



# Evaluation of a participative education process for increasing tween restraint use in Virginia: The *Make it Click* initiative



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## ARTICLE INFO

### Article history:

Received 14 December 2015

Received in revised form 17 November 2016

Accepted 30 November 2016

Available online 24 December 2016

### Keywords:

Occupant protection

Children

Motor vehicle

Safety belts

Intervention

Evaluation

## ABSTRACT

**Introduction:** Nearly half of 8–12 year-old tweens killed in car crashes every year in the US are completely unrestrained, and the majority sit in the front seat. The purpose of this study was to develop and evaluate a school-based program targeting increased safety restraint and back-seat use among tweens.

**Design and setting:** The multi-component school-wide program was evaluated via a pre-post control-group design in four public elementary schools in an economically disadvantaged, multi-ethnic urban community in southeastern Virginia. Study schools had 1184 students enrolled in third through sixth grades.

**Intervention:** The *Make it Click* Initiative was developed with input from student focus groups, surveys, and school personnel. Grounded in social cognitive theory and principles of behavioral psychology, the participative education program included: (a) competition to achieve a high rate of students buckled in the back; (b) a creativity contest with entries illustrating a car safety theme; (c) a series of parent education flyers; (d) car safety assignments that support state learning objectives; (e) a safety-themed play; (f) teacher newsletters; and (g) educational presentations.

**Main outcome measures:** Behavioral observations ( $N = 762$ ) of children's restraint and back seat use.

**Results:** *Make it Click* intervention schools' observed safety belt use increased from 31.9% to 67.9%, and students in intervention schools were 3.3 times more likely to wear their belts at follow-up than students in control schools,  $X^2(1) = 19.72, p < 0.001$ . Further, increases in belt use were maintained in study observations longer than those resulting from the highly publicized national *Click it or Ticket* enforcement program. Significant differences were not observed in back seat use.

**Conclusions:** The program resulted in significant improvements in observed safety belt use that outlasted results observed locally from the national high visibility enforcement program alone. Theory-driven participative education programs can improve the safety practices of school-age children.

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## 1. Introduction

Motor vehicle crashes are a leading contributor to injury and medical spending, and the leading cause of death for US children aged 8–12 years old (Bergen et al., 2014; Centers for Disease Control & Prevention, 2014a; Sauber-Schatz, West, & Bergen, 2014). Child traffic fatalities and injuries increase with children's age in the US, yielding higher morbidity and mortality rates for children over age 8 compared to their younger counterparts (Centers for Disease Control & Prevention, 2014b; National Highway Traffic Safety Administration, 2014a). This is likely because the 8–12 year-old age group, often referred to as “twens,” is at a transitional age between childhood and adolescence, where many are outgrowing booster seats and beginning to use safety belts (Bryant, 2008; Jennings, Merzer, & Mitchell, 2006). Twens are beginning to exhibit independence from their parents, often choosing for themselves where to sit and buckling themselves into the vehicle. Thus, they are at a critical time when safety habits and associated values are forming and solidifying (Jennings et al., 2006). This group of youngsters is also still very susceptible to both peer and parental influence (Kuhn & Lam, 2008). Many indicate freely that they do what they are told when given direction by the driver, but given the freedom, do what they want (Kuhn & Lam, 2008; Will, Dunaway, & Lorek, 2013).

Unfortunately, nearly half of the twens killed in car crashes every year in the US are completely unrestrained (National Highway Traffic Safety Administration, 2014b; Sauber-Schatz et al., 2014). Safety restraints reduce the risk of fatal injury in a crash by 45–71%, depending on the restraint and position in the vehicle (National Highway Traffic Safety Administration, 2014b). Studies of tween restraint use yield widely varying results, from 35% belt use to over 85% belt use, depending on the locality and socio-demographics of the population being studied (Greenspan, Dellinger, & Chen, 2010; Macy & Freed, 2012; Pickrell & Ye, 2009; Will et al., 2013; Yang et al., 2011). Proper restraint use decreases as children age, and situational or part-time belt use is more common during the tween years (Greenspan et al., 2010).

Back seat use is recommended for improved safety until age 13, as children seated in the front seat are at 40% greater risk of crash injury compared to those seated in the back seat (Durbin, Chen, Smith, Elliott, & Winston, 2005; Lennon, Siskind, & Haworth, 2008). Yet, front seat use increases during the tween years, with over half sitting in the front seat (Durbin, Chen, Elliott, & Winston, 2004; Greenspan et al., 2010).

Important risk factors for car safety noncompliance include: older age of child, unrestrained driver, lower education, lower income, living in a rural area, and greater number of child passengers (Eby, Bingham, Vivoda, & Ragunathan, 2005; Macy, Cunningham, Resnicow, & Freed, 2014; Vivoda & Eby, 2011). Socio-demographic disparities in child passenger safety practices are also well documented (Lee, Shults, Greenspan, Haileyesus, & Dellinger, 2008; Macy & Freed, 2012; Will et al., 2013). Nonwhite minority black and Hispanic children in particular have lower rates of safety restraint use compared to white children in the US (Macy & Freed, 2012; Macy et al., 2014; Sauber-Schatz et al., 2014), and race remains a significant predictor, even after controlling for education and family income (Macy & Freed, 2012; Macy et al., 2014). However, it is difficult to separate the presence of one risk factor from additional risk factors. In the US, race and ethnicity are considered key social determinants of health because of their long-standing association with poverty, residential segregation, discrimination, and unequal access to health care (Mehta, Hedwig, & Ylitalo, 2013). Poverty, religiosity, race, parental supervisions, and access to educational resources are often confounded in such a way that no one factor can be determined as causal (Lavranos, Kalampoki, & Petridou, 2008; Yang et al., 2011). Restraint use differences may stem from barriers in access to care and/or lack of culturally appropriate interventions than from demographics (Brown, 2010; Rangel, Martin, Brown, Garcia, & Falcone, 2008). Clearly, not all children have been reached equally by community-based public education campaigns, and more targeted and culturally appropriate programs are needed to address disparities in child passenger safety practices (Macy & Freed, 2012; Macy et al., 2014).

Occupant protection programs targeting younger (under age 8) and older (adolescent) populations are ubiquitous in the US, yet by comparison, far fewer programs have specifically focused on the tween age group. This is improving, with additional programs beginning to focus on twens as interventionists and funders have recognized the programming gap (Aitken, Mullins, Lancaster, & Miller, 2007; National Highway Traffic Safety Administration, 2015; Safe Kids Worldwide, 2015). This paper describes the evaluation of one such program, *Make it Click*, which was developed in response to identified need and low tween belt use (Will et al., 2013) in an economically disadvantaged school district in southeastern Virginia.

### 1.1. Theoretical foundations for program development

Twens and children in general benefit from a fun, interactive approach to learning rather than a lecture approach. Twens are at an ideal age for direct intervention with the children because they are just starting to make their own decisions (Jennings et al., 2006). The tween initiative detailed in this paper is a participative education program (Geller, 1988; Geller, 1989; Lehman & Geller, 1990) grounded in Social Cognitive Theory (Bandura, 1986) and principles of behavioral and motivational psychology such as intrinsic motivation and self-determination (Deci & Ryan, 1987; Deci & Ryan, 2008; Lepper, 1981; Ryan & Deci, 2000). Social cognitive theory argues that behavior is the result of dynamic reciprocal interactions among behavioral, personal (or cognitive), and environmental factors. Thus, if you want to change behavior, you can take a number of approaches to get there, including changing behavior, changing cognitions, or changing the environment, and all of these impact one another. If a person is encouraged to behave a certain way, engaging in this behavior is likely to change

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