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Child Passenger Safety in the Somali Communities of Columbus, Ohio

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Abstract

Children (particularly low-income minorities and refugees) are at high risk for serious injury or death from motor vehicle crashes. Interpreter-assisted data collection included key informant interviews, focus groups and face-to-face surveys with the Somali community of Columbus, Ohio about child passenger safety. Measurements included prevalence of child safety seats use, awareness and knowledge of and barriers to proper use in order to inform development, implementation, and initial evaluation of a culturally-appropriate intervention for Somali families. Somali parents regarded child passenger safety as an important topic, but many reported improper restraint behaviors of one or more children and/or did not have an adequate number of child safety seats. Few parents reported having child safety seats installed by a professional technician. Child passenger safety practices in the Somali communities of Columbus are a public health concern that should be addressed with culturally-appropriate interventions.

Keywords

Child passenger safety; Immigrant; Refugee; Somali

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Author Contributions Lara McKenzie led the study design and implementation, data analysis and manuscript preparation. Erica Fowler contributed to the data collection, data analysis, and manuscript preparation. Kristin Roberts assisted with the data analysis and manuscript preparation, and reviewing the final manuscript. Roxanne Kaercher assisted with the manuscript. All authors reviewed the final version of the manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval The study was approved by the institutional review board at the Research Institute at Nationwide Children's Hospital. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/ or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Introduction

Motor vehicle injuries are a leading cause of death among children in the United States (US) [1] and in the state of Ohio [2]. In 2013, more than 600 children ages 12 years and younger died as occupants in motor vehicle crashes [3], and more than 125,000 were injured [1]. Of those who died in a crash in 2013, nearly 40 % were not buckled up [3], and more black (45 %) and Hispanic (46 %) children were not buckled up compared with white (26 %) children [4]. Securing children in age-appropriate car safety seats, booster seats and seat belts can reduce the risk of serious and fatal injuries; specifically, car seat use has been found to reduce the risk of death for infants (aged <1 year) by 71 %; and to toddlers (aged 1–4 years) by 54 % [5]. Booster seats can reduce the risk for serious injury by 45 % for children aged 4–8 years when compared with seat belt use alone [6]. For older children and adults, seat belt use can reduce the risk for death and serious injury by almost 50 % [3].

Although the use of child safety seats nationally has increased by more than 20 % in the last several decades, widespread adoption remains a challenge. Disparities in child safety seat use by minorities have been documented [7]. Childhood injuries disproportionately affect poor and some minority populations [8], a difference that has been attributed to poverty rather than ethnicity [9, 10]. The National Highway Traffic Safety Administration (NHTSA) advises parents that ensuring every child is properly restrained for every trip is the most effective way to protect children in the event of a motor vehicle crash [11]. State laws increasing the age requirement for children to be restrained in a child safety seat or belt-positioning booster seat have shown to triple the use of these protective devices [12]. In 2009, Ohio passed a law requiring children under age 8 (or until 4 feet, 9 inches tall) to use a belt position booster seat once they outgrow their child safety seat. Nationally, less than one-half of children aged 4–7 used a belt positioning booster seat in 2013 [13].

The Somali people are an ethnic group in the US who emigrated as refugees from the African country of Somalia. Large numbers of Somali refugees and immigrants began arriving in the US in the 1990s to escape the decade-long civil war and violence in Somalia [14]. The total number of Somali living in the US is estimated to be 150,000 [15], up to 30,000 of whom reside in Columbus, Ohio [16]. Columbus has the second-largest population of Somali refugees and immigrants in the US, second to Minneapolis, Minnesota [16]. Due to a history of violence and trauma, experienced during pre-migration, migration and post-migration, many Somali refugees experience problems of daily living and adjustment, such as illiteracy, depression, and social problems (unemployment, adjustment stress during resettlement among others) [17–23].

To our knowledge, there have been no previous studies to determine child safety seat use and practices among Somali refugees and immigrants in the US. The aims of this investigation were twofold, the first was to determine the prevalence of child safety seat use, awareness of and barriers to use, and second, to use the information gained in the first phase to develop, implement, and evaluate a child passenger safety program for Somali families living in Columbus, Ohio that is both sustainable and culturally appropriate.

Methods

Data Collection and Participants

Key informants in the local Somali community were initially identified by the executive director of a Somali family alliance organization in Columbus, Ohio. Additional community leaders were identified as the interviews progressed. One-on-one interviews with key informants (n = 10) focused on characteristics of the Somali community, how Somalis identify and solve problems, who Somalis turn to for help, how Somalis access information, their experiences and perceptions of child passenger safety in the community, and the informants' interest in the implementation of child passenger safety research and programs.

Two focus groups featuring Somali parents (n = 30) were held to determine awareness of and barriers to adhering to child passenger safety and proper child safety seat use. To participate, parents had to be Somali, at least 18 years of age, and have at least one child ≤8 years old. Using an interpreter, parents were asked a series of open-ended questions about their transportation habits, child passenger safety knowledge and practices, interest in learning more about child passenger safety, and how they seek and receive health information.

An additional 200 Somali parents were surveyed to determine characteristics of child safety seat use among Somali families living in Columbus. Criteria for inclusion were the same as for the focus groups. Parents were approached by trained interviewers upon arrival at one of three public gathering places around the city. The interpreter-assisted survey included questions regarding driving behavior, passenger safety practices, child safety seat use, as well as demographic information, including parent age and sex, ages of children, years living in US, and annual household income. Appropriate child safety seat use was conservatively determined by using the child's age and the restraint types recommended for particular ages [24].

Finally, a culturally-appropriate child passenger safety intervention (a short video in Somali and English) was developed and distributed to Somali community leaders (n = 10). A trained interviewer administered brief telephone surveys to assess leaders' use and perceptions of the video. Informed consent (written or verbal) was obtained from all individual participants included in the study.

Statistical Analyses

Parent focus groups, key informant interviews, and telephone surveys were recorded and transcribed by the research team and common themes or important points were extracted upon review and briefly summarized. Frequencies, percentages, and odds ratios (OR) with associated 95 % confidence intervals (95 % CI) were used to quantitatively describe child passenger safety behaviors captured in the parent surveys by using SPSS version 17.0 (SPSS, Inc, Chicago IL) [25]. Statistical significance was assessed at the $\alpha = 0.05$ level. This study was approved by the Institutional Review Board at the Research Institute at Nationwide Children's Hospital.

Results

Key Informant Interviews

Community leaders (n = 10) recommended that becoming familiar with the community and culture, obtaining funding, and working with trusted community members were best practices to address needs in the Somali community. The leaders identified several issues facing the Somali communities of Columbus, including culture shock, illiteracy, unemployment, mental health, domestic and parenting issues, and safety. To combat these barriers, cultural competency classes are offered at some Somali community centers to aid adjustment in the host community. Many Somali refugees struggle with speaking English and very few read either English or Somali. Mental health issues may stem from displaced refugee status and time spent in camps and other stressful situations. Several Somali leaders mentioned domestic violence and parenting struggles as important issues.

Safety, particularly child passenger safety, was never mentioned without prompting from the interviewer. Due to the abundance of other problems, safety issues are not top priority in the Somali community. Overall there was a lack of knowledge about child passenger safety, particularly booster seats, but anonymous agreement that a booster seat program would be well received by the community. Informants indicated that providing Somali parents with booster seats at no cost would be a necessary component of an intervention due to financial constraints, and would draw attention to the effort. Somalis tend to access health and other information through word of mouth and some access it through written communication such as newspapers or fliers. Community leaders suggested disseminating information regarding use of child safety seats and booster seats and information orally or through a video to communicate the importance of child passenger safety to Somalis.

Focus Groups

A total of 30 parents (27 mothers and 3 fathers) participated in two focus groups. Participants had lived in the US anywhere from 9 months to 11 years and had 2–6 children per family. Common themes, which participants discussed, included the following: the need to transport their children, the need for child passenger safety efforts in the Somali community, and the desire Somali parents have for more child passenger safety information. These Somali parents reported some basic knowledge of child passenger safety laws and the importance of child passenger safety for the safety of their children, but also reported inconsistent use of child safety seats, inappropriate use for age and weight, and had generally low knowledge of appropriate child safety seat use for older children as well as knowledge about the ages for older children who should be in booster seats. No parents reported having a car seat installed by a child passenger safety technician. Somali parents preferred verbal communication of health and safety information and suggested a video involving community health workers to disseminate information regarding child passenger safety.

Parent Surveys

A total of 200 parents were surveyed who collectively represented 480 children. Most parents (82.5 %) were between 20 and 49 years of age and had lived in the US for 5 or more

years (75.5 %). Females (54.0 %) slightly outnumbered males (46.0 %), and the majority were married or living with someone as a couple (83.5 %) (Table 1). Most parents reported annual household incomes less than $15,000 per year (61.0 %), including 26.0 % who reported earning less than $5000 per year. Many parents were unemployed (39.5 %) or worked part-time (20.0 %); few worked fulltime (23.0 %).

Most parents drove a motor vehicle every day (61.5 %) or almost every day (8.5 %). Of those parents who ever reported driving themselves (n = 155), 84.5 % reported wearing a seatbelt every time they drove (Table 2). Many parents reported never driving themselves, but riding in a vehicle as a passenger with another driver (22.5 %). Most children (69.0 %) rode in motor vehicles more than a few days a month and 36.2 % of families reported having too few child safety seats.

Although almost all parents (96.0 %) reported restraining their children for every trip, more than one-third (37.5 %) of children whose parents were surveyed were restrained inappropriately for their age (Table 3). As the frequency with which parents drove a motor vehicle decreased, a greater percentage of their children were restrained inappropriately. Over one-third (36.0 %) of parents who reported using a seatbelt every time they drove restrained their children inappropriately for their age. Parents who reported using a seatbelt “Sometimes” or “Never” when they drove themselves, used an inappropriate child safety seat for their child’s age more often than parents who used a seatbelt every time they drove. Parents <20 years of age and ≥40 years of age used inappropriate restraints 50.0 % or more of the time, while parents aged 20–29 and 30–39 years used inappropriate restraints less often, (25.5 and 30.2 %, respectively). A larger percentage of children whose families had resided in the US for <5 years were restrained inappropriately (43.8 %) versus those whose families had been in the US ≥5 years (35.6 %). Children whose families had fewer child safety seats than children ≤8 years old living in their household were restrained inappropriately twice as often (53.1 %) as those who had enough seats (25.3 %).

Annual household income, parent age, years lived in the US, and family size were factors associated with having an insufficient number of child safety seats. Somali families earning less than $15,000 annually were more likely (OR: 1.24; 95 % CI: 1.03, 1.49) to have too few seats than families who earned more. Parents age 40 years and older were more likely (OR: 1.52; 95 % CI: 1.10, 2.11) to have too few seats than younger parents. Similarly, parents age 50 and older were more likely (OR: 2.01; 95 % CI: 1.06, 3.80) than younger parents to have too few seats. Having lived in the United States <5 years was associated with owning too few seats (OR: 1.69; 95 % CI: 1.05, 2.74) than families that have lived in the US ≥5 years. Of the families surveyed, 20.0 % were found to have four or more children ≤8 years old. These families were much more likely (OR: 3.82; 95 % CI: 2.06, 7.1) to have too few seats for their family size compared to families with fewer children ≤8 years old. Somali families who had too few child safety seats were more likely (OR: 1.89; 95 % CI: 1.55, 2.31) to restrain their child in a seat that was not age-appropriate when compared to families that had enough seats.

Intervention Evaluation Telephone Surveys

The intervention video was originally intended to include the voice of a Somali child narrating child passenger safety guidelines in a story-telling manner conducive to the Somali culture and a Somali mother was to be featured in the video. However, the structure of the intervention video was altered due to Somali community members' reluctance to participate in the video. The published video featured a trained child passenger safety technician speaking in English with Somali subtitles for a portion of the video and Somali voice-over for other portions.

The intervention video was distributed to ten Somali community leaders who then participated in a telephone survey evaluation to assess their perceptions of the intervention video. While all survey respondents thought that the video would be well received, concern was voiced that not having a Somali person featured in the video might make it difficult for the community members to connect with the message. It was also discussed that the subtitles would be difficult to read for those who were literate due to the speed at which they crossed the screen. Overall, the majority of the community leaders wanted free copies of the video to distribute.

Discussion

Although the Somali community in Columbus, Ohio recognized the importance of child passenger safety, many parents reported improper use of child safety seats for their children. This low adherence to child passenger safety may be reflective of rates in other minority and low-income communities. The low literacy rates in the Somali population may inhibit reading and understanding car seat installation manuals, which could contribute to inaccurate installation. Previous studies have determined that Hispanic children are less likely to be restrained in child safety seats than their non-Hispanic peers [26, 27]. Other minority children, such as African Americans, Native Americans, and Alaskan Natives, are also less likely to be restrained in a child safety seats [24, 26]. Socio-economic indicators, such as parental education and income, have been associated with use of child restraints with those of higher education or income status exhibiting greater use [26, 28]. Even though use of child safety seats is increasing in the US, misuse is a significant concern. In a study involving home observations by nurses, misuse of child safety seats was reported in over 75 % of households, and only 25 % of parents were even aware they were not utilizing the protective devices correctly [29]. Efforts to increase use of child passenger safety not only in low-income and minority populations, but throughout the US, should also focus on proper installation to better protect children.

Cultural competence has become an issue of importance in the medical field and has been related to improved health outcomes [30]. Effective communication between provider and patient, or in this case—health educator and community, must include cultural sensitivity regarding attitudes, knowledge, and skills [30]. Ensuring that interventions are tailored to the needs of the target population can ensure that cultural competence is met. In addition, a multi-level approach, such as the combination of qualitative and quantitative participatory research employed in this project, can facilitate dissemination of health knowledge to vulnerable populations.

Our intervention development efforts aimed to ameliorate the challenge of illiteracy, one of the major obstacles to assimilation in the Somali community of Columbus, by developing a video that presents information in their native language both orally and in writing via captions. The information we learned from the focus groups and key informant interviews led us to the decision to produce an educational video because the community found this method of communication favorable. The overarching goal of the project was to characterize self-reported child passenger safety practices in the Somali community of Columbus as an entry point for future, culturally appropriate intervention opportunities. Our educational video aimed to inform the community that child passenger safety is important, the recommendations for child safety seats, and available resources for assistance with proper installation.

Somali families in Columbus are faced with many challenges, including transportation, dwelling conditions, social structure of the family unit, and illiteracy—in both English and Somali. Although it is a top priority for Somali families, procurement of a vehicle is difficult because the Islamic injuction prohibits standard loans due to interest charges. Consequently, most vehicles owned by Somalis are older, used, and subject to mechanical problems. Family members and friends are often the primary source of transportation for Somali families who do not own a reliable vehicle [31]. If families do not own their own vehicle, they may be less inclined to purchase a child safety seats for each child, and instead use what is available, which may not be appropriate for their child. Our survey did not collect information about their use of public transportation, such as busses, where it would not be practical to use a child safety seat.

Most Somali families in Columbus live in low-income housing and very few own their own homes [16]. Large families are highly valued in Somali culture and a woman’s status is enhanced by the number of children [32]. Some two- or three-bedroom apartments may house up to a dozen people that may include nuclear and extended family or temporary guests. A nuclear Somali family typically consists of two parents with up to eight children and extended family may encompass several generations. Women wield considerable influence within the household and the mother manages most household duties and cares for the children. Large families are highly valued in Somali culture and a woman’s status is enhanced by the number of children she has [31]. Due to financial limitations caused by low incomes, providing each child in the family with the appropriate child safety seat or belt-positioning booster seat may be a challenge that an educational video cannot overcome. Free or discounted distribution programs may be beneficial, but are costly and simply distributing seats does not address the issue of misuse.

The study had limitations regarding cultural competence including miscommunication between our research team and the Somali community. Although the community expressed interest in a video to learn about child passenger safety, appearing on video is not culturally appropriate for the Somali people. Efforts to include Somali community members in the film were largely unsuccessful. One woman agreed to be on film, but later declined to participate after consulting with the community. Communication between survey administrator, translator, and participant was sometimes difficult to monitor and survey responses may or may not have been as intended. Inclusion of federal assistance or remittance money in

household income is questionable, as the issue of remittances only surfaced toward the end of survey activities. It is unclear if these were included in income reporting. The surveys administered to Somali parents did not capture some important aspects of Somali life. Almost half of participants were fathers, but given the role of the mother in childcare, it may be better to consult them for child passenger safety information. Future research should include Somali community members in the survey development to ensure accurate reporting of issues unique to Somali culture. Due to the difficulty in enumerating the Somali population in Columbus, and elsewhere, a convenience sample was used for all data collection activities. In the future a random sample of a fully enumerated population might provide better estimates of child passenger safety practices.

Conclusions

Improper child passenger safety practices in the Somali communities of Columbus, Ohio are a public health concern that should be addressed with culturally appropriate interventions including education and child safety seat distribution and installation when available. Future research should directly measure, rather than self-report, child passenger safety practices before and after the implementation of an intervention. Though less cost-effective than a safety video, interventions involving trained health community workers to directly disseminate information on child safety seats may ameliorate issues with illiteracy and low participation rates of Somali community members.

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Table 1

Demographic characteristics of Somali parents surveyed

Characteristics	n (%)[a]
Age (years)	n = 198
<20	4 (2.0)
20–29	55 (27.5)
30–39	58 (29.0)
40–49	50 (25.0)
≥50	31 (15.5)
Sex	n = 200
Male	92 (46.0)
Female	108 (54.0)
Years lived in the US	n = 200
<5 years	49 (24.5)
≥5 years	151 (75.5)
Marital status	n = 200
Married or living as a couple	167 (83.5)
Single, never married	18 (9.0)
Divorced	11 (5.5)
Widowed	4 (2.0)
Employment status	n = 199
Full-time	46 (23.0)
Part-time	40 (20.0)
Student	27 (13.5)
Retired	7 (3.5)
Unemployed	79 (39.5)
Annual household income	n = 199
<$5000	52 (26.0)
$5000–$14,999	70 (35.0)
$15,000–$30,000	35 (17.5)
>$30,000	15 (7.5)
Don’t know	25 (12.5)
Refused	2 (1.0)

[a]Totals may not sum due to missing data for age (n = 2), employment status (n = 1), and annual household income (n = 1). Percentages may not sum to 100.0 % due to rounding

Table 2

Passenger characteristics of survey participants

Characteristics	n (%)[a]
Parent driving frequency	n = 200
Every day	123 (61.5)
Almost every day	17 (8.5)
A few days a week	13 (6.5)
A few days a month	1 (0.5)
A few days a year	1 (0.5)
Never	45 (22.5)
Parent restraint frequency[b]	n = 155
Every time	131 (84.5)
Usually	12 (7.8)
Sometimes	10 (6.5)
Never	2 (1.3)
Child passenger frequency	n = 480
Every day	116 (24.2)
Almost every day	39 (8.1)
A few days a week	176 (36.7)
A few days a month	142 (29.6)
A few days a year	7 (1.5)
Child restraint frequency	n = 478
Every time	458 (95.4)
Usually	6 (1.3)
Sometimes	13 (2.7)
Never	1 (0.2)
Age-appropriate restraint	n = 480
Appropriate	300 (62.5)
Inappropriate	180 (37.5)

[a] Totals may not sum due to missing data for child restraint frequency (n = 2). Percentages may not sum to 100.0 % due to rounding

[b] Only includes parents who reported ever driving themselves

Table 3

Age-appropriate child restraint use and passenger characteristics

Characteristics[a]	Appropriate n (%)	Inappropriate n (%)	Total n (%)[b]
Parent driving frequency	n = 247	n = 139	n = 386
Every day	195 (63.9)	110 (36.1)	305 (79.0)
Almost every day	27 (71.1)	11 (28.9)	38 (9.8)
A few days a week	24 (64.9)	13 (35.1)	37 (9.6)
A few days a month	0 (0.0)	2 (100.0)	2 (0.1)
A few days a year	1 (50.0)	1 (50.0)	2 (0.1)
Never	0 (0.0)	2 (100.0)	2 (0.1)
Parent restraint frequency	n = 247	n = 137	n = 384
Every time	211 (64.1)	118 (35.9)	329 (85.7)
Usually	23 (88.5)	3 (11.5)	26 (6.8)
Sometimes	12 (48.0)	13 (52.0)	25 (6.5)
Never	1 (25.0)	3 (75.0)	4 (1.0)
Child passenger frequency	n = 300	n = 180	n = 480
Every day	74 (63.8)	42 (36.2)	116 (24.2)
Almost every day	30 (76.9)	9 (23.1)	39 (8.1)
A few days a week	103 (58.5)	73 (41.5)	176 (36.7)
A few days a month	89 (62.7)	53 (37.3)	142 (29.6)
A few days a year	4 (57.1)	3 (42.9)	7 (1.5)
Child restraint frequency	n = 300	n = 178	n = 478
Every time	284 (62.0)	174 (38.0)	458 (95.8)
Usually	6 (100.0)	0 (0.0)	6 (1.3)
Sometimes	10 (76.9)	3 (23.1)	13 (2.7)
Never	0 (0.0)	1 (100.0)	1 (0.2)
Parent age (in years)	n = 297	n = 178	n = 475
<20	3 (50.0)	3 (50.0)	6 (1.3)
20–29	108 (74.5)	37 (25.5)	145 (30.5)
30–39	97 (69.8)	42 (30.2)	139 (29.3)
40–49	59 (47.2)	66 (52.8)	125 (26.3)
≥50	30 (50.0)	30 (50.0)	60 (12.6)
Years lived in the US	n = 300	n = 180	n = 480
<5 years	63 (56.3)	49 (43.8)	112 (23.3)
≥5 years	237 (64.4)	131 (35.6)	368 (76.7)
Seats for each child	n = 299	n = 179	n = 478
≤8 years			
Enough seats	201 (74.7)	68 (25.3)	269 (56.3)
Not enough seats	98 (46.9)	111 (53.1)	209 (43.7)

[a]Parent responses for each child were aggregated and each parent response represents one or more children. A total of n = 200 parents were surveyed that represented n = 480 children ≤8 years

[b] Totals may not sum due to missing parent survey responses and percentages may not sum to 100.0 % due to rounding