Adolescents, Peers, and Motor Vehicles
The Perfect Storm?

Joseph P. Allen, PhD, B. Bradford Brown, PhD

Abstract: Motor-vehicle crashes are a leading cause of death among teenagers and in many instances appear linked to negative peer influences on adolescent driving behavior. This article examines a range of developmental and structural factors that potentially increase the risks associated with adolescent driving. Developmental risk factors for adolescents include a propensity toward engaging in deviant and risky behavior, a desire to please peers, and the potential cost to an adolescent of alienating peers with his or her behavior while driving. Structural features of the driving situation that create risks for negative peer influences on driving behavior include the inability of adolescents to look at peers who may be pressuring them, divided attention, the need to behave in a conventional manner among peers who may not value conventional behavior, and the lack of accountability by peers for the effects of any risky driving they promote. A range of potential peer influences are considered, including passive and active distraction and direct disruption of driving, as well as more positive influences, such as peer modeling of good driving behavior and positive reinforcement of good driving. Although the range of risk factors created by peers is large, this range presents a number of promising targets for intervention to improve teen driving safety.
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Introduction

I n studies of adolescents and driving, two consistent facts stand out: Motor-vehicle crashes constitute the leading cause of death among teenagers[1] and, contrary to the situation with adults, crash rates and fatalities rise dramatically when teen drivers are accompanied by peer passengers.[2,3] These facts underscore the need to pay closer attention to the ways in which peers influence teen driving behavior.

Adults understand that, for teenagers, the motor vehicle is more than a mode of transportation. Driving provides not only a degree of autonomy from parental surveillance, but also achievement of a societal status (a driver's license) not open to children and younger adolescents. Adults, however, seem less aware that the motor vehicle constitutes an important social context for teenagers, a factor that is especially pertinent when it comes to concerns about peer influences on teen driving. Researchers recognize that adolescents' driving behavior depends on who is in the car with them. Teenagers drive faster and take more risks when carrying peers than when carrying adults as passengers,[4]

especially if the peers are young men.[5] Yet the reasons for these different driving patterns have not been explored. One would expect an adult passenger, typically a parent or older sibling, to act as copilot, giving advice and making the driver aware of real or potential dangers in the road ahead. But if the car is an arena for social interaction, peer passengers are less likely to take on the cautionary copilot role. To date, however, there has been little attempt to explain why their presence in a car poses such a risk to novice drivers. Is the driver simply distracted by the flow of conversation going on among passengers? Do teen passengers engage in behaviors that interfere with driving more directly, such as grabbing the wheel or playing the music system too loudly? Does the sheer presence of teen passengers prompt an adolescent to drive differently in an effort to impress peers? To design effective intervention programs to address the role that peers play in teen driving, researchers must answer not only these questions but also consider how broader aspects of adolescent development interact with the unique characteristics of the driving situation for novice drivers.

In considering the ways that peers influence adolescent driving behavior, we distinguish among three clusters of potential risk factors—developmental, driving-specific, and social—that often combine to create a "perfect storm" of risks to adolescent drivers. Although the range and number of risk factors that we outline below appear daunting, they also suggest a basis for hope: These risk factors currently exist for

From the Department of Psychology, University of Virginia Charlottesville (Allen), Charlottesville, Virginia; Department of Educational Psychology, University of Wisconsin Madison (Brown), Madison, Wisconsin

Address correspondence and reprint requests to: Joseph P. Allen, PhD, Department of Psychology, University of Virginia, Box 400400, Charlottesville VA 22904-4400. E-mail: allen@virginia.edu.

many adolescent drivers. Thus, interventions that remove or ameliorate even a few of these factors have the potential to reduce the risks associated with teenage driving substantially.

Developmental Risk Factors

Adolescence, a unique phase of the lifespan, is relevant to driving in many respects. Teenagers' brains differ from those of adults. On the one hand, teenagers may be less adept at judging risk and inhibiting impulses[6]; on the other, they process multiple forms of information significantly more quickly than do most older adults.[7] Perhaps more important, however, teens also differ in terms of their social development in at least three ways that make them uniquely vulnerable to peer influences on their driving.

Propensity Toward Risky Behavior

Adolescence is characterized in part by the propensity toward engaging in risky and deviant behavior. As children enter adolescence, rates of delinquent activity (high-speed driving, for example) increase 10-fold and remain high across the following decade.[8] Moffitt has suggested that in addition to seeking thrills, adolescents are trying to find ways to establish that they are no longer children. With conventional means of appearing to be adults unavailable for many teens (e.g., marriage, adult jobs), risky behaviors are one means of establishing that one is no longer a child. Equally important, the striving to establish one's autonomy vis-à-vis parents and to turn increasingly to peers is a fundamental feature of adolescence across many mammalian species.[9,10] Unfortunately, violating parental rules, behaving unconventionally, and demonstrating comfort with risk-taking behavior all serve these natural developmental goals and, not coincidentally, enhance the likelihood of risky driving.

Universality of Desire to Please Peers

Popular portrayals of adolescents succumbing to peer pressure typically depict an insecure adolescent, marginal to his or her social group, trying hard to please others so as to "fit in." While this image no doubt captures one important aspect of peer influence, the problem is far broader. Although less-well-adjusted teens do in fact appear more likely to give in to peer pressure,[11] teens who are better adjusted and more popular actually appear highly susceptible to other forms of peer influence, such as peer values.[12] For example, levels of alcohol use and minor deviance tend to increase significantly among popular teens across adolescence, relative to their less popular peers.[12] In most other respects, popular teens look quite well adjusted socially. But relative to their less popular peers, popular teens' alcohol use is actually more closely tied to their peers' values toward this behavior.[12] In brief, although popular teens may not be as susceptible to direct-pressuring behaviors from peers, they are nonetheless quite susceptible to other forms of peer influence. When it comes to peer influence in adolescence, it appears that no one is immune.

Social Danger in the Driving Situation

Although most people are aware of the physical danger teens face when driving with peers (i.e., injuries or death in crashes), they may not recognize that driving also entails one specific context in which a potentially large social threat—damage to peer relationships and peer status—can play out. As adolescents maneuver down a highway with their peers in the car, they are not simply trying to drive safely; they are also trying to maintain and strengthen critical peer relationships. Although the attendant social "dangers" appear less urgent than the physical dangers of motor vehicle crashes, this isn't always the case. Adolescents who lack a sense of acceptance experience a greater risk of depression, anxiety, and even future problem behaviors—all risks that increase over time.[13–15] Further, the purely social risks (e.g., loss of companionship, social withdrawal, development of hostile relationships) also have a physical component. Meta-analyses in adulthood indicate that the risks to future mortality resulting from social isolation are actually greater than those associated with cigarette smoking.[16] Thus, the stakes in terms of the teenager's social status inside the car are not inconsequential, even relative to the risks to their physical well-being as the car moves down the highway. Said differently, all available evidence suggests that adolescents' preoccupation with their social status is neither needless nor irrational; in some ways, it is a matter of survival. To intervene in a way that has an impact, it will be important to move beyond any temptation to trivialize this very real adolescent need. Although not all social pressures in adolescence are directed toward deviant or risky behaviors, it is nevertheless true that teens in cars are, at times, literally balancing immediate and pressing concerns about maintaining their social standing (which has clear, long-term implications for their social and emotional survival) against risks to their physical survival that appear far more distant and vague.

Unique Characteristics of the Driving Situation

The risk factors described above would apply to most situations of peer influence toward deviant behavior. Unfortunately, the act of driving an automobile creates several additional factors likely to enhance any peer influences.

Lack of Visual Cues

Teen drivers are placed in a position where they cannot face or look at those pressuring them. Without these visual cues, it is difficult to tell whether peers are serious, joking, angry, or rejecting (e.g., is a suggestion to "floor it" meant seriously or not). In addition, teens are simply in a fundamentally weaker position to be carrying out any negotiation if they can be seen by, but cannot see, those with whom they are negotiating.

Divided Attention

Teens must try to fend off peer pressure and maintain their status in the peer group while being forced to devote most of their concentration to an entirely unrelated task (driving). Each of these tasks can, at times, require almost undivided attention for successful execution.

Forced Conventionality

Given that behaving unconventionally can be a way to establish credibility within a peer group, the requirement as a driver to behave at all times in a very conventional manner creates a significant social burden on the teen driver. For example, everyone else can act silly or crazy, if that's what the group is calling for, but the driver can't.

Peer "Free Ride"

Peers of teen drivers get a literal and figurative free ride on many of the risky behaviors they suggest. They can "egg on" a teen driver to take some dangerous action, knowing that they won't experience most of the consequences directly, because they are almost certain not to bear any legal responsibility for anything bad that happens. Peers are not only literally being driven, but they are also given a figurative "free ride" on risky behaviors—gaining the benefits without experiencing many of the costs.

Specific Sources of Peer Influence

Finally, to the unstable atmosphere created by the teen's developmental status and the unique characteristics of the driving situation, we add a host of specific peer behaviors that can influence teen driving outcomes. Peers engage in behaviors that constitute influences both proximal and distal to the immediate driving context. Proximal influences occur as adolescents are actually in a car driving and involve several different groups of peers, the most obvious and most widely studied group being passengers in the adolescent's vehicle. Also worth consideration, however, are "caravan peers" in adjacent cars or in vehicles the teen encounters on the road, as well as pedestrians. Exiting

a school parking lot at the end of the school day, for example, adolescents may be conversing with passengers in their own car, waving or shouting to peers who are on the sidewalk or moving to other cars, and gesturing to—perhaps even talking on a cell phone with—a driver in a car ahead of or behind their own. Each group of peers provides an opportunity for distinct influences on driver behavior, as well as the potential of interactive influences. Peers, for example, may encourage a driver to speed up and negotiate a dangerous pass so that they can yell something to passengers in the car ahead of them.

Negative peer influences that are proximal to the driving context can occur through a variety of behaviors. Passengers may passively distract drivers simply by talking with them when teens need to focus full attention on the task of driving. Pileggi et al.[17] reported that crashes and risky driving were more common among Italian adolescents who chatted with their passenger or talked on a cell phone while driving a motorcycle. Drivers may also encounter active distraction from peers playing music loudly, engaging in conversations that heighten emotions, or doing other things that more directly draw an adolescent's attention away from the task of navigating the car. Virtually all of the participants (94%) in a recent national survey of adolescents' perceptions of teen driving reported observing passengers distracting the driver in some way.[18] Research is now needed to examine the relationship of such acts of distraction to the occurrence of motor vehicle crashes. Even more worrisome are acts of *disruption* that directly interfere with driving, such as a passenger grabbing the steering wheel or nudging a driver, a pedestrian feigning a lunge in front of the teen's car, or a caravan driver "cutting off" a teen on the road. A final negative influence category is *incitement*, when peers' words or behavior encourage risky driving. Incitement occurs, for instance, when a teen navigating one car zooms past another car with a menacing wave to the driver, whose passengers enthusiastically scream at their driver to catch up and "pass him back." Rates of such behavior are not well documented, but one Australian study indicates that drivers report being incited by youthful passengers (aged 16–24 years) more often than by adults.[19] The risk to teenage drivers and passengers would be especially high in circumstances where these various types of influence coalesce and build on each other, such as when teens leave unchaperoned social gatherings involving alcohol. Future research might consider whether this is one of the reasons that motor vehicle crash rates for teenagers are much higher on weekends with passengers in the car than under other circumstances.[20]

Peers also engage in proximal positive influences on teen drivers. This can occur through *modeling* of positive behaviors, such as when the driver in the lead car in a caravan of vehicles sets a prudent pace and maintains

a safe driving distance from other vehicles. *Positive reinforcement* is another form of a positive influence process, encompassing instances, for example, when adolescents make positive comments about a teen's safe driving, which then becomes more consistent. Little is known about the incidence rates of such behaviors because investigators rarely ask about them. However, in a study of Norwegian adolescents, Ulleberg[21] reported that young women challenge the behavior of unsafe drivers more often than young men do, and that the willingness to chide peers for risky driving is a function of personality dispositions (sensation seeking), attitudes about unsafe driving, and confidence that a driver will heed one's remonstrations.

Complementing these positive and negative forms of influence in the immediate driving context are several types of influence more distal from that context. These involve interactions with peers outside of the driving situation which can affect an adolescent's behavior behind the wheel. Again, these peer influences can enhance or disrupt responsible driving by teens. One mode of distal influence is *storytelling*, in which an adolescent recounts an incident for peers that involves a driving episode. If the story emphasizes the fun and excitement of a dangerous driving incident or the approval and involvement of admired peers, it is likely to encourage risk taking by those who hear it. However, if the story features more-negative overtones, it may discourage risky driving. Such stories may be accompanied by a second mode of distal influence—*norm setting*—in which teens discuss or debate acceptable patterns of behavior within their group. Most studies that have considered distal peer influences involve drinking and driving. Several investigators, for example, found that adolescents were less likely to drive under the influence of alcohol, or to ride with drivers who had been drinking, if they perceived that their peers disapproved of this behavior.[22–24]

Gender differences are a prominent theme throughout the research on peer influences. In a well designed observational study that exemplifies these differences, Simons-Morton et al.[25] reported that risky driving was more common among male than female teens. Risk was exacerbated when male drivers were accompanied by a male passenger, but it was reduced to nonsignificance and almost reversed when they were driving with a female passenger. Other demographic characteristics (e.g., ethnic or socioeconomic background, urbanicity) are virtually ignored in all of this research.

Conclusion and Future Directions

In terms of future research, several types of knowledge are seriously needed. First, we know remarkably little about the nature and quality of peer interactions that actually take place within cars. Technologies that allow these interactions to be monitored are now available and can help identify not simply the ways in which peers heighten driving risks, but also the conditions in which peer interactions do not heighten risks or perhaps even reduce them. Similarly, research is needed on the qualities of adolescents who are most and least at risk from such peer influences. Longitudinal studies of adolescent development routinely track other high-risk behaviors (e.g., sexual and criminal behavior), yet rarely tap driving behaviors that may create even greater health risks.

Is there a ray of hope amidst this perfect storm of factors that lead to risky teen driving? We believe so. Approaches that seek to alter the nature of peer influences (e.g., promoting "skillful copiloting"), reduce peer influences (e.g., enhancing refusal skills), or redirect peer influences more positively (e.g., increasing the value within the peer group of being crash-free) all warrant attention. One important feature of a perfect storm is that its power is largely dependent on many unique elements being present simultaneously. Remove even one or two of the elements, and the power of the storm is greatly diminished. From that perspective, the lengthiness of the list of risk factors presented above, rather than serving as a basis for pessimism, may give real reason for hope in offering many potential targets for efforts to reduce risks and enhance protective factors associated with adolescent driving. Future research is now needed to examine whether such efforts may indeed lead to significant reductions in the risks associated with adolescent driving.

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