



Low rates of child restraint system use in cars may be due to fatalistic beliefs and other factors

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ABSTRACT

Restraining children in cars has proven to save lives during car crashes. However, not all drivers of cars with children in them comply with the law regarding child restraint system (CRS) use. The aim of this study was to measure the rate of child and adult CRS use and to identify associations between fatalistic beliefs and CRS use among Arab children. A random sample of 380 Arab drivers transporting children 8 years and younger in Israel were interviewed after observing 835 children traveling in 400 vehicles. Proper restraint ranged from 41% among children aged one to three to 9% among booster seat-eligible children. In a logistic regression model driver seat belt use, fatalistic beliefs, knowledge regarding the law on CRS, number of children in the car, age and gender were associated with all the children being restrained in the car. Drivers with higher levels of fatalistic beliefs had a lower odds ratio of restraining their children in the car, after adjusting for the other confounding variables ($OR = 0.80$, $CI = 0.65, 0.97$). High levels of fatalism and low levels of knowledge in addition to other factors may inhibit Israeli Arab parents from restraining their children in cars. Therefore, children in these communities are at risk of injury or death in motor vehicle crashes and there is a need for tailored interventions specific for this population.

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1. Introduction

Motor vehicle injuries are the leading cause of mortality among children in Israel. Among Arab children aged 8 and younger, mortality rates from motor vehicle crashes are twice as high as mortality rates among the Jewish population. Arab children comprised 34% of the total injuries, 46% of severely injured and 60% of fatalities (Central Bureau of Statistics, 2007), even though Arab children consist of only 28% of children in Israel. Their risk of being involved in a car crash and injured was more than twice that of Jewish children (Gitelman & Endy-Findling, 2008).

Optimal child restraint system (CRS) use, that is age-appropriate, has been demonstrated to reduce the risk of injuries and death overall (Nance et al., 2004). The National Highway Traffic Safety Administration (NHTSA) recommends that for the best possible protection, infants should be kept in the back seat, in rear-facing child safety seats, as long as possible up to the height or weight limit of the particular seat. The Israeli law is based on the NHTSA recommendations.

Although Israel has enacted child safety restraint laws, many children are still inappropriately restrained or completely unrestrained (Gitelman & Endy-Findling, 2008; Gitelman, Pesahov, & Carmel, 2011). A national observational survey of CRS use in Israel in 2010 found that 15% of children ages 0–15 were not restrained at all. In addition, only 46% of infants, age 0–1, 59% of children age 1–4, 28% of children age 5–9 and 59% of children age 10–15 were correctly restrained (Gitelman et al.,

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2011). These observations included mostly Jews and a relatively small sample of Arab children, limiting the ability to draw conclusions regarding CRS use in the Arab community (approximately 8% of 3699 observations). This national survey was conducted primarily at shopping malls and other parking lots outside of city limits.

According to the Israel National Traffic Safety Administration survey in 2005, only 4% of Arab children were restrained in safety seats compared to 66% of Jewish children (Road Safety Authority, 2010). A CRS use survey among Israeli Arab children conducted in two Arab villages during 2004–5 found that CRS use among children from birth to 8 years of age was 25.6% (Obid, 2005). This calls for interventions targeting the Arab population.

Studies reported comparatively low CRS use in other nearby countries too. For example, Habib et al. (2010) reported that around 60% of youth aged 11–17 reported safety belt use in Beirut Lebanon. Simsekoglu and Lajunen (2008a, 2008b) discuss the low rates of seat belt use in Turkey compared to European countries and the US. On city roads only 21% of occupants in the cars reported using seat belts. In a recent study a large discrepancy between observational data and self reported data regarding seat belt use was reported in Turkey, where between 47% and 70% of drivers actually fasten their seat belts after reporting “always” fastening their seatbelts (Özkan, Puvanachandra, Lajunen, Hoe, & Hyder, 2012), therefore we may assume that actual seat belt use is lower than self-reported seat belt use. In Greece a low rate of seat belt use was also reported among young men and women age 18–24 (Chliaoutakis, Gnardellis, Drakou, Darviri, & Sboukis 2000).

However, it is not clear why this low level of compliance with the law in Israel persists. Factors, such as, socioeconomic and socio demographic may hinder CRS use among Israeli Arab children and in addition beliefs and attitudes that are culturally based may be influencing the adoption of the behavior (CRS use). It seems that few studies have estimated the beliefs and attitudes that are associated with CRS use especially among Arabs. Studies in nearby countries have looked at reasons for the low rates of seat belt use. Simsekoglu and Lajunen (2008a, 2008b) suggest that in Turkey seat belt use has not become a habit. They also found that factors of the Theory of Planned Behavior (TPB), such as attitudes towards seat belt use, subjective norms, and factors from the Health Belief Models (HBMs), such as perceived benefits and perceived barriers were associated with self reported seat belt use. These studies were performed in adults. Among Greek young drives, imitation, self protection and legality were associated with seat belt use (Chliaoutakis et al., 2000).

In the US, a qualitative study identified barriers to use of booster seats in a multiethnic community, these barriers included deficits in understanding about the purpose of booster seats, cost of the seat, and self efficacy (Johnston et al., 2009).

Previous studies have found that fatalistic beliefs are higher among Arabs compared to Jews and this has been shown to affect adoption of preventive behaviors (Baron-Epel, Friedman, & Lernau, 2009). Fatalistic beliefs are viewed as a cultural belief and are defined as a belief that health (or an event such as a car crash) is beyond an individual's control because it is a matter of fate or luck. Therefore, the individual will not tend to adopt the preventive behavior (Abraido-Lanza et al., 2007; Powe & Finnie, 2003; Straughan & Seow, 2000).

The aim of this study was to measure the rate of CRS use and to identify associations between fatalistic beliefs and car seat use among Arab children. We hypothesize that higher levels of fatalistic beliefs may be associated with lower levels of CRS use among Arabs, after adjusting for other socioeconomic and demographic factors.

2. Methods

A cross-sectional observational study on infant and CRS use was conducted in eight Israeli Arab towns and villages in the northern district of Israel during 2008. These included the city of Nazareth and another seven villages in the area.

The study included observations of 400 vehicles with child occupants 8 years old and younger.

The drivers were asked to answer a questionnaire. Compliance with the survey was 95% only 20 drivers refused to be interviewed.

The observer (the first author OH) approached every second vehicle with child occupants as it entered or exited the parking lots at local businesses, clinics, kindergartens, day care nurseries and elementary schools (4–10 sites per village or town). Observations were conducted during the week (Monday through Saturday and not on holidays), between 8 AM and 6 PM, which is when children age 0–8 were most likely to be traveling in a car. No identifying information was collected from occupants or vehicles. If the vehicle was entering the parking lot, it was approached before the driver had unfastened his or her seat belt. If the vehicle was leaving the parking lot, it was approached after the driver had the opportunity to secure the children and to fasten his or her own seat belt.

On approaching the vehicle, how the children and driver were restrained was recorded. All observations of drivers and CRS use were recorded on a 1-page data collection instrument adapted from previously studies (Cummings & Rivara, 2004). Then the driver was approached and the goals of the study were explained. The driver gave verbal consent to participate. The drivers were told they could stop the interview at any point.¹ The interviews were conducted in Arabic.

¹ Ethical permission: The highest ethical standards were adhered to and maintained in the study's procedures and methods. The following steps were followed by the interviewer: she introduced herself; then briefly described the survey topic; then identified the person and organization conducting the research; described the purpose of the research and gave a “good faith” estimate of the time required to complete the interview; she also promised anonymity and confidentiality; the interviewer mentioned to the participant that participation is voluntary and that item-nonresponse is acceptable. Finally, permission to begin was asked. Informed consent was considered to have been obtained when potential participants agreed to answer the questionnaire. However, no official ethical approval was sought for this study. At that time (beginning of 2008) it was not needed in Israel as no data from lists of patients or clients was used and no medical information was obtained from other sources.

Drivers' perceived benefits of child safety seat, perceived susceptibility to be involved in car crash, perceived barriers to use of safety seats—cost, time, and fatalism were examined. The questionnaire was based on Champion & Skinner's questionnaire and adapted for use in this population and this topic (Champion & Skinner, 2008; Byrd, Peterson, Chavez, & Heckert 2004).

Knowledge was measured by six questions regarding child restraint in the car according to age. For example, the drivers were asked "where was the safest place to seat an infant under 12 months" and "how does the driver think a child age 1–3 should be seated in a vehicle". The interviewer had 6–7 options on the questionnaire to choose from, these options were **not** read out to the driver. According to the answer the driver gave, the interviewer marked the suitable answer. One of the options was a "do not know" answer. If the answer was correct the question was scored 1, all other answers were scored 0. The summed scale was divided into three levels—low (score 0–2), medium (scores 3–4), and high (scores 5 and 6).

Perceived benefit of restraint was measured by five items such as "a safety seat is just as likely to harm your child as help him", "booster seats for children age 1–3 can decrease the severity of the injury in a car crash" "the safe way to transport a small child is in a CRS". For each item respondents were asked to agree or disagree on a five-point Likert scale from 1 (do not agree at all) to 5 (totally agree). A mean score was calculated for the items depicting perceived benefit of restraint. Cronbach's alpha for the five items was 0.80.

Risk perception of being involved in a car crash was measured by four items: "the chances of me being involved in a car crash are slim", "only young drivers are at risk of a car crash", "when I am driving slowly my kids are not at risk of getting hurt in a car crash", and "car crashes near home are not serious". For each item respondents were asked to agree or disagree on a five-point Likert scale from 1 (do not agree at all) to 5 (totally agree). A mean score was calculated for the items depicting risk perception. Cronbach's alpha for the four items was 0.5.

Fatalism was measured by three items referring to fatalistic beliefs that all events are determined by fate or God and therefore inevitable. The items included: "if it is the time to die, you'll die, so it doesn't matter whether your child is restrained in a car safety seat", "I put my trust in God, and it does not matter if the child is restrained or not, whatever is *written* will happen" and "being involved in a road accident is fate and people cannot avoid it". For each item respondents were asked to agree or disagree on a five-point Likert scale from 1 (do not agree at all) to 5 (totally agree). A mean score was calculated for the items depicting fatalism. Cronbach's alpha for the three items was 0.63.

In addition, drivers were asked their age, the children's age, if they were employed or not, if they were Muslim or Christians, their level of education and their income.

Child Restraint System use: An infant less than one year old was categorized as infant seat eligible, (rear facing). A child between 1 and 3 years old was categorized as child seat-eligible. A child between 3 and 8 years old was considered booster seat-eligible. Children who were older than 8 years were excluded from this analysis. Unrestrained children included children who were unrestrained, sitting on an adult's lap, or sitting on a CRS without using the harness straps. Incorrect restraint use was defined as a child who was restrained, but not according to the safety recommendations for the child's age, for example use of a seat belt under age 4, incorrect restraint was added to the group of the unrestrained children.

For the analysis of the association between the various variables and CRS use, two categories were formed: 1. **Full restraint** – When all the children in the car were restrained correctly and 2. **Not restrained** – When at least one of the children was not restrained correctly.

Adult seat belt use was recorded by the observer before the interview, drivers restrained were coded as 1, and drivers not restrained were coded as 2.

After bivariate analysis a multivariable logistic regression analysis was performed to assess the factors associated with CRS use. The dichotomized variable of CRS use was the dependent variable, and fatalism (as the continuous variable) was the independent variable, with the other variables that were associated in the bivariate analysis with CRS use also as independent variables. Knowledge was added as a continuous variable to the regression. Statistical significance was set at a *p* value of less than 0.05. SPSS version 14 was used for data analysis.

3. Results

We obtained consent from 380 drivers and interviewed them, 98% of the drivers were the children's parents, and 2% were relatives or friends. Sixty percent of drivers were female and 40% were male. The mean age was 30.6 years (*SD* = 5.9); 85% were Muslim and the rest Arab Christian. Only 35% of women reported working outside the home. Education varied among groups: the Christians reported having an academic education (45.5%) more frequently than Muslims (22.2%) and 35.8% of the sample had incomes of 3000–5000 New Israeli Shekels (mean net income in Israel is around 8000 New Israeli Shekels) and the mean number of children per family was 2.7 (*SD* = 1.6).

A total of 835 children in 400 vehicles were observed, 24.1% of the children were 0.1–1 year old, 31.7% were 1–3 years old and 44.2% of the children were 3.1–8 years old.

About a quarter of infants were in the arms of adults and only 25.9% of infants were in rear facing seats as indicated by law (Table 1). More than half of children age 1.1–3 (60%) were not in front-facing safety seats as required. Some of these children were in booster seats (7.2%) and some restrained with adult seat belts (6.4%) prematurely. The rest were not restrained at all. Only 8.7% of the children age 3–8 were in booster seats. This group was at particular risk of riding unrestrained or incorrectly restrained (91.3%).

Table 1Type of child restraint system (CRS) used among Israeli Arab children by age in motor vehicles in eight Arab towns and villages ($n = 835$).

Type of restrain used	Infant seat-eligible 0.1–1 year (<i>n</i>) %	Child seat-eligible 1.1–3 years (<i>n</i>) %	Booster seat-eligible 3.1–8 years (<i>n</i>) %
Rear facing seat	(52) 25.9	0	0
Forward-facing child seat	(77) 38.3	(108) 40.7	(15) 4.0
On adult hands	(54) 26.9	(35) 13.2	0
Restraint was not placed properly	(18) 8.9	(7) 2.7	0
Booster Seat	0	(19) 7.2	(32) 8.7
Adult shoulder belt	0	(17) 6.4	(124) 33.6
Unrestrained	0	(79) 29.8	(198) 53.7
Total	(201) 100	(265) 100	(369) 100

Table 2 presents the data on the bivariate associations of child restraint and driver's characteristics. Thirty-nine percent of drivers were categorized as restraining all the children in their car (full restraint). Women, those with fewer children in the car, drivers restraining themselves, those with more education and Christians, restrained their children in the car significantly more often.

Generally, there were high levels of knowledge about the seating location of children and their restraint (Table 3). However, lack of knowledge regarding types of safety seats was identified for booster seat-eligible children, 64.2% of drivers did

Table 2Frequency of child restraint system (CRS) use by drivers characteristics $N = 380$.

Characteristics of drivers		Full restraint of all children in car		No or partial restraint of children in car		<i>P</i>	χ^2
		<i>n</i>	%	<i>n</i>	%		
Gender	Total	156	39.0	244	61.0	0.001	11.44
	Male	49	29.5	117	70.5		
	Female	107	45.7	127	54.3		
Age (years)	17–29	73	38.6	116	61.4	0.53	6.31
	30–39	70	41.2	100	58.8		
	40–65	13	31.7	28	68.3		
Number of children in car	1 child	52	53.1	46	46.9	0.002	28.45
	2–3 children	75	39.9	113	60.1		
	>4	26	27.7	68	72.3		
Employment status	Employed	87	43.7	112	56.3	0.09	1.17
	Unemployed	66	36.5	115	63.5		
Driver seat belt use	Restrained	125	49.0	130	51.0	<0.0001	49.90
	Unrestrained	31	21.4	114	78.6		
Education	No high school diploma	51	28.3	129	71.7	<0.0001	31.80
	High school or professional education	45	43.7	58	56.3		
	Academic education	57	58.8	40	41.2		
Income	Under 5000	64	35.2	118	64.8	0.127	13.33
In New Israeli	5000–6500	42	42.9	56	57.1		
Shekels	Over 6500	47	47.0	53	53.0	0.011	6.01
Driver religion	Muslim	123	37.8	202	62.2		
	Christians	31	55.4	25	44.6		

Table 3Mean scores and standard deviation (SD) of knowledge and attitudes of drivers, by child restraint system (CRS) use. Mann–Whitney test, or ANOVA, $N = 380$.

	Full restraint of all children in car		No or partial restraint of children in car		<i>p</i>	
	Mean	SD	Mean	SD		
Knowledge ^a	4.75	1.12	4.13	1.32	<0.0001	$F = 21.83$
Attitudes						
Perception of benefits of restraint ^b	4.31	0.31	4.26	0.43	0.20	$Z = -1.03$
Risk perceptions ^b	3.61	1.16	3.45	1.14	0.19	$Z = -1.33$
Fatalism ^b	2.25	1.15	3.03	1.28	<0.0001	$Z = -6.78$

^a Scale from 0 to 6.^b Scale from 1 to 5.

Table 4

Factors associated with child restraint system (CRS) use, logistic regression odds ratio (OR) confidence interval (CI) and *p* value (*N* = 380).

Variable	OR	CI	<i>p</i>
Fatalistic beliefs	0.80	0.65, 0.97	0.027
Knowledge	1.26	1.04, 1.52	0.019
Gender	2.12	1.22, 3.69	0.008
Driver's age	1.11	1.04, 1.17	0.001
Number of children	0.64	0.51, 0.80	<0.0001
Driver seat belt use	0.30	0.18, 0.50	<0.0001
Education	1.17	0.85, 1.61	0.34
Religion	0.86	0.44, 1.71	0.67

Child restraint system (CRS) use of all children in the car as the dependent variable.

not know that the booster seat is the seat for children age 3–8. Sixty-four percent of participants reported that children are old enough to use an adult seat belt at or before the age 6. Only 24% of drivers reported correct answers to all the questions (data not presented). Significantly higher levels of knowledge were found among drivers that fully restrained their children ($p < 0.0001$). For example, among drivers with low levels of knowledge (score 0–2) 37% had their children fully restrained, and 63% were not restrained. However, among drivers with high levels of knowledge (scores 5 and 6) 62.8% had their children fully restrained and 37.2% were not fully restrained ($p < 0.0001$, $\chi^2 = 16.93$).

There was no association between CRS use and perceptions of the benefit of using car restraints and risk perception (Table 3).

There was a significant association between levels of fatalistic beliefs and CRS use ($p < 0.0001$, $Z = -6.78$). Lower levels of fatalistic beliefs were reported by drivers that had their children fully restrained compared to those that only partially restrained their children (Table 3). For example, the majority (78%) of the drivers who strongly agreed with the statement “I put my trust in God, and it does not matter if the child is restrained or not, whatever is written will happen” did not fully restrain their children in the car compared to 22% that did fully restrain their children in the car ($p = 0.003$, $\chi^2 = 15.82$). Among drivers who strongly agreed that “if it is the time to die, you’ll die, so it doesn’t matter whether your child is restrained in a car safety seat”, 62% did not restrain their children in their cars and 38% did restrain their children ($p = 0.02$, $\chi^2 = 11.97$). For the third item depicting fatalistic beliefs, respondents were asked if they agree or disagree with the statement that “being involved in a road accident is fate and people cannot avoid it”, of those that strongly agreed with the statement, 68% of drivers did not restrain their children in the car compared to 32% among drivers who restrained all the children ($p = 0.001$, $\chi^2 = 18.30$) (data not presented in the table).

Among Muslims, fatalistic beliefs were higher compared to Christians (2.89 and 2.25 respectively, $p < 0.001$, $Z = 3.45$). Higher levels of fatalistic beliefs were also associated with lower levels of education (2.29 and 3.08 respectively, $p < 0.0001$, $Z = -6.04$).

To identify whether fatalism was associated with CRS use among Israeli Arab children a multivariable logistic regression analysis was conducted to calculate the association between fatalism and CRS use, after controlling for gender, age of driver, number of children in car, driver seat belt use, education, religion, and knowledge as possible confounders (Table 4). Drivers with higher levels of fatalistic beliefs had a lower odds ratio (OR) of CRS use (odds ratio, OR = 0.80, confidence interval, CI = 0.65–0.97). Table 4 also shows that drivers that did not restrain themselves in the car had a lower chance of restraining their children (OR = 0.3, CI = 0.18, 0.50). Women were more likely to restrain children compared with men (OR = 2.12, CI = 1.22, 3.69). Driver’s age was also associated with restraint. The odds of having a child restrained in the vehicle increases significantly for each increment in the driver’s age (OR = 1.11, CI = 1.04, 1.17). The number of children in the car was significantly associated with CRS use, the more children in the car the less likely they were of restraining the children. Drivers with higher levels of knowledge regarding CRS were more likely to restrain their children in the car (OR = 1.26, CI = 1.04, 1.52). Education and religion were not associated with child restraint after adjusting for all confounders (Table 4).

4. Discussion

This study presents evidence that a high percent of Israeli Arab children traveling in cars are inadequately restrained as indicated by the law, putting them at risk for injury and/or death from car crashes. Proper restraint use was highest for child seat-eligible children, followed by infants less than one year old. The proportions of booster seat-eligible children who were properly restrained were alarmingly low. This study echoes previous studies in Israel that found that Arabs are less compliant with CRS and adult seat-belt use laws compared to Jews (Gitelman & Endy-Findling, 2008). Reports show that minority populations in other countries have lower levels of CRS use (Elliott, Kallan, Durbin, & Winston 2006; Rangel, Martin, Brown, Garcia, & Falcone 2008). This may also be attributed to the fact that minorities often have lower levels of income and education. In a report by the WHO regarding global road safety, in Eastern Mediterranean countries there is information regarding seat belt laws in every country, however there is no data regarding the percent of children using CRS in countries that surround Israel (World Health Organization, 2009).

Before planning interventions there is a need to understand why the law is not fully implemented and by whom.

It seems that the best predictor of child restraint system (CRS) use in our study is use of the seat belt by the driver. In addition, those with more knowledge, lower fatalistic beliefs, women, older drivers, those with fewer children have higher chances of fully restraining their children in the car.

Knowledge is regarded as a basic need for adoption of behaviors (Simpson, Moll, Kassam-Adams, Miller, & Winston, 2002). Generally, levels of knowledge regarding child restraint in cars were high in this community. However, there were gaps in knowledge regarding specific issues and drivers that do not restrain their children in the car had lower levels of knowledge regarding child restraint. Johnston et al. (2009) also found that lack of knowledge regarding CRS use was a problem in minorities in the US.

Since the primary reason for restraining children in the car is to avoid injury during a crash, there is a question as to whether those who do not use car safety seats for children on a regular basis do not recognize risk, or simply do not believe they can avoid it (fatalistic beliefs). The HBM components: risk perception and perception of benefits of restraint were not found to be associated with child restraint system (CRS) use in our study. Simsekoglu and Lajunen (2008b) studied the association between self-reported seat-belt use, the HBM and the (TPB). They report that perceived benefits had a positive association with self-reported seat belt use and perceived barriers and cue for action had a negative association with self-reported seat belt use. However, the HBM model fitted the data poorly, whereas the basic TPB model showed a good fit to the data regarding seat belt use in the front seat. The discrepancies between the two studies may be due to the fact that our study utilizes observational data compared to self reported data in the Turkish study and the fact that these are very different communities culturally.

In contrast to the HBM components that were not associated with CRS use in our study, fatalism was associated with CRS use, both in the bivariate analysis and after adjusting for all the other variables. Drivers with higher levels of fatalistic beliefs seem to have a lower chance of restraining their children in the car.

Fatalism is the belief that life is determined by God or fate and the individual is not able to change the course of life, individual behavior will not change fate. The belief is that if fate has “*been written*” (been decided) then it is impossible or very hard to change. Fatalism has been defined in various ways in the literature and no consensus exists regarding the exact definition. Generally, fatalism regarding health was defined as: “health being a matter of fate or luck and beyond an individual's control” (Straughan & Seow, 2000). This type of belief may inhibit individuals from attempting to prevent things like disease and injury, and there is evidence that those with higher levels of fatalistic beliefs will not adopt preventive behaviors such as early detection of cancer (Abraido-Lanza et al., 2007; Baron-Epel et al., 2009; Mayo, Ureda, & Parker, 2001; Powe, 1995).

Few studies have looked at fatalism in regard to other behaviors not related to cancer. Henson et al. found that in undergraduates fatalism was related to health destructive behaviors such as alcohol, drug and tobacco, but not to health protective behaviors (Henson, Carey, Carey, & Maisto, 2006). No studies were found regarding road safety behaviors and fatalism.

Not restraining children in the car may be an indicator of injury prevention behaviors and higher levels of fatalistic beliefs may serve as a barrier to adopting preventive measures or behaviors.

In most of the studies, higher levels of fatalistic beliefs have been associated with low income and/or lower levels of education (Mayo et al., 2001; Niederdeppe & Levy, 2007; Powe, 1996; Russell, Champion, & Skinner, 2006; Vetter, Lewis, & Charney, 1991). This study also supports this finding, where levels of fatalism were higher among the less educated drivers. Individuals with higher levels of education may have a feeling of control over life in general. Low levels of education may leave people with feelings of powerlessness and therefore may not adopt various behaviors. Fatalism has also been suggested to be a characteristic of poverty (Freeman, 1989), and as the Arab community is a minority and have comparatively lower levels of socioeconomic status compared to the majority of Jews, this may be an appropriate explanation. On the other hand, fatalism has been attributed to ethnicity and culture and may be a characteristic of the Arab community. In another study performed in Israel we found that the level of fatalism was highest in the Arab community compared to the Jewish community (Baron-Epel et al., 2009). However, in the present study no Jews were interviewed therefore we cannot conclude that levels of fatalism were high or low. Ethnicity has also been suggested to be associated with levels of fatalism in other studies, and related to as a cultural belief by many researchers, for example the Latino community in the US is regarded as having higher levels of fatalism compared to the white population (Abraido-Lanza et al., 2007; Florez et al., 2009).

Strengths and limitations of the study: This study is based on observational data and therefore more valid than studies based on self reported CRS or seat belt use (Özkan et al., 2012). However, the study included drivers in a specific area in the northern part of Israel, and their representativeness of the total Arab population in Israel is not clear. Our study included only Arab drivers both Muslim and Christian in Israel, therefore we may not generalize to other population groups and further studies are needed to understand the generalizability of this finding. We do think that the Arab population may be characteristic of other deprived minorities in other countries.

In addition there is a need to develop more valid and reliable tools to measure fatalism. Three items were used in this study to measure fatalism, with a Cronbach's alpha of 0.63. This low alpha may be due to the fact that only three items were used and not only to a low reliability of the measure. In addition, it is not possible to assume high levels of fatalism among Arabs, as in this study, we did not compare to other ethnic groups in Israel and no Jews were interviewed, therefore further research is needed to compare between Muslims, Christians and Jews.

4.1. Conclusions and recommendations

Fatalistic beliefs and low levels of knowledge may inhibit people in the Arab community from adopting safety measures to prevent injury. The results of this study call for tailored interventions in the Arab community in which the issue of fatalistic beliefs will be addressed when trying to convince people to adopt safety measures. In addition, there is a need to increase levels of knowledge regarding CRS use. Therefore, campaigns aimed at injury prevention need to decrease fatalistic beliefs and increase knowledge in this community. Fatalistic beliefs regarding adoption of safety measures should also be studied in other communities as they have largely been ignored and may be more important than expected.

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