

A Historical Comparison of Child and Parent Reports of Injury Prevention Behaviors: Findings From the Pinellas County Omnibus Study

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The purpose of this study was to analyze the motor vehicle injury prevention behaviors reported by the 12th-grade cohort of the Pinellas County Omnibus Study for years 2001–2002, compare these findings to those reported by parents in 1991–1992, and discuss the role of public health and injury prevention in these efforts. The questions in 2001–2002 were modeled after the Youth Risk Behavior Survey (YRBS) injury prevention items. Comparisons of findings in 2001–2002 and 1991–1992 were done using χ^2 analyses. In addition, 2001–2002 results were compared to the 2001 Florida YRBS and national YRBS findings. The results of the study showed that the Omnibus cohort was significantly more likely to report safer motor vehicle injury prevention behaviors in 2001–2002 than what was reported by parents in 1991–1992. Also, the student cohort reported safer behaviors for all items than did Florida and US 12th-grade students as shown in the state and national YRBS results. The ecological model most likely contributed to these findings because there are comprehensive health education and injury prevention efforts in the state, Pinellas County schools, and in the community, including a very active community traffic safety team and the passage of significant statewide injury prevention legislation.

KEY WORDS: adolescents, injury prevention, motor vehicles

Injuries are the leading cause of death for children and young adults, with motor vehicle injuries producing the greatest number of injury fatalities. About 40 percent of all motor vehicle injury deaths include individuals in their late teenage years, with males having three times the motor vehicle death rate as females.¹

The rates of motor vehicle trauma are highest for males aged 15–24.¹ It has been reported by the National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention that in 2001 more than 4,700 teens, aged 16–19, died of injuries caused by motor vehicle crashes.² Risk factors for teens include the inability to estimate driving dangers, less experience in coping with these types of situations, more likely to speed, and practicing other unsafe driving behaviors such as drinking and driving and not wearing seat belts.²

Drinking and driving has long been a significant risk factor for young adults. Recent data (Traffic Crash Facts 2002) from the Florida Department of Highway Safety and Motor Vehicles³ showed that the highest crash rates per 10,000 licensed drivers in Florida were for the 15–24-year-old age group, which also had the highest rates for drinking drivers in all crashes. The National Highway Traffic Safety Administration⁴ reports that in 2002, 24 percent of drivers aged 15–20 who died in a motor vehicle crash had been drinking.

Teens also are at risk for bicycle and motorcycle injuries and deaths. Most of these deaths occur when the bicyclist or motorcyclist collides with a motor vehicle.¹ It has been shown that the use of bicycle and motorcycle helmets decreases fatalities and injuries.¹ However, the use of bicycle and motorcycle helmets among teens is low.^{5,6}

In terms of being proactive in determining how various factors relate to educational success, The Pinellas County School system in west-central Florida began

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the Omnibus Study in 1989–1990, when the first wave of longitudinal data were collected from 8,268 students who were members of the 1989–1990 kindergarten class. The Omnibus Study collected information from these students annually throughout their 13 years of schooling. Comprehensive data were gathered in a number of domains, including family, personal characteristics, child health and well-being, and indices of academic success.⁷ Survey forms, developed by content experts, were completed by parents, students, and teachers, and school records of the 13-year period were assessed. Items related to injury prevention were asked on the 1991–1992 parent survey and on the last survey to students in the 2001–2002 school year. The principal investigator submitted the injury-related questions to the Pinellas County Schools committee that were added for these years. The purpose of this study is to report on the injury prevention results of the 2001–2002 Omnibus survey, compare these results to the findings collected in 1991–1992, and discuss the role of public health and injury prevention efforts in relation to the findings.

The Pinellas County School District is the seventh largest in Florida. There are 16 public high schools, with over 30,700 students.⁸ In the 2000–2001 school year, there were 4,846 seniors. The Florida Department of Education reported that 3,827 (79%) of those seniors were White non-Hispanic, 622 (12.8%) were Black non-Hispanic, 163 (3.4%) were Hispanic, 206 (4.2%) were Asian or Pacific Islander, 7 (.14%) were American Indian, and 21 (.43%) were multiracial.⁹

● Study Methods

The 12th-grade Pinellas County students completed their own Omnibus surveys in 2001–2002. There were a total of 1,084 12th-grade students who completed the surveys. Matched records of those students whose parent completed surveys in 1991–1992 were utilized, yielding a sample size of 483. Two major injury prevention questions asked of parents in 1991–1992 included how often the child wore a seat belt while traveling in a car and how often the child wore a bicycle helmet when riding a bike. The exact questions were: (1) When your child travels in your car, how often does he or she wear a seat belt? and (2) When your child rides a bicycle, how often does he or she wear a helmet? Response items for each question were *always*, *sometimes*, or *never*. These questions were reviewed for content validity and reliability by a group of experts in public health, injury prevention, and school health.

Questions included in the 2001–2002 survey were from the national Youth Risk Behavior Survey (YRBS) and pertained to drinking and driving, riding in a car

or other motor vehicle driven by someone who had been drinking alcohol, seat belt use as a passenger, how often one wore a bicycle helmet when riding a bicycle, and how often one wore a motorcycle helmet when riding a motorcycle.⁶ The authors also added the following question: When you drive a car, van, SUV, truck, or similar motor vehicle, how often do you wear a seat belt? Response items for this question were *always*, *sometimes*, *never*, or *do not drive a motor vehicle*. This question was added to assess seat belt behaviors of the respondents as drivers. The YRBS is part of the Youth Risk Behavior Surveillance System that was developed in 1990 to monitor priority health risk behaviors that contribute to the leading causes of death, disability, and social problems among youth and adults in the United States.⁶ These behaviors include those that contribute to unintentional injuries. The Youth Risk Behavior Surveillance System is composed of national, state, and local school-based surveys of representative samples of 9th- through 12th-grade students that are conducted every 2 years.⁶ The national survey provides data representative of high school students in public and private schools in the United States, whereas the state and local surveys, conducted by departments of health and education, provide data representative of the state or local school district.⁶ Florida conducted state surveys in 2001. Pinellas County was not included in the counties taking part in the Florida survey in 2001.

We included the injury-related questions described above in 2001–2002 to better reflect the types of injuries that occur to 12th-grade students in the United States. When comparing 1991–1992 and 2001–2002, only 2 behaviors, bicycle helmet use and seat belt use, were similar enough to be reviewed. However, we felt this was important to do to show potential behavior change over the years. Nearly 84 percent of the parents of the matched 483 students completed the injury prevention questions on the 1991–1992 survey ($N = 395$ for the bicycle helmet question and $N = 404$ for the seat belt question). As stated earlier, the questions used with the 12th-grade students in 2001–2002 were from the YRBS, which has been shown through one recent study to have acceptable reliability ($\kappa = 61\%–100\%$).¹⁰ No single study has determined the validity of all self-reported behaviors that are included in the YRBS.¹⁰ Recent studies have shown that cognitive and situational factors that may threaten the validity of self-report behaviors do not do so equally, and research has shown that the YRBS may underestimate some behaviors.¹⁰ Further research is needed to determine the true validity of all the behavior items incorporated in the YRBS. In terms of content validity, the CDC determines this by gathering input from content experts from within the CDC and academia, representatives from federal agencies,

state and local education agencies, state health departments, and national organizations, foundations, and institutes.¹⁰

The Pinellas County School System supplied the Omnibus injury findings to the researchers. Descriptive data and χ^2 analyses were used to compare parent responses in 1991–1992 with student responses in 2001–2002. Data were analyzed using SPSS software. The project was approved by the Institutional Review Board of the University of South Florida.

● Results

Of the 483 matched students who completed the 2001–2002 survey, 41.8 percent ($n = 202$) were female and 58.2 percent ($n = 281$) were male. Majority of the students were White ($n = 390, 80.7%$), followed by Black non-Hispanic ($n = 74, 15.3%$), Asian ($n = 12, 2.5%$), Hispanic ($n = 5, 1.0%$), and multiethnic ($n = 2, 0.4%$). The injury behavior questions and findings for this cohort are shown in Table 1. These results show that the majority of students reported always practicing safe motor vehicle injury prevention behaviors with the exception of bicycle helmet use. Only approximately 5 percent of the students reported always wearing a bicycle helmet when they rode bicycles. However, the finding of over 40 percent of the students reporting sometimes

wearing a bicycle helmet is higher than what has been previously reported nationally.⁵

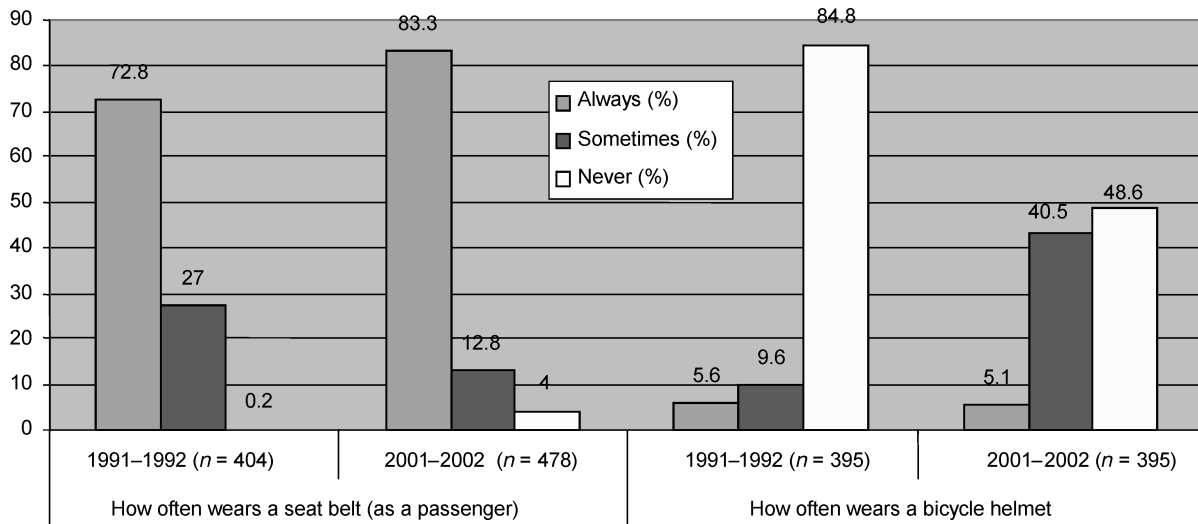
The questions and results related to the 1991–1992 survey and the comparative questions in 2001–2002 are shown in Figure 1. These were the only like questions that could be compared. The students practiced safer behaviors in 2001–2002 than reported by parents in 1991–1992 for always wearing a seat belt while traveling in a motor vehicle (83.3% vs 72.8%, respectively) and sometimes wearing a bicycle helmet (40.5% vs 9.6%, respectively). According to the χ^2 analyses, the 12th graders were more likely to report always wearing a seat belt when traveling as a passenger in a motor vehicle ($\chi^2 = 14.259; p < .0005$) compared with what was reported by parents in 1991–1992. In terms of bicycle helmet use, 12th graders were more likely to report sometimes wearing a helmet ($\chi^2 = 100.314; p < .0005$) and less likely to report never wearing a helmet ($\chi^2 = 116.556; p < .0005$) compared with what was reported by parents in 1991–1992. The results of the 2001–2002 Omnibus study compared to the YRBS findings for Florida and the United States are shown in Figure 2. The results clearly show safer motor vehicle injury prevention behaviors reported by the Omnibus cohort than reported by students throughout the state of Florida and the nation.

As can be seen from Table 1 and Figures 1 and 2, the 2001–2002 Omnibus cohort reported safer behaviors in most, if not all, categories compared with what parents

TABLE 1 ● Findings of the 2001–2002 Pinellas County Omnibus Study of injury prevention behaviors of 12th-grade students*

Questions	Always	Sometimes	Never			
When you drive a car, van, SUV, truck, or similar motor vehicle, how often do you wear a seat belt? ($n = 478$)	422 (88.3)	42 (8.8)	14 (2.9)			
When you ride as a passenger in a car or other motor vehicle, how often do you wear a seat belt? ($n = 478$)	398 (83.3)	61 (12.8)	19 (4.0)			
	0 times	1 time	2 to 3 times	4 to 5 times	6 or more times	
During the past 30 days, how often did you ride in a car or other motor vehicle driven by someone who had been drinking alcohol? ($n = 472$)	398 (84.3)	39 (8.3)	16 (3.4)	15 (3.2)	4 (0.8)	
During the past 30 days, how many times did you drive a car or other motor vehicle when you had been drinking alcohol? ($n = 474$)	420 (88.6)	26 (5.5)	13 (2.7)	11 (2.3)	4 (0.8)	
	Never/rarely	Sometimes	Most of the time	Always		
Of those who rode a bicycle during the past 12 months, how often did you wear a helmet? ($n = 395$)	192 (48.6)	160 (40.5)	23 (5.8)	20 (5.1)		
Of those who rode a motorcycle during the past 12 months, how often did you wear a helmet? ($n = 117$)	8 (6.8)	8 (6.8)	8 (6.8)	93 (79.5)		

*Values are expressed as percentages.



Questions answered by the children in 2001–2002 and their parents in 1991–1992

FIGURE 1. Parent and child reports of injury prevention behaviors from the Omnibus Study (%).

reported in 1991–1992 and in comparison to Florida and US YRBS findings. In fact, only about half as many of the Omnibus study cohorts reported unsafe behaviors as compared with the Florida and US YRBS respondents. For one particular question, the results are even more dramatic. In terms of never wearing or rarely wearing a motorcycle helmet when riding a motorcycle, only 6.8 percent of Omnibus study respondents reported this behavior whereas 41 percent of Florida YRBS and 36.1 percent of US YRBS respondents responded affirmatively.

Discussion

The findings of this study show that the Omnibus 12th-grade cohort reports practicing, for the most part, safe motor vehicle injury prevention behaviors in terms of seat belt use, avoiding drinking and driving or riding with a driver who has been drinking, bicycle helmet use, and motorcycle helmet use. The researchers probed for reasons as to why the Omnibus study cohort reported much safer behavior than the Florida and US 12th-grade population and what implications these

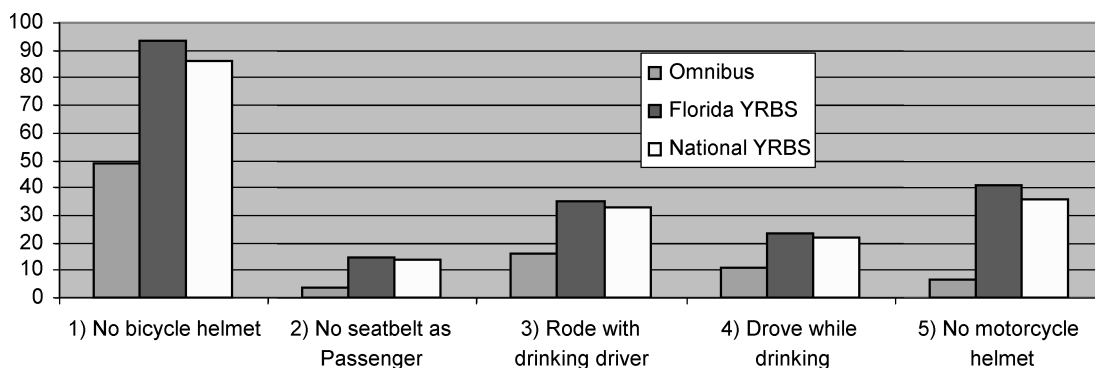


FIGURE 2. Percentage of 12th-grade students' responses from the Pinellas County Omnibus Study, the national Youth Risk Behavior Survey (YRBS), and the state of Florida YRBS for year 2001. (1) Of students who rode a bicycle during the past 12 months, the percentage who never or rarely wore a bicycle helmet (Omnibus $n = 395$); (2) Percentage of students who never or rarely wear a seatbelt when riding in a car driven by someone else (Omnibus $n = 478$); (3) Percentage of students who during the past 30 days rode one or more times in a car or other vehicle driven by someone who had been drinking alcohol (Omnibus $n = 472$); (4) Percentage of students who during the past 30 days drove a car or other vehicle one or more times when they had been drinking alcohol (Omnibus $n = 474$); (5) Of students who rode a motorcycle during the past 12 months, the percentage who never or rarely wore a motorcycle helmet (Omnibus $n = 117$).

findings have for school- and community-based injury prevention efforts.

Owing to the fact that our matched cohort only consisted of 483 students out of a sample of 1,084 (44.5%), selection bias may have contributed to our findings. The parents who were interested enough to complete the surveys in 1991–1992 may have been more likely to increase their safety behaviors and encourage their children to do so over the years. However, a review of the responses from the 12th graders who completed the survey in 2001–2002 but could not be matched to a parent who completed the survey in 1991–1992 showed very similar results in terms of safe injury-prevention behaviors. Also, social desirability may have contributed to the findings as well because the students completing the Omnibus survey knew their results were being tracked throughout the years. However, it is also true that Pinellas County has been very active in their motor vehicle injury prevention efforts focused on young adults. According to school representatives, there is an active driver-education program where students receive education on seat belts, drinking and driving, and sharing the road with pedestrians, bicyclists, and motorcyclists. Also, many of the high schools have buckle-up competitions between the schools. The school resource officers present safety announcements about seat belts, and students are randomly checked as they either leave or come to school for seat belt use. “Fasten Seat Belt” signs are posted on the parking lot surface as students exit. Students also receive injury prevention information in their life management classes, and students who participate in driver education receive a comprehensive curriculum.

Students in middle school are provided videos about drunk driving, and high school students have participated in mock driving-under-the-influence (DUI) crash presentations. Those in Fire Explorer Post programs or certain Magnet schools can ride along with fire rescue personnel on emergency calls to observe (K. Patterson, Palm Harbor Fire Rescue, personal communication, December 8, 2003).

In addition, Pinellas County has one of the most active community traffic safety teams in the state and the largest number of law enforcement officers in the Tampa Bay, Florida, area. All of the largest law enforcement agencies are very involved in traffic safety and do receive considerable media attention. There is also an active Safe Kids coalition in Pinellas County that does several motor vehicle injury prevention and health education activities each year in the community. In addition, it has been shown that, nationally, safer trends pertaining to motor vehicle injury prevention behaviors among young adults have been observed since 1991 for all variables assessed in the study except driving after drinking alcohol.¹¹

Florida as a whole has been active in the past and in recent years in advocating for motor vehicle injury prevention through programs and legislation. Examples include zero tolerance related to alcohol use by drivers under the age of 21, graduated licensing programs, enforcement of seat belt use, and the passage of the bicycle helmet law in 1997. Although this latter state law applies only to children under the age of 16, the 12th-grade students in the Omnibus study may have begun practicing this behavior in 1997 when they were approximately 12–13 years old. This then may have led to greater bicycle helmet use during their teenage years. The schools and community outreach programs throughout the state have been active in educating children and adults about the importance of wearing bicycle helmets and complying with the bicycle helmet law. Helmets are often provided free or at low cost for those who cannot afford them. As for motorcycle helmet use, helmets are required for individuals riding motorcycles who are under the age of 21. Florida also has a very active state-sponsored Injury Prevention Program that promotes injury prevention efforts statewide as well as at the county level, and the Florida Department of Transportation regularly funds counties to develop and implement motor vehicle injury prevention programs and strategies.

As with other public health efforts, it is likely that all of the factors cited above contributed to safe behaviors among these young adults. There most likely has been synergy between statewide and Pinellas county injury prevention efforts. The state, schools, and communities have worked together to create positive change. This demonstrates what is emphasized in the coordinated school health program in terms of school and community partnerships and what is advocated by public health professionals.¹² School health educators provide an important link with school resource officers to be active in the school environment in conducting injury prevention education, providing opportunities for students to practice injury prevention behaviors, and becoming advocates for legislative change in the county and statewide.

This study has several limitations. First, because the Omnibus surveys are developed by experts in various fields and the questions changed from year to year, traditional reliability measures could not be performed. Second, we compared responses from two different groups of individuals, parents and their children, at two different points in time. It was not possible to compare responses any earlier because injury prevention questions were added again only in the 2001–2002 survey. Third, we were not able to directly ascertain if the self-reported injury prevention behaviors translated into the performance of safe behaviors. However, the researchers do plan to continue to study this cohort to

determine if their rates of motor vehicle injuries and deaths are lower than the state and nation as a whole. This will be important as these teens enter their early twenties—a risky period for motor vehicle injuries and deaths.³ We also plan to encourage the schools to collect data on a continuous basis regarding all of their injury prevention efforts and evaluate the outcomes so that more detailed information is available for review. This will better determine the significance of health education efforts in promoting safe injury prevention behaviors.

Injury prevention education needs to continue in the schools and community. The results from this study are encouraging for public health professionals, injury prevention practitioners, and researchers in that a positive trend has been reported by these young adults in Pinellas County, Florida. It is hoped that this ecological approach will help decrease needless motor vehicle injuries and deaths in this population.

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