

Title

Parental knowledge and beliefs on the use of child car restraints in Singapore: a qualitative study

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Summary/Abstract

Introduction:

Road traffic injuries and fatalities represent a significant public health problem in many Asian countries. In Singapore, compliance to the use of appropriate child car restraints is poor. We aim to understand the knowledge, beliefs and barriers faced by parents regarding the use of child car restraints.

Methods:

In this qualitative study, we conducted 5 focus group discussions with parents who drive their children in private cars. Participants were recruited using the KK Women's and Children's Hospital social media page. The guiding questions were derived by consensus following literature review and adaptation to the Singapore context, to explore parental perceptions of child car restraint use. Focus group interviews were then transcribed and analyzed.

Results:

Thirty-three participants were recruited, age ranging from 28 to 46 years (mean age 35.5 years). These participants had a total of 46 children with ages ranging from 2.5 months to 14 years (mean age 4.2 years). Three key themes were identified: 1) parental knowledge regarding child car restraints, 2) barriers to child car restraint use, 3) suggestions to increase child car restraint compliance. Barriers to compliance included: lack of knowledge, difficult child behavior, and cultural norms. A multi-pronged approach was proposed to increase use of child car restraints, including educating the public, reinforcing positive behavior, legal enforcement as a deterrent to non-compliance, increasing car restraint installation services, providing car restraints for taxi users, and offering financial incentives.

Conclusion:

Non-compliance to child car restraint use is multi-dimensional, including multiple potentially modifiable factors. This study informs ongoing collaborative injury prevention efforts between healthcare professionals, industry partners, and the traffic police via public education and outreach to reduce the burden of road traffic injuries.

Aims of Research

We aim to understand the knowledge, beliefs and difficulties experienced by Singapore parents on this issue. We postulate that non-compliance to the use of child car restraints is multi-dimensional as previously mentioned and that many of these factors are potentially modifiable. Understanding the root causes will facilitate collaboration with public agencies when designing public awareness campaigns, which are critical in the long term to move injury prevention efforts forward.

Method of Research and Progression

2.1 Research method

A qualitative research approach was used to explore participants' perceptions regarding child car restraint use, specifically focus group discussion, a widely used technique in transportation safety research that allows free discussion among participants on multiple issues to obtain more detailed insights (Naznin et al., 2018; MacMillan and Hewitt, 2008).

We conducted 5 focus group interviews at KK Women's and Children's Hospital (KKH) Singapore. KKH has the largest children's emergency department in Singapore, serving approximately 180,000 patients per year. Upon institutional review board approval (SingHealth IRB reference number 2017/3116), the research team posted the study invitation on the hospital's social media webpage and only parents who responded to the invitation were contacted by one of the research team members. Inclusion criteria were as follows: parents who owned private cars and transported their children in their own cars. Non-car owners were excluded.

Each focus group discussion lasted approximately one hour. Only the research team and study participants were present during each interview. Prior to the start of the focus group discussion, written consent was obtained from each parent individually where they were allowed to clarify or questions about the study. During the focus group discussion, the moderator used a set of pre-defined questions derived by consensus after literature review and adaptation to the Singapore context, according to the following domains: parental knowledge on the significance of road traffic collisions as a leading cause of death among children and young adults, compliance to child car seats, parental knowledge and perception of the appropriate child car restraint for children of different ages, and safety of front seat child passengers. Please refer to Appendix A for the list of questions.

Research team characteristics, as per the COREQ (Consolidated criteria for Reporting Qualitative research) checklist (Tong et al., 2007), are as follows. Two of the authors (CD, SLC) were the primary focus group interviewers; both authors are female. CD (credentials: PhD, MS) is head of a hospital education office and a medical education researcher with a background in educational technology and research interests in qualitative analysis. SLC (credentials: MBBS, MRCPCH, MCI, MPH) is a pediatric emergency physician-researcher with an interest in public health and child safety. Participants met the research team at a mutually agreed time, and the interviewers gave a brief introduction of the study aims prior to commencing the focus group discussion.

2.2 Participants

From February 2018 to May 2018, we conducted five focus group interviews, with each session having 5-8 parents, for a total of 33 participants (11 male and 22 female). Each participant attended only one focus group session. None of the participants withdrew from the study. Preliminary data analysis was carried out after each focus group discussion, and by the completion of the fifth interview, the data had reached saturation point, indicating that no further new ideas were likely to arise from additional focus groups. The 33 participants' age ranged from 28 to 46 years (mean age 35.5 years). The participants had a total of 46 children with ages ranging from 2.5 months to 14

years (mean age 4.2 years). Each participant had 1-4 children (average 1.8 children per participant). The composition of each focus group is shown in Table 1.

2.3 Data analysis

All interviews were audio recorded and then transcribed, with field notes taken by study team members. Verbatim transcripts and field notes captured information in the participants' own words and expressions; transcripts were made available to study team members but not returned to the participants for comment, as the participants were not contacted following the focus group sessions. The themes were derived from identifying recurring words, phrases and ideas throughout the transcripts. The thematic analysis was performed by 3 researchers (RMT, CD, SLC), who coded the transcripts first independently and then discussed any discrepancies in the analysis. Analysis was performed until a point when additional layering of themes yielded no further information.

Results of Research

Theme 1: Parental knowledge regarding child car restraints

The technical knowledge aspects related to car restraints were most frequently cited (n=33), in particular when to change to the next age-appropriate car restraints (n=16), including both the transition from rear-facing to front-facing car seats, and the transition to booster seats. Among the 16 replies, 14 were confident of their knowledge in this area and 2 were unsure. Eighteen parents commented on their information sources for child car restraints, primarily citing the Internet (10 out of 18), and also relatives, friends and colleagues, the news media, and department store salespersons. Ten parents noted that the car restraint was important to reduce injuries, citing previous accidents or near misses, or theoretical knowledge of physics. Seven parents articulated familiarity that the use of child car restraints was mandated by law in Singapore.

Theme 2: Barriers to child car restraint use

Parents identified a wide spectrum of knowledge gaps (n=31). Child behavior was frequently identified as the reason for non-compliance (n=22). Inconvenience and high cost of car restraints were also cited. Injury fallacies included perceptions that accidents would not happen to themselves, self-assessment of safe driving skills, and short duration or frequency of being in the car. "Normal practice" was brought up 12 times, contrasting the relative lack of child car restraint use being the norm in Singapore versus other high-income countries such as the United States and Australia. Another common thread mentioned was the lack of law enforcement. Although child car restraint use is mandated by law in Singapore, the apparent lack of enforcement resulted in many parents not complying with the use of child car restraints. Generational norms were also mentioned. Asian families tend to live in close proximity, with grandparents helping to take care of grandchildren, and many grandparents object to using car restraints due to their bulkiness and inconvenience, or misperceptions that car restraints are bad for an infant's spine.

Theme 3: Suggestions to increase child car restraint use

Public education was the most highly cited approach (n=53): parents agreed that information had to be provided by a trustworthy regulatory body; that the mass media and social media should be used to reach out to the public on the importance of car restraints; that antenatal classes and hospitals serve as touch points to engage parents; and that children themselves and grandparents should be educated on this as the key stakeholders. Other suggestions centered around reinforcing positive child behavior, legal enforcement as a deterrent to non-compliance, increasing car restraint installation services, providing car restraints for taxi users, and offering financial incentives from the government.

Future Areas to take note of , and Going Forward

Moving forward, this qualitative research will enhance interdisciplinary childhood injury prevention collaboration in Singapore. This includes areas of advocacy and outreach; to educate the general public as well as law enforcement officers in conjunction with distribution and/or incentive programs to lower potential financial barriers such as subsidized low-cost car restraints; as well as further research to study the trends of car restraint use following the introduction of any interventions. For instance, we have started introducing education initiatives to antenatal classes and established platforms for postnatal discharge planning to improve accessibility for newborns leaving the hospital.

Means of Official Announcement of Research Results

We are submitting our findings for publication. We will present the results to the sponsor of the research grant, and would be willing to field media enquiries on the results. The official findings will be available after the academic publication of this research.