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Athletic Participation and Seat Belt Omission among U.S. High School Students

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Abstract

Although seat belts save lives, adolescents may be disproportionately likely to omit their use. Using data from the 1997 Youth Risk Behavior Survey, a national survey of over 16,000 U.S. public and private high school students, we employed a series of logical regression analyses to examine cross-sectional associations between past-year athletic participation and regular seat belt omission. Controlling for the effects of gender, age, race, parental education, and school urbanicity, student athletes were significantly less likely than nonathletes to report seat belt omission. Separate gender-specific analyses showed that this effect was significant for girls but only marginally significant for boys; in addition, the effect was strongest for adolescents who participated on three or more school or community sports teams. Possible explanations for the relationship between athletic participation and seat belt omission, including Jessor's problem behavior syndrome, prosocial sport subcultures, and sensation seeking, are considered.

Keywords

adolescent; seat belt omission; athletic participation; gender

Conventional wisdom has it that athletic participation is an antidote to adolescent risk-taking because teen athletes have substantial incentives not to take chances with their health and physical well-being. Given that interscholastic sports are arguably the most popular, visible, and highly valued extracurricular school activity, participants are deemed less likely to put themselves in harm's way and/or compromise the high status and popularity they enjoy among their peers. No less important, according to some, are the prescribed and proscribed norms and positive and negative sanctions associated with youth sports, their collective impact reinforcing prosocial behaviors while discouraging antisocial, nonconformist ones. Thus, it is easy to understand why the public at large holds such a positive view of organized sports programs.

Researchers who have studied the health-related behaviors of adolescent athletes find qualified support for the personal benefits of athletic participation. Generally speaking, compared to their nonathletic peers, athletes are less likely to use illicit drugs (Miller, Sabo, Melnick, Farrell, & Barnes, 2000), smoke cigarettes (Melnick, Miller, Sabo, Farrell, & Barnes, 2001), experience an unwanted pregnancy (Miller, Sabo, Farrell, Barnes, & Melnick, 1998), or be suicidal (Sabo, Miller, Melnick, Farrell, & Barnes, 2005). On the other hand, highly involved athletes, especially males, are more likely to use anabolic steroids, chew or dip smokeless tobacco, and binge drink (Miller et al., 2000).

One adolescent health-related behavior that has unfortunately received relatively little attention from researchers is seat belt omission. Seat belts save lives; comprehensive data about crash situations, drivers, passengers, and vehicles show that the protective effect of 3-point seat belts (shoulders and lap) halve the risk of a fatal injury (Bedard, Guyatt, Stones, & Hirdes, 2002). Each year, safety belts prevent an estimated 15,700 fatalities, 350,000 serious injuries, and \$67 billion in costs associated with traffic injuries and deaths (Copeland, 2005). While seat belts are one of the most important safety inventions in automotive history, many teens simply do not use them. According to the U.S. Transportation Department, the national seat belt use rate in passenger cars recently reached an all-time high of 82% (Glassbrenner, 2005). In comparison, teenager front seat belt use during the 1990s ranged from 20% to 58% (Williams, McCartt, & Geary, 2003). Further, between 1995 and 2000, seat belt use was 36% among fatally injured drivers aged 16–19, and just 23% among fatally injured teen passengers (McCartt & Northrup, 2004). Though female adolescents buckle up more than their male peers, seat belt omission is a significant health threat for both genders (Chaudhary, Solomon, & Cosgrove, 2004).

While seat belt use has risen significantly in recent decades across all demographic categories, the 2005 National Occupant Protection Use Survey estimated use by 16–24 year olds at approximately 78%, lower than other age groups (Glassbrenner, 2005). Several factors are associated with a young driver's decision to use or not use a seat belt. For example, seat belt omission among fatally injured teenage drivers is associated with driving in a secondary seat belt law state (i.e., a seat belt law can be enforced only after a motorist is stopped for another violation), driving a pickup truck (as opposed to a passenger car), the presence of teen passengers, and alcohol use (McCartt & Northrup, 2004). In addition, Calisir and Lehto (2002) found that a young driver's decision regarding safety belt use was mainly influenced by demographic factors such as gender, age, GPA and the consistency of perceptions of safety belt usefulness in accident scenarios. Seat belt omission is also more common among teen passengers than teen drivers (Williams et al., 2003).

Evidence specifically related to athletes' use of seat belts is both anecdotal and scarce. While no one knows if celebrity athletes are less likely to use seat belts than the general public, athletes in a number of highly publicized fatal automobile accidents reportedly were not wearing seat belts. The list includes Malik Sealey of the NBA Timberwolves, Derrick Thomas of the NFL Kansas City Chiefs, and Michael Darr of the MLB San Diego Padres.

Only three published research studies have investigated the relationship between either athletic participation and/or physical activity status and seat belt omission. Baumert, Henderson and Thompson (1998) surveyed high school students attending seven schools in Muscogee County, Georgia and found that more nonathletes (24%) than athletes (20%) rarely or never used their seat belts. No explanation was offered to account for the statistically significant finding. In contrast, Nattiv and Puffer (1991) surveyed a convenience sample of college athletes and nonathletes and reported that athletes were significantly less likely to use seat belts (athletes, 47%; nonathletes, 29%). The researchers speculated that

athletes are more likely to have Type T personalities, characterized by a proclivity for thrill-seeking behavior, excitement and stimulation through physical activity.

Lastly, in a representative national sample of U.S. high school students, Pate, Heath, Dowda and Trost (1996) found that those who did not wear a seat belt (“never/sometimes”) were 1.5 times more likely to be low active than those who reported being high active. Active behavior was operationalized as frequency of physical exercise. Why students who engage in frequent physical activity are more likely to wear seat belts was not specifically addressed, although the researchers speculated that frequent physical activity may cultivate more favorable attitudes and feelings regarding positive health-related behavior.

In this investigation, we analyzed data from a nationally representative sample of U.S. public and private high school students in order to determine the extent of seat belt omission among athletes and to test whether the relationship between adolescent sports participation and seat belt omission is mediated by gender and/or by level of sports involvement. The relationship between athletic participation and vehicular safety has remained undertheorized to date. Although our findings cannot directly address issues of causality, we draw several inferences and offer a number of theoretical speculations for the reader’s consideration.

Methodology

Data

Data for this study came from the 1997 school-based Youth Risk Behavior Survey (YRBS), a national survey of 9th through 12th grade students conducted biennially by the CDC to assess the health-risk behaviors of public and private high school students. To gather the sample, the CDC employed a three-stage cluster design. First, the country was broken down into primary sampling units (PSUs) consisting of large counties or groups of small, adjacent counties. Of the 1,719 PSUs identified, 54 were selected to comprise a sample that was nationally representative in terms of urbanization.

Second, from those 54 PSUs, 191 schools were chosen with probability proportional to school enrollment size, deliberately oversampling schools with high proportions of black and Hispanic students. In the third and final stage, one or two intact classes of a required subject (e.g., English, social studies, etc.) were randomly selected at each grade level within each chosen school. Under the supervision of trained data collectors, students completed anonymously an 88-item questionnaire in the classroom. More than 16,000 questionnaires were completed at 151 schools, with an overall response rate of 69% (based on an 87% student response rate within the 79% of schools responding) (Kann et al., 1998).

Measures

Seat belt omission—A single measure of this automobile-related risk-taking behavior was based on self-reports. Specifically, respondents were asked the following question: “How often do you wear a seat belt when riding in a car driven by someone else?” Responses were coded dichotomously as “sometimes/most of the time/always” (=0) or “never/rarely” (=1).

Athletic participation—Athletic participation was measured by combining self-reported responses to the following two items. “During the past 12 months, on how many sports teams run by your school did you play (Do not include PE classes)?” and “During the past 12 months, on how many sports teams run by organizations outside of your school did you play?” Responses were first coded dichotomously as “did not participate” (on any teams) and “did participate” (one or more school- or community-sponsored teams). For comparison

purposes, respondents were also coded as “nonathletes” (participated on no teams), “moderately involved athletes” (participated on one or two teams), and “highly involved athletes” (participated on three or more teams). This alternative taxonomy was based on the reasoning that the number of teams on which an athlete plays may serve as a proxy for his or her degree of involvement in sports.

Control variables—To better isolate the relationship between athletic participation and seat belt omission, multivariate analyses controlled for respondents’ gender (male=0; female=1), age (14 or younger coded as 14; 15; 16; 17; and 18+ coded as 18); race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Asian/Pacific Islander, American Indian/Alaskan native, or Other); social class (i.e., the highest level of education achieved by either parent); and school urbanicity (i.e., whether the school was located in a rural, suburban, or urban setting).

Data Analysis

In order to accommodate the complex design of the Youth Risk Behavior Survey, all analyses were conducted using the Stata statistical data analysis package (StataCorp, 2001). Descriptive statistics were calculated to compare seat belt omission by nonathletes to that of (a) all athletes, and (b) highly involved athletes only. Because patterns of vehicular risk behavior tend to differ by gender, these comparisons were calculated separately for girls and boys. Next, we conducted logistic regression analyses to examine adolescent athletes’ odds of “never or rarely” using a seat belt, relative to nonathletes. We then divided the athletic population into moderately and highly involved athletes, comparing each group’s odds of seat belt omission to that of the nonathletes. Finally, we examined whether the relationships between athletic participation and seat belt omission differed significantly between girls and boys by running separate, gender-specific logistic regressions to probe any significant gender interactions.

Results

Sixty-five percent ($n=5,110$) of the boys who responded to the 1997 YRBS reported participating on at least one sports team in their schools or communities during the year prior to the survey; approximately 42% of these athletes ($n=2,126$) were categorized as highly involved. The remaining 35% of the male sample ($n=2,715$) reported no involvement with organized sports teams. Forty-four percent ($n=3,507$) of the girls who responded reported participating on at least one sports team in their school or community during the year prior to the survey; approximately 30% of these athletes ($n=1,040$) were characterized as highly involved. The other 56% of the girls ($n=4,486$) reported no involvement in organized sports.

Both female and male athletes were disproportionately likely to be white, and disproportionately unlikely to be Hispanic. Also, female (but not male) athletes were disproportionately unlikely to be black. Athletes of both genders were on average significantly younger than nonathletes, and had parents with significantly more education.

Seat Belt Omission: Demographic Considerations

Females were significantly less likely to self-report seat belt omission than males ($OR=.50$, $p<.001$). Failure to wear a belt was also more evident among older adolescents ($OR=1.06$, $p<.05$). Compared to whites, black respondents were much more likely to report seat belt omission ($OR=2.38$, $p<.001$), and higher parental education was associated with lower odds of omission ($OR=.83$, $p<.001$). Finally, compared to suburban teens, rural respondents were much more likely to report seat belt omission ($OR=2.27$, $p<.001$). Thus, gender, age, race,

social class and school urbanicity were all factors which significantly predicted whether the adolescents surveyed wore seat belts when riding in a car driven by someone else.

Nonathletes vs. Athletes

Among males, 27% of nonathletes never or rarely wore a seat belt, while 22% of all athletes and 21% of highly involved athletes reported the same. Among females, 18% of nonathletes never or rarely wore a seat belt compared to 11% of all athletes and 10% of highly involved athletes. Logistic regression analysis showed that athletes overall were significantly less likely than nonathletes to report seat belt omission ($OR=.74$, $p<.01$). However, the relationship between athlete status and seat belt omission differed significantly by gender; that is, athlete status significantly predicted seat belt omission for girls ($OR=.64$, $p<.001$) but only marginally for boys ($OR=.82$, $p<.10$).

Nonathletes vs. Moderately Involved and Highly Involved Athletes

When athlete status was operationalized as number of team memberships in the past year, both moderately involved ($OR=.77$, $p<.05$) and highly involved athletes ($OR=.69$, $p<.001$) were significantly less likely than nonathletes to report seat belt omission. Among moderately involved athletes, the relationship between athlete status and seat belt omission differed significantly by gender. Moderately involved athlete status predicted seat belt omission for girls ($OR=.64$, $p<.001$) but not for boys ($OR=.88$, *ns*). Highly involved athlete status significantly predicted seat belt omission for both girls ($OR=.64$, $p<.001$) and boys ($OR=.74$, $p<.05$).

The results of these logistic regression analyses strongly suggest that compared to nonathletes, athletes are significantly less likely to self-report seat belt omission, and that whatever influence participation in organized team sports may have on this health-compromising behavior, its impact is greater on female than male athletes.

Discussion

Reflections on Sociodemographic Correlates of Seat Belt Omission

The fact that the sociodemographic factors of gender, age, race, social class, and school urbanicity significantly predicted seat belt omission was not unexpected. Observed gender differences in seat belt omission in this study are consistent with extant findings that female drivers and passengers are more likely to use seat belts (McCartt & Northrup, 2004). These findings also support the general observation that females behave more safely and hold more favorable beliefs toward safety than males, although their safety attitudes and behaviors become more diluted the more they interact with males (Blair, Seo, Torabi, & Kaldahl, 2004).

We also found a 6% increase in the risk of seat belt omission for each additional year of the respondent's age, consistent with McCartt and Northrup's finding that the seat belt use rate for 18–19-year-old drivers was 33% lower than for 16–17-year-old drivers. Zuckerman (1983) observed that seat belt omission peaks around age 19 or 20.

Compared to whites, black respondents were 2.4 times as likely to self-report that they never or rarely wore seat belts when a passenger in an automobile. While few researchers have addressed how or why race/ethnicity impacts adolescent seat belt use, national seat belt use rates are somewhat lower for African-Americans than for other motorists (Glassbrenner, 2005). On the other hand, the racial gap appears to be closing; the greatest recent gains in seat belt use nationwide have been recorded among blacks (Glassbrenner, Carra, & Nichols, 2004).

Parental education, used in the present study as a proxy for social class, had a significant influence on seat belt omission among our teen sample. Other researchers have posited a link between social class and elevated odds of seat belt use (Chaudhary et al., 2004). Using state-level data to examine associations between income and seat belt behavior, McCartt and Northrup (2004) found that an increase of \$1,000 in median household income was associated with a 0.43% increase in belt use by teens involved in fatal crashes, although Williams, McCartt and Geary (2003) were unable to confirm this finding. How different operational measures of social class impact seat belt use among teens deserves further investigation.

School urbanicity also predicted seat belt behavior in the present study, with rural students significantly more likely to self-report seat belt omission than students who attended suburban schools. Lower seat belt use rates among both rural drivers and passengers have been reported by other researchers (Chaudhary et al., 2004; McCartt & Northrup, 2004), and are thought to be directly and/or indirectly related to a number of factors, including whether a state has a primary or secondary seat belt law, median household income, age of vehicle (the older the vehicle, the less likely the driver will use a seat belt), and the type of vehicle (teens who drive pickup trucks have a notoriously low seat belt use rate).

Explaining Athlete/Nonathlete Differences in Seat Belt Omission

Our findings indicated a significant relationship between athlete status and seat belt omission. Compared to nonathletes, this form of vehicular risk-taking was lower among athletes, including both moderately involved athletes (1–2 team memberships in the past year) and highly involved athletes (3+ team memberships). Though our data did not permit a definitive explanation, there are three possible explanations consistent with these findings.

Athletic participation as a functional alternative to problem behavior—One way to understand these findings is to view seat belt omission as one of several “problem behaviors” typically associated with adolescence, such as delinquency, drug use, cigarette smoking, sexual precocity, and risky driving. Problem behaviors violate both legal and social norms, eliciting not only social disapproval but some form of institutional control response as well, ranging from the mild (e.g., verbal reproof) to the severe (e.g., incarceration) (Jessor, 1987)

Problem behaviors are functional for teens to the extent that they provide a sense of power, self-esteem, peer recognition, establishment of a personal identity, and the satisfaction that comes from successfully facing up to a personal challenge. On this point, Jessor (1987) observed that problem behaviors are “functional, meaningful, purposeful, and instrumental, rather than being arbitrary, pathological, or merely perverse” (p. 4).

We speculate that whereas some teens may choose to engage in a variety of problem behaviors, including seat belt omission, in order to achieve desired outcomes, those who opt instead to participate in organized team sports are likely to experience the same outcomes (e.g., power, improved self-esteem, status enhancement, identity clarification, instrumental success) on the playing fields. Just as risky driving behavior may prove functional for some youth, organized sports may well serve the same functions for others. That is, athletes may be less likely to engage in problem behaviors, including seat belt omission, to meet their personal developmental needs because they satisfy them through sports participation.

While a psychosocial explanation focused on the functionality of seat belt omission may have intuitive appeal, it is not sufficient in and of itself to explain why athletes are more likely to wear seat belts than nonathletes. Attention must also be directed at what it means to be a member of an athletic team and a participant in a sport subculture.

Athletic team membership/participation in a sport subculture—Supervised and monitored by a teacher-coach both on and off the playing field, athletes may avoid risky behaviors that could jeopardize their participation in a highly valued extracurricular activity. Failure to wear a seat belt is, in fact, a punishable offense; 25 states now have primary seat belt laws and 24 have secondary laws, with New Hampshire the sole exception (Copeland, 2006). With the emergent definition of seat belt omission as a crime over recent decades, coaches who might once have ignored such behavior in their players may now be increasingly unlikely to sanction it.

Formal and informal norms regarding team membership can be mutually reinforcing. Team training rules regarding both prescribed and proscribed behaviors reinforced by a system of negative sanctions ranging from mild rebuke to expulsion from the team are likely to contribute to an athlete mindset that supports the normative structures of the team, school, and community. Moreover, peer interactions which are so crucial in shaping behavior and decision-making during adolescence are likely to be restricted to like-minded peers. That is, the exclusivity of team member interactions typical within specific team sport subcultures helps ensure conformity to a team's value system. Thus, the high priority that sport places on conventionality, conformity, respect for authority, and discipline may well reinforce a "do the right thing" value orientation among team members.

It seems reasonable to speculate that the lower likelihood of seat belt omission among athletes, compared to nonathletes, can be explained in part by the overlapping and mutually reinforcing effects of two normative systems—"team rules" and "road rules." Team rules are specifically imposed by the coach and may include prohibitions against drinking or smoking in-season, the imposition of weekend curfews, and strong admonitions to avoid potentially compromising situations (e.g., parties). Road rules are more generally derived from community standards, including both formal and informal injunctions regarding risk-taking. However, these normative systems are sometimes at odds, and the extent to which they constrain athlete behavior can be debated. For example, compared to their nonathletic peers, athletes more frequently binge drink, chew or dip tobacco, take sexual risks (boys only), and engage in interpersonal aggression off the field. Clearly, the value orientations and normative structures associated with organized sports participation, and their impact on risky adolescent behaviors, demand further study.

Alternatively, future research on the nexus between athletic participation and seat belt use may show that the explanation offered above is too deterministic to be of much value. Theoretical explanations which place greater emphasis on reflexivity, negotiation, gender, life style choices and reference group influence may prove much more useful for explaining adolescent status-gaining strategies and outcomes. That is, peer influence processes, especially those related to belonging, inclusion and identity seeking, may eventually prove better predictors of teen athlete behavior than the socialization effects commonly associated with membership in an athletic team, and participation within a particular sport subculture.

Sensation seeking—Also commonly associated with adolescence is sensation seeking, a development need to pursue varied, novel and complex experiences (Zuckerman, 1983). One way in which this need can be met is by engaging in risky behaviors. Hansen and Breivik (2001) found a strong relationship between the need for sensation-seeking and risky behavior, including seat belt omission; the fewer the challenges provided by schools and parents, and the poorer the teen's social background, the stronger the relationship. Seat belt omission may well be one way in which some adolescents satisfy their need for thrill and excitement. These needs may alternatively be satisfied on the playing field. Both male and female athletes generally score higher in sensation seeking than their nonathletic peers (e.g., O'Sullivan, Zuckerman & Kraft, 1998). Athletes may less likely to report seat belt omission

because their athletic participation provides them with all the thrills, excitement, and daring they desire.

Still, male athletes face contradictory impulses with respect to normative seat belt use. The prosocial value orientation of team sports encourages and indeed reinforces compliance with school and community norms. On the other hand, the masculine gender script which encourages adolescent males to engage in sensation-seeking and risk-taking behavior serves as a powerful counterpoint to conventionality. High levels of athletic participation may satisfy the imperatives of this script, whereas less intensive involvement merely reinforces them.

Gendering the Link between Athletic Participation and Seat Belt Behavior

While athlete status was significantly related to seat belt omission, the fact that this was more true for female than male athletes deserves some reflection. Female athletes moderately or highly involved in team sports were significantly less likely to omit wearing a seatbelt. For males, only the highly involved athletes were less likely to report seat belt omission. This discrepancy may in part be attributed to a masculine “gender script” that has traditionally encouraged males to suppress their emotions, to be tough and fearless, and to be indifferent to bodily injury and pain. Boys’ efforts to accentuate their masculinity in the presence of their male peers may lead them to behave more irresponsibly in a car, whether as a driver or passenger. This can mean violating speed limits, driving recklessly, or choosing not to wear a seat belt. Seat belt omission may be, for some male athletes, a way of proving their manhood. Such behavior can be viewed as a type of “performed coolness,” socially constructed behavior intended to communicate hipness or status attainment to others (e.g., Sabo, 2005). In this context, not wearing a seat belt may be perceived as cool because it communicates bravado, daring, and risk-taking. The cultural demands of the masculine gender script compels boys to seek more and riskier ways to prove their hypermasculinity to others, unless inoculated against this powerful compulsion by the status gains associated with high levels of participation in sport.

Explaining the female athlete seat belt findings poses a greater challenge. On one hand, girls have traditionally been socialized to embrace a feminine “gender script” that encouraged them to play it safe, on the premise that “real boys take risks, good girls avoid them.” If normative and self-control beliefs related to personal safety directly impact safe behaviors (Blair et al., 2004), then the traditional feminine gender script should teach female adolescents to behave more safely, i.e., wear a seat belt. However, it has been argued elsewhere (Miller, Barnes, Melnick, Sabo, & Farrell, 2002) that athletic participation *weakens* a girl’s commitment to conventional notions of femininity. Shouldn’t the female athlete’s behavior more closely resemble that of her male athletic peer? Our findings showed that being an athlete had a *stronger* safety-enhancement effect on girls’ vehicular risk behavior than it did for boys. Contrary to our prior assumption that athletic participation is likely to *challenge* the safety admonitions embedded in the feminine gender script, both moderately and highly involved female athletes were significantly less likely to report seat belt omission than their nonathletic female peers.

We speculate that female athletes “rewrite” the feminine gender script to accommodate the disjuncture between conventional expectations (e.g., passivity, nonphysicality) and the demands that sport places on an athlete (e.g., daring, taking calculated risks). The dialectic posed invites the female athlete to reevaluate and redefine risk aversive behaviors unrelated to sport, such as seat belt omission, in such ways as to render them more unacceptable (see Miller et al., 2002). In contrast, male athletes have less need to rewrite the masculine script, which is well integrated with the demands of sport; as such, athletic participation leaves a

less marked imprint on their risk-taking outside of the sport setting than it does for their female counterparts.

Limitations of the Study and Directions for Future Research

This research study was not without its limitations. First, available measures limited the complexity of our analysis. Because the 1997 YRBS only asked about passenger seat belt use, we know nothing about drivers' behavior or the specific circumstances under which passengers made decisions about vehicular risk-taking. In addition, athletic participation was measured only by sports team membership. A more nuanced, multidimensional operationalization might reveal mediators of the relationship between athletic participation and seat belt omission, such as type of sport (individual vs. team), degree of athletic success (starter vs. substitute), leadership responsibilities (captain vs. non-captain), or amount of time devoted to sports, both in and out of season. We hope that future iterations of the survey instrument will solicit more detailed information about both seat belt use and athletic involvement among high school students.

A second limitation of the investigation was the researchers' inability to offer a definitive explanation for the sport participation-seat belt omission findings. Those offered, namely, the functionality of adolescent problem behaviors, the effects of membership on an athletic team and participation in a sport subculture, and the need for sensation-seeking, each have some heuristic value but are likely to leave the reader less than satisfied. The same can also be said about the explanation offered for the gender-seat belt omission interaction effect. The supposition that female athletes engage in a form of deconstruction/reconstruction associated with the feminine gender script and the athlete role can only be considered an informed speculation at present.

Third, this study employed cross-sectional, self-report data only. We have suggested that organized sports participation may positively impact a teenager's decision to wear a seat belt, but the association may be spurious or even operate in reverse, with those students most inclined to obey the rules self-selecting into school and community sports programs. Absent a longitudinal research design to establish causal direction, any conclusion regarding the salutary impact of athletic participation must remain tentative.

It is unlikely that quantitative survey research alone will provide the answers to the questions these findings raise. More qualitative research methodologies (e.g., in-depth interviewing, focus groups) that explore adolescents' own perceptions of vehicular risk-taking offer a promising research strategem. Future researchers might profitably ask to what extent athletes perceive their sport involvement as a source of empowerment, self-esteem, peer recognition, or meaningful identity formation. It also would be very helpful to know how seriously athletes take team training rules, and the extent to which these rules impact their off-the-field behavior. Further, do some athletic subcultures encourage conventionality, conformity, and respect for rules and regulations? Finally, if future research confirms that highly involved athletes have less need to engage in risky behaviors (e.g., seat belt omission) because their sensation-seeking tendencies are satisfied by sports participation, it would be interesting to assess whether these athletes consciously recognize such an effect.

Policy Implications

Despite the above limitations, this exploratory investigation based on a national, representative sample of thousands of young people represents the most ambitious effort to date to examine the link between sports participation and adolescent seat belt omission. Is organized athletic participation a resource for reducing the morbidity/mortality caused by the omission of seat belts among adolescents? Though this cross-sectional analysis could not

establish causality, our findings are consistent with the conclusion that participation in school- and community-sponsored sports programs positively impact a teenager's decision to wear or not wear a seat belt when riding in a car driven by someone else.

The fact that adolescent athletes in general, and female athletes in particular, are more likely to buckle up than their nonathletic peers has obvious implications. Three-step graduated driver licensing programs (Hedlund & Compton, 2005), parents who closely monitor their teens' driving (Simons-Morton & Ouimet, 2006) stronger enforcement of primary seat belt laws (O'Malley & Wagenaar, 2004) and the implementation of traffic enforcement programs designed specifically to increase seat belt use have proven successful at reducing risky teen driving behavior. To these positive initiatives can be added the potentially positive consequences that derive from an adolescent's participation in a formal sports program. Extant studies, including this one, cannot yet rule out the possibility that seat belt wearing adolescents merely self-select for participation in organized sports. It is both logical and consistent with empirical findings, however, to conclude—however tentatively—that when young people become involved in popular, valued, adult-mentored, after-school normative activities embedded in a culture that teaches responsibility, respect for authority, conformity, self-discipline, and goal attainment (i.e., high school sports), their inclination to engage in risky, health-compromising behaviors declines.

The most obvious implication of these findings is to increase the rates of participation in youth-centered, school- and community-based sports programs. For the more than 7.1 million girls and boys who currently participate in high school sports (National Federation of State High School Associations, 2006), as well as the millions more who might become involved if opportunities were provided to accommodate all skill levels, sport may well serve as a useful ally of those interested in teen automotive safety.

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Table 1

Sociodemographic Characteristics and Seat Belt Omission among Nonathlete, All Athletes, and Highly Involved Athletes Only, by Gender.

	Female			Male		
	Nonathletes (n=4486)	AllAthletes (n=3507)	Highly Involved Athletes (n=1040)	Nonathletes (n=2715)	Athletes (n=5110)	Highly Involved Athletes (n=2126)
Age (15–18)	16.24	15.92 ***	15.81 ***	16.32	16.17 *	16.12 *
White (=1)	.52	.69 ***	.73 ***	.59	.67 **	.67 *
Black (=1)	.17	.11 ***	.12 *	.10	.11	.13 *
Hispanic (=1)	.12	.08 **	.07 **	.11	.09 ***	.08 ***
Asian/Pacific Islander (=1)	.04	.03	.02	.05	.03 **	.02 **
American Indian/Other (=1)	.16	.09 ***	.06 ***	.15	.10	.10
Parental education, in years	13.91	14.56 ***	14.89 ***	14.25	14.80 ***	14.94 ***
Urban school location (=1)	.36	.28 *	.26	.34	.35	.34
Suburban school location (=1)	.51	.56	.55	.51	.51	.50
Rural school location (=1)	.14	.16	.18	.15	.14	.16
Never or rarely wear a seat belt (=1)	.18	.11 ***	.10 ***	.27	.22 *	.21 *

* p<.05

** p<.01

*** p<.001

Means of racial/ethnic categories (white, black, Hispanic, Asian/Pacific Islander, American Indian/Other) and school urbanicity (urban, suburban, rural) may not sum to 1.00 due to rounding.

Table 2

Hierarchical Logistic Regressions Predicting Seat Belt Omission (Two Models): Adjusted Odds Ratios and 95% Confidence Intervals (N=15,572).

	OR	95% CI
Demographics (entered as a block)		
Female	.50 ***	.42–.59
Age	1.06 *	1.00–1.12
Black	2.38 ***	1.77–3.21
Hispanic	1.04	.71–1.52
Asian/Pacific Islander	.80	.44–1.46
American Indian/Other	1.21	.94–1.56
Parental education	.83 ***	.80–.86
Urban school	1.16	.81–1.68
Rural school	2.27 ***	1.52–3.41
MODEL 1: DICHOTOMOUS ATHLETE STATUS		
Athlete Status		
Athlete	.74 **	.61–.89
2-way Interaction		
Female × Athlete	.76 *	.60–.96
MODEL 2: TRIPARTITE ATHLETE STATUS		
Athlete Status		
Moderately Involved Athlete (1–2 teams, past yr)	.77 *	.62–.96
Highly Involved Athlete (3+ teams, past year)	.69 ***	.57–.83
2-way Interactions		
Female × Moderately Involved Athlete	.71 **	.57–.89
Female × Highly Involved Athlete	.83	.56–1.24

*
p<.05

**
p<.01

p<.001

Gender-Specific Hierarchical Logistic Regressions Predicting Seat Belt Omission (Two Models): Adjusted Odds Ratios and 95% Confidence Intervals.

Table 3

	Female (N=7923)		Male (N=7649)	
	OR	95% CI	OR	95% CI
Demographics (entered as a block)				
Age	.98		1.11 **	1.05–1.19
Black	3.01 ***	2.02–4.49	1.99 ***	1.41–2.81
Hispanic	1.27		.91	
Asian/Pacific Islander	.84		.78	
American Indian/Other	1.65 *	1.12–2.43	.99	
Parental education	.83 ***	.79–.87	.83 ***	.80–.87
Urban school	1.22		1.12	
Rural school	1.57		2.89 ***	1.85–4.50
MODEL 1: DICHOTOMOUS ATHLETE STATUS				
Athlete	.64 ***	.53–.78	.82	
MODEL 2: TRIPARTITE ATHLETE STATUS				
Moderately Involved Athlete (1–2 teams, past yr)	.64 ***	.52–.79	.88	
Highly Involved Athlete (3+ teams, past year)	.64 **	.47–.89	.74 *	.59–.93

* p<.05

** p<.01

*** p<.001