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Normative Misperceptions of Peer Seat Belt Use Among High School Students and Their Relationship to Personal Seat Belt Use

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Abstract

Objectives—This research examined gender-specific perceptions of peer seat belt use norms among high school students and their relationship with one's own seat belt use. We expected that students would underestimate the seat belt use of their peers and that these perceptions would be positively associated with their own seat belt use.

Methods—High school students from 4 schools ($N = 3348$; 52% male) completed measures assessing perceived seat belt use and personal seat belt use.

Results—Findings demonstrated that students perceived that others engaged in less seat belt use than they do and that perceived norms were positively associated with one's own seat belt use.

Conclusions—Peer influences are a strong predictor of behavior, especially among adolescents. Ironically, adolescents' behaviors are often influenced by inaccurate perceptions of their peers. This research establishes the presence of a misperception related to seat belt use and suggests that misperception is associated with own behaviors. This research provides a foundation for social norms-based interventions designed to increase seat belt use by correcting normative misperceptions among adolescents.

Keywords

seat belt use; social norms; descriptive norms; gender

Introduction

In 2009, about 3000 teens in the United States aged 15–19 were killed and more than 350,000 were treated in emergency departments for injuries suffered in motor vehicle crashes (Centers for Disease Control 2010; NHTSA 2009). Although young people ages 15–24 represent only 14 percent of the U.S. population, they account for 30 percent (\$19 billion) of the total costs of motor vehicle injuries among males and 28 percent (\$7 billion)

of the total costs of motor vehicle injuries among females (Finkelstein et al. 2006). Seat belts are estimated to reduce motor vehicle fatalities by 45 to 50 percent and serious injury by 45 to 55 percent (NHTSA 2009). Though research on the prevalence of seat belt use among adolescents is relatively well developed, less is known about modifiable factors associated with their use. Given that seat belts are known to significantly reduce the chances of being killed or seriously injured in the event of a crash (NHTSA 2009), gaining a more thorough understanding of the factors that contribute to youth seat belt use is an important area of research (Linkenbach 2008).

Recent research identifies the importance of viewing traffic safety issues through the contextual lens of culture (Ward et al. 2010). Specifically, studies have shown that decisions regarding personal health behaviors are often made within the context of the perceived behavior of others. According to social learning theory (Bandura 1977), individuals learn how to engage in various behaviors in part through observation of proximal (e.g., parents, peers) and distal (e.g., societal, media) models and thus are influenced by their observations and perceptions of how commonly others engage in the health behavior. Preliminary evidence indicates that normative perceptions may be linked with seat belt–relevant safety outcomes. One study found positive correlations between one’s own seat belt usage and estimation of others’ usage (Svenson et al. 1985). In another study investigating factors related to seat belt–wearing intentions, it was demonstrated that normative social pressure from friends and family was one such factor (Field et al. 1993). A more recent investigation found that adolescent seat belt nonuse was related to perceptions of nonuse among friends and other school peers for both boys and girls (Dunlop and Romer 2010). Despite this evidence, there is still a great deal unknown about the magnitude of these normative misperceptions and how they influence seat belt usage in a young adult population.

Preliminary research has demonstrated that college students and young adults (Linkenbach and Perkins 2003) tend to *underestimate* peer norms for health protective behaviors including limiting alcohol consumption (e.g., Lewis et al. 2009) and protective sexual behaviors such as condom use (e.g., Chernoff and Davison 2005; Lewis et al. 2014; Lynch et al. 2004; Scholly et al. 2005). Additionally, research shows that young adults are affected by perceptions of peer alcohol norms related to traffic safety issues including protective factors related to drinking and driving (Perkins et al. 2010). Given that using a seat belt protects one from possible injury related to an automobile accident, seat belt use can be considered a protective behavior and, as such, should follow the same general patterns as other health protective behaviors whereby individuals routinely underestimate seat belt use.

Perceived normative observations tend to be selective (i.e., focused on proximal peers who typically engage in similar behaviors; Borsari and Carey 2003; Lewis and Neighbors 2004, 2006). Research has suggested that more specific normative referents (i.e., same sex) have a greater influence on behavior, as suggested by social comparison theory (Festinger 1954) and social impact theory (Latane 1981). In line with this, some evidence exists to show that peer norms may be gender specific or at least may have a stronger effect on health behavior among same-sex groups. Several studies (Lewis et al. 2007; Lewis and Neighbors 2004) have found that perceived same-sex norms are more strongly associated with behavior than gender-nonspecific norms and are subsequently stronger predictors of one’s own behavior. A

secondary aim of the present study is to determine whether same-sex or opposite-sex perceived descriptive norms exert an influence on personal health protective behaviors, specifically seat belt use.

Based on the above considerations, we had two hypotheses related to normative perceptions of seat belt use. First, students would demonstrate normative misperceptions for both same-sex and opposite-sex norms for their student peers, such that they would underestimate safely belt use of their peers in comparison to personal seat belt use. Further, we wished to evaluate whether discrepancies between normative referents were similar across genders. Second, we expected that the underestimation of normative seat belt use perceptions would be positively associated with personal use. Additionally, we expected that normative perceptions for same-sex students would be more strongly related to personal seat belt use, compared to gender-neutral or opposite-sex perceived norms.

Materials and Methods

Screening/Participants

Participants were drawn from 4 public high schools in a large city in the Western region of the United States, which were matched based upon size and ethnic breakdown such that only schools that were similar in basic ethnic breakdown were included in the study. Schools were also chosen from geographically and socioeconomically diverse sections of the city in which the data were collected. Schools were compensated \$500 for their participation in this part of the study. Once schools agreed to participate, all students enrolled in either physical education or driver's education classes were sent home letters explaining the study. There were no exclusion criteria other than not being enrolled in a classroom that was chosen to participate. A passive parental consent procedure was employed whereby parents were provided with a method to retract permission. Students whose parents did not withdraw permission and who did not decline participation were administered the survey. Participants included 3348 high school students (52% male). The majority of participants were between the ages of 15 and 16. Sample sizes from each of the 4 sites ranged from 793 to 893 students. Roughly 50 percent of the sample was in grades 9–10, with the remaining half in grades 11–12. There were no significant differences in seat belt usage ($F = 3.41$, $P < .07$) by school. The overall sample was 51 percent white/European American, 19 percent Latino, 4.5 percent African American, 1.5 percent Native American/Native Alaskan, and 23 percent other ethnicities.

Procedure

Data were collected as part of a larger study examining seat belt use during the fall of 2006 using convenience sampling. The present data were drawn from baseline data for the larger study. Survey data were collected using the MOST of Us Online Survey System (2012). At all 4 schools surveying took place in driver's education and physical education classes. Participants who wished to participate completed the survey on a web-enabled computer and the average time to complete the survey was 30 min.

Measures

Personal Seat Belt Use—Personal seat belt use was assessed by 6 items that asked “How often do you wear your seat belt” in different situations. Participants responded to each item on Likert type scales with scores ranging from 1 to 6. Response options were as follows: 1 = *<5 percent of the time*; 2 = *6–24 percent of the time*; 3 = *25–49 percent of the time*; 4 = *50–74 percent of the time*; 5 = *75–94 percent of the time*; and 6 = *>95 percent of the time*. Scores were calculated as the mean of the 6 items (Cronbach’s $\alpha = .94$).

Perceived Norms for Seat Belt Use—Perceived norms for seat belt use were assessed by 3 single items. The *perceived typical student norm* was assessed by asking participants “What percentage of students in your school do you think regularly wear their seat belts?” Similar questions were asked to assess the *perceived male norm* and the *perceived female norm*. Response options mirrored those provided for personal seat belt use and ranged from 1 to 6.

Results

Descriptive Information

Means and standard deviations for all major study variables are provided in Table 1. An examination of frequencies for the seat belt composite revealed that 75 percent of students reported wearing a seat belt at least half of the time, 64 percent reported wearing a seat belt at least 75 percent of the time, and 42 percent reported wearing a seat belt at least 95 percent of the time. In contrast, examination of perceived norms variables indicated that participants believed that fewer than half of their peers were regular seat belt users. Moreover, 61 percent of participants believed that fewer than half of students in their school were regular seat belt users, 23 percent of students believed that between half and three-quarters of students in their school were regular seat belt users, and only 5 percent of students believed that 95 percent of the students in their school wore seat belts regularly.

Normative Misperceptions of Peer Seat Belt Use

The first of our aims was to evaluate whether students underestimated peer seat belt use and to evaluate whether discrepancies were similar across genders. To evaluate these questions we used a series of Bonferroni-adjusted nonparametric tests that allowed for examination of differences in perceived and actual seat belt use, which were considered ordinal variables. Wilcoxon signed rank tests were employed to examine within-person differences between own seat belt use and the 3 perceived norms variables (typical student at your school, male student, and female student). The Mann-Whitney *U*-test was used to examine between-person differences (i.e., gender differences). Both of these nonparametric tests provide *Z* tests. Participant gender was dummy coded and was specified as an independent variable.

Results indicated that perceived norms variables were significantly lower than reported seat belt use. This was true for perceptions of typical students ($Z = -37.70$, $P < .001$), same-sex students ($Z = -36.60$, $P < .001$), and opposite sex students ($Z = -36.88$, $P < .001$). In addition, male students were perceived as being less likely to regularly use seat belts in comparison to typical students ($Z = -28.08$, $P < .001$), who were in turn perceived as being

less likely to regularly use seat belts in comparison to female students ($Z = -17.70$, $P < .001$). Examination of gender differences revealed that male students reported wearing their seat belts less regularly than female students ($Z = -4.45$, $P < .001$).

Personal Seat Belt Use as a Function of Perceived Norms for Seat Belt Use

The second of our aims was to evaluate the extent to which perceived norms for seat belt use are associated with personal seat belt use. We were specifically interested in whether the perceived norm for typical student seat belt use accounted for significant variance in personal seat belt use over and above demographic characteristics (gender and age), and whether gender-specific norms account for unique variance over and above typical student norms. Accordingly, hierarchical ordinal multiple regression was conducted where gender and age were entered as covariates at step 1, perceived seat belt use by typical students at one's school was entered at step 2, and perceived gender specific norms (recoded as same sex versus opposite sex) were entered at step 3. Results are presented in Table 2. Findings at step 1 indicated that females reported wearing their seat belts more often than males and that age was positively associated with seat belt use. Results at step 2 revealed that perceptions of typical students' seat belt use were strongly and positively associated with personal seat belt use. At step 3, results further revealed that same-sex perceived norms accounted for unique variance in personal seat belt use whereas opposite-sex perceived norms did not.

Discussion

Summary of Results

The results from the present study provide support for the hypothesis that high school students underestimate the degree to which their peers regularly wear seat belts and that these misperceptions are positively associated with their own seat belt use. In addition, the current research indicates that these misperceptions differ between male and females. The present study also revealed that though same-sex perceived norms accounted for unique variance in personal seat belt use, opposite-sex perceived norms did not. These findings are consistent with other studies that have shown an association between normative perceptions and seat belt intentions (Dunlop and Romer 2010; Field et al. 1993; Svenson et al. 1985).

In addition to replicating other data examining the role of perceived seat belt norms on personal seat belt use, the present study adds to the literature by indicating that norms do differ slightly based on gender and, more significant, that only same-sex norms are predictive of personal behavior. This supports the growing line of research that suggests that more specific normative referents (i.e., same sex) have a greater influence on behavior (Lewis et al. 2007; Lewis and Neighbors 2004), which falls in line with social psychological theories such as social comparison theory (Festinger 1954) and social impact theory (Latane 1981). Consistent with previous findings (Briggs et al. 2008; Eaton et al. 2012), the odds of using seat belts increased with age across the high school years.

Explanations for Underestimating Peer Seat Belt Use

Of interest, the present study demonstrates that students tend to underestimate the seat belt use of their peers. There are a number of reasons why students are likely to underestimate

protective behaviors such as seat belt use. One explanation for the underestimation of seat belt use is that it may be less observable and salient in the high school environment because chances to see seat belt use by peers may be limited. It seems unlikely that students will discuss whether or not their peers engaged in seat belt use. Additionally, because seat belt use may be difficult to observe, these behaviors are likely to be difficult to recall and thus underestimated.

Intervention Implications

A wealth of research has indicated that social norms interventions that aim to reduce misperceptions have been successful at changing behavior (e.g., Borsari and Carey 2000; Cronce and Larimer 2011; Neighbors et al. 2004). However, most of this research has been focused around reducing risky behavior, and research has yet to demonstrate that social norms interventions are efficacious at increasing underestimated protective behaviors and that these increases lead to higher engagement in the protective behavior. Results of the study would suggest that changing perceived norms is likely to influence seat belt usage, but further research is needed to empirically evaluate this notion. Normative feedback interventions have traditionally used the typical student for correcting misperceptions of risk behavior; however, the results from the present study suggest that tailoring normative feedback to include same-sex normative perceptions may be beneficial for intervention approaches. Research has shown that providing gender-based norms for women influences drinking outcomes (Lewis and Neighbors 2007) and it is likely that the same pattern of results would be found for seat belt usage among both males and females.

Limitations

Although the use of a large sample strengthens the present study, the nature of the cross-sectional data makes it difficult to ascertain the directionality of the relevant associations. That is, it is possible that youth who engage in seat belt nonuse are likely to perceive that their peers and friends do too, rather than normative perceptions exerting an influence on behavior. The use of self-report data for seat belt use may be problematic for social desirability reasons, although the reported seat belt rates in this study were similar to those of other recent studies (Dunlop and Romer 2010; NHTSA 2009), and evidence suggests that self-reported and observed seat belt use are typically highly correlated (Streff and Wagenaar 1989). Finally, there is a possibility of bias due to convenience sampling. Future research should replicate this work using randomly selected schools and participants.

Overall, the present study contributes to the literature by indicating that high school students routinely underestimate the seat belt use of their peers, which in turn predicts their personal seat belt use. The study further highlights the importance of using same-sex norms when developing interventions to promote seat belt use.

Impact on Industry

Results from the present study provide evidence that when developing educational and intervention materials aimed at increasing seat belt use among adolescents, both peer norms and gender should be taken into account. Through collaboration between psychologists and industry, further research aimed at developing, testing, and disseminating evidence-based

normative interventions has the promise to help promote seat belt use in adolescent populations.

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Table 1Means and standard deviation for personal seat belt use and perceived norms for seat belt use^a

Variable	N	Mean	SD
How often do you wear your seat belt ...			
When you ride/drive on the highway?	3333	5.05	1.66
On short trips in town?	3332	4.65	1.82
When you are in a vehicle with family members?	3335	5.05	1.59
When you are in a vehicle with friends?	3334	4.71	1.77
When you ride in the front passenger seat?	3335	5.09	1.56
When you ride as a passenger in the back seat?	3336	4.46	1.88
Personal seat belt use composite	3338	4.83	1.51
What percentage of _____ do you think regularly wear their seat belts?			
Students in your school	3314	3.68	1.20
Male students	3314	3.22	1.31
Female students	3312	3.96	1.29

^aValues of 3, 4, and 5 correspond to 25–49 percent, 50–74 percent, and 75–94 percent, respectively.

Hierarchical ordinal regression results for perceived seat belt use as a predictor of personal seat belt use

Table 2

	Predictor	B	SE B	χ^2	P
Step 1	Gender	−0.30	0.06	22.67	<.001
	Age	0.13	0.03	25.56	<.001
Step 2	Typical student norm	0.67	0.03	532.39	<.001
Step 3	Same-sex norm	0.28	0.04	35.30	<.001
	Opposite-sex norm	−0.01	0.04	0.07	.79