indicating a positive attitude for child restraints. Our findings showed that a wide gap existed between the belief and behavior of mother's in UAE regarding child restraint use. Even though all the mothers felt that child restraint was safer and intended to use it further, they didn't practice it. This agrees with a recent survey in UAE.¹⁰ More than half of the mothers didn't have child car safety seat on their journey home from the hospital. The positive attitude towards child restraint to be safer might be the consequence of the various initiative programs; however, lack of compulsory law enforcing it in UAE might have resulted in its less practice. A considerable increase in child car safety seat use (from 50% to 74%) was observed after introducing a mandatory law for it.²⁰ A combination of law enforcement on child safety seat usage along with the distribution of child safety seats and education programs is most effective in enhancing the use of child safety seats.²¹⁻²³ On the other hand, only educational programs and awareness campaigns were found to be ineffective. A recent study in UAE proposed that absence of social pressure might also contribute to less use of child restraints [10]. In that study, half of the participants reasoned that since most of their family and friends with the kids didn't use child restraints, they also don't use it and are not embarrassed by it. The limitation of the present study is that the reasons for not using a child car safety seat were defined by only three choices including "not preferred, "no law in Dubai" and "other reasons". The majorities of the respondents have mentioned "other reasons" for not using a child restraint and haven't specified anything specific. This hindered in the unfolding of any new reasons behind none usage of child restraints that could be addressed.

Conclusion

In summary, as a result of various initiatives for advocating child car safety seat use in UAE, an enhanced awareness of it is observed

in the studied group though not up to the mark. Hence, more intense efforts from different aspects are required. This should include:

- a) Educational campaigns on importance of child restraints should be focused on mothers with lower education level and females expecting their first child
- b) Amendments in car seat laws specifying types of child restraints for different age groups
- c) Free car seat distribution and educating parents who are going to have their first child about child restraints by the pediatricians and
- d) Mandatory law enforcements on usage of child car safety seats.

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None.

Conflict of Interest

The authors declared there is no conflict of interest.

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