International Journal of Research in Medical Sciences
Shetty A et al. Int J Res Med Sci. 2014 May;2(2):510-513
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: 10.5455/2320-6012.ijrms20140527

Research Article

Awareness and adoption of child restraint seats in cars in an Indian city

Anil Shetty[1]*, Shraddha Shetty[2]

[1]Department of Pediatrics, Father Muller Medical College and Hospital, Mangalore - 575002, Karnataka, India
[2]Department of Obstetrics and Gynecology, Kasturba Medical College, Mangalore - 575001, Karnataka, India

Received: 18 January 2014
Accepted: 2 February 2014

***Correspondence:**
Dr. Anil Shetty,
E-mail: anilshettyk@hotmail.com

ABSTRACT

Background: Protective measures for children like restraints and booster seats are seldom used in developing countries. The thriving Indian economy has resulted in booming car sales, particularly in urban areas, unfortunately the number of car crashes and accidents on roads have also increased manifold. Objective of current study was to evaluate the awareness and usage of child safety measures in cars in an Indian city.
Methods: 150 parents were given a self-report questionnaire and their views, practices and attitude towards child restraint seats and booster seats were assessed.
Results: Only 22% of parents used child restraints and 11% used booster seats. Among the users, 73% (infant seats) and 84% (booster seats) admitted to inadequate knowledge about installation and utilization.
Conclusion: Usage and knowledge about child safety measures in cars is abysmal. Measures to improve adoption of car safety devices will have substantial and tangible benefits.

Keywords: Child restraint seats, Booster seats, Child safety

INTRODUCTION

Child restraint systems and car seat belts are mandatory in most developed countries, but in developing countries and India in particular most families that own cars and SUV's hardly use this life saving equipment. Even adults seldom use car seat belts while driving or as occupants in cars. Motorcycle riders also rarely use helmets and awareness and knowledge about the utility of safety devices on vehicles is dismal. Police enforcement of compulsory helmet wearing is lax and there is no legal requirement for compulsory seat belt usage in cars. Children often sit on their parents or adults laps. Children are sometimes seated in the front rather than the rear seat. Earlier models of cars rarely had seat belts in the rear. A study published in the British medical journal revealed that the risk of suffering injuries was nine times more for unbelted children sitting in the front seat and was two times more for children sitting in the rear seat without a belt.[1] Even when families use child restraint systems in infants, the children rarely graduate to booster seats. In children aged 4 to 8 years, booster seats reduce the risk of suffering clinically significant injuries by 59%.[2] When installed and used properly child safety seats reduce the risk of fatal injuries by 71% for infants and 54% for toddlers.[3] Vehicles used to commute children to school in India such as auto rickshaws and vans also seldom use safety measures. Safety and accident preventive measures and education are not imparted to children, parents, teachers or traffic law enforcement authorities.

METHODS

The study was a cross sectional analytic study conducted in Mangalore. A self-report questionnaire was handed out to 150 parents who owned cars, the parents were asked to indicate their gender, their awareness about the need for safety measures, their knowledge about the proper usage

of child restraint seats and booster seats and front seat vs rear seat preference for their children. The age of the children ranged from 1 to 8 years. The frequency of usage was noted. The reasons for non-usage of restraint systems, and support for legal enforcement of child restraint systems were also elicited.

RESULTS

In our study the usage of both child restraints and booster seats were poor. Most parents were unaware of the safety aspects of these protective devices. Parents who had more than one child had a more supportive attitude and awareness about these devices. Women tended to be more amenable and more frequent users of safety mechanisms. Table 1 shows the adoption and frequency of usage of child safety measures. Many parents were unaware of the relative safety of the rear seat when compared to the front seat. A majority of users admitted to their lack of knowledge about proper usage. Parents who used child restraints and booster seats did not use them frequently and only a minority was compulsive users. While some parents used child seats in infants, the usage of booster seats in toddlers and older children was not as common.

Table 1: Usage and frequency of usage of child safety measures.

	Usage		Frequency	
	Yes	**No**	**Sometimes**	**Always**
Child restraint system	11 (22%)	39 (78%)	4 (36%)	7 (64%)
Booster seat	6 (12%)	44 (88%)	4 (66%)	2 (34%)
Seat belt	21 (42%)	29 (58%)	8 (38%)	13 (62%)
Seating of child	**Front**	**Back**		
	33 (66%)	17 (34%)		

Table 2: Grading of knowledge of child safety measures in cars.

Parameter			
Grade knowledge about usage			
	Child restraint system	**Booster seat**	
Good	3 (27%)	1 (16%)	
Poor	8 (73%)	5 (84%)	
Reasons for non- use			
Discomfort	**Forgetfulness**	**Unnecessary**	**Others**
40%	32%	20%	8%
Support for legal enforcement			
Yes	**No**		
31 (62%)	19 (38%)		

Table 2 shows the attitude of parents towards compulsory legal requirement and knowledge about the proper usage of child car seats and booster seats. A majority of parents attributed discomfort and forgetfulness for their reluctance to adopt these safety measures. Shockingly a significant percentage felt these devices were unnecessary. Support for legal enforcement was strong and many parents confessed that legal stipulation would sway their decision favorably towards usage.

DISCUSSION

A freelance writer Eleanor Everet famously said 'For safety is not a gadget but a state of mind.' The response we elicited in our study confirms this belief; most people were either ignorant or unmindful of the protection afforded by child restraint and booster seats. Another famous adage is 'Safety is a cheap and effective insurance policy'. On site investigators at car crash accident sites confirm that most accident fatalities are due to non-use or misuse of protective measures. Data was studied from insurance reports of car crashes in 15 states in the U. S. 65% of the children involved in these accidents wore seat belts, 32% wore child restraints and 3% used no restraints. 15.1% of the children involved suffered injuries and the highest risk of injury was observed in the children who sat in the front with no restraints.[4] An U.S. study analyzed the effect of car restraints on motor vehicle injury rates for children below 15 years and determined that the child car seat usage for infants was 76% and 40% for older children. The single largest risk factor for injury was non-use of restraints. The injury rate was 64% higher in 3 years old when compared with infants.[5]

Most parents assume that for older children, seat belts afford sufficient safety and even in our study many parents who used child restraint seats for infants did not progress to booster seats for older children. In a comparative study, child restraint systems were compared with seat belts alone, 7813 children aged 2 to 6 years who were occupants in car crashes were identified, 45% of these children were using restraints and the findings were that restraint systems were associated with 28% reduction in risk for death.[6] In our study only 8% of parents used booster seats regularly and while some used child restraints for infants, their older siblings were not seated on booster seats. Researchers compared belt positioning booster seats with seat belts alone and the risk of injury in 4 to 7 year olds. Data from 3616 crashes was analyzed and the researchers concluded that belt positioning booster seats were associated with extra benefits compared with seat belts.[7] A 10 year matched cohort study in the U.S. demonstrated that child safety seats are highly effective in reducing the risk of death during severe traffic collisions and generally outperform seat belts.[8]

A common problem associated with booster and infant car seat use was the lack of proper knowledge about

installing and utilization of these devices. Data collected in an Australian hospital revealed that 92% of children used restraints, but in 82% the restraints were suboptimal.[9] Many parents in our study confessed that they had not read the manual provided or not paid attention to the salesperson at the initial installation. A study on child seat safety misuse revealed that the most common mistakes were seat not belted to the vehicle tightly, seat harness straps not fitted correctly and harness retainer clip not at armpit level.[10] The same problems were mentioned in our study, especially latching the harness properly. The misuse of car restraint systems for children, were studied in six states in the U. S. The most common critical misuses were loose harness straps and loose attachment of the child restraint to the vehicle.[11] Strict enforcement and wide spread awareness in developed countries has saved millions of lives, but in developing countries income levels, public unawareness and lax legal regulations have resulted in significantly higher fatalities. A cross section survey conducted at petrol stations in Al Ain, United Arab Emirates revealed that only 4% of children in front and only 1% of children in the rear seat were restrained. Among the reasons for non –use attributed were discomfort (42%), forgetfulness (25%) and carelessness (13%).[12] In our study the most common reasons attributed to non- use were similar, one more factor that could have a bearing on usage in developing countries is affordability. In our study parents mentioned the high cost of these devices as a deterrent to purchasing these safety accessories and aids. A cross sectional observational study conducted in Shanghai revealed that among the 967 children observed, 93.9% of the children were unrestrained, 31.9% were seated on adult's laps and 12.2% were seated on the front seat.[13]

In the United States, children in states with strict booster seat laws were more likely to survive a car crash than children in states without such legal enforcement.[14] India has a highly independent and vocal superior judiciary and a degree of judicial activism could be invaluable in these circumstances. Booster seat legislation was a key determinant of the level of use and the motivation to use booster seats.[15] In our study the number of parents advocating stronger laws and legal provisions mandating compulsory restraints was high. This indicates willingness for positive change and a series of steps coupling legal measures with safety education and incentives to manufacturers and end users could spur the adoption of these safety tools exponentially.

CONCLUSION

In conclusion a fast growing Indian economy has resulted in burgeoning car sales. The awareness and usage of safety measures for children in cars is poor and woeful. Therefore fatality and injury prevention among children involved in car accidents is a health and safety imperative.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Halman SI, Chipman M, Parkin PC, Wright JG. Are seat belt restraints as effective in school age children as in adults? A prospective crash study. British Med J. 2002;324:1123.
2. Ehiri JE, Ejere HOD, Hazen AE, Emusu D, King WD, Osberg SJ. Interventions to increase children's booster seat use: a review. Am J Prev Med. 2006;31:185-92.
3. Will KE, Geller ES. Increasing the safety of children's vehicle travel: from effective risk communication to behavior change. J Saf Res. 2004;35:263-74.
4. Durbin DR, Chen I, Smith R, Elliott MR, Winston FK. Effects of seating position and appropriate restraint use on the risk of injury to children in motor vehicle crashes. Pediatr. 2005;115:305-9.
5. Johnston C, Rivara FP, Soderberg R. Children in car crashes: analysis of data for injury and use of restraints. Pediatr. 1994;93:960-5.
6. Elliott MR, Kallan MJ, Durbin DR, Winston FK. Effectiveness of child safety seats vs. seat belts in reducing risk for death in children in passenger vehicle crashes. Arch Pediatr Adolesc Med. 2006;160:617-21.
7. Durbin DR, Elliott MR, Winston FK. Belt-positioning booster seats and reduction in risk of injury among children in vehicle crashes. J Am Med Assoc. 2003;289:2835-40.
8. Rice TM, Anderson CL. The effectiveness of child restraint systems for children aged 3 years or younger during motor vehicle collisions: 1996 to 2005. Am J Public Health. 2009;99:252-7.
9. Brown J, Mc Caskill ME, Henderson M, Bilston LE. Serious injury is associated with suboptimal restraint use in child motor vehicle occupants. J Pediatr Child Health. 2006;42:345-9.
10. Kohn M, Chausmer K, Flood MH. Anticipatory guidance about child safety seat misuse. Arch Pediatr Adolesc Med. 2000;154:606-9.
11. Decina LE, Lococo KH. Child restraint system use and misuse in six states. Accident Anal Prev. 2005;37:583-90.
12. Barssa P, Al-Obthania M, Al-Hammadia A, Al-Shamsia H, El-Sadiga M, Grivnaa M. Prevalence and issues in non-use of safety belts and child restraints in a high-income developing country: lessons for the future. Traffic Inj Prev. 2008;9:256-263.
13. Pana S, Duc W, Jiang F, Bilston L, Brown J, Shen X. Restraint use and seating position among child car passengers: an observational study in Shanghai. Accident Anal Prev. 2011;43:2195-9.

14. Farmer P, A Howard A, Rothman L, Macpherson A. Booster seat laws and child fatalities: a case-control study. Inj Prev. 2009;15:348-50.
15. Binghama CR, Ebya DW, Hockansonb HM, Greenspan AI. Factors influencing the use of booster seats: a state-wide survey of parents. Accident Anal Prev. 2006;38:1028-37.

DOI: 10.5455/2320-6012.ijrms20140527
Cite this article as: Shetty A, Shetty S. Awareness and adoption of child restraint seats in cars in an Indian city. Int J Res Med Sci 2014;2:510-3.