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Associations Between Parenting Styles and Teen Driving, Safety-Related Behaviors and Attitudes



WHAT'S KNOWN ON THIS SUBJECT: Authoritative parenting style is known to influence adolescent behaviors and attitudes positively. However, little is known about the interplay between parental warmth, support, and control in relation to teen driving safety.



WHAT THIS STUDY ADDS: Parents matter. This study confirms that safe driving belongs on the list of adolescent behaviors known to be influenced positively by authoritative parenting.

abstract



OBJECTIVE: The goal was to explore the association between parenting style and driving behaviors.

METHODS: The 2006 National Young Driver Survey gathered data on driving safety behaviors from a nationally representative sample of 5665 ninth-, 10th-, and 11th-graders. A parenting style variable was based on adolescent reports and separated parents into 4 groups, (1) authoritative (high support and high rules/monitoring), (2) authoritarian (low support and high rules/monitoring), (3) permissive (high support and low rules/monitoring), and (4) uninvolved (low support and low rules/monitoring). Associations between parenting style and driving behaviors and attitudes were assessed.

RESULTS: One half of parents were described as authoritative, 23% as permissive, 8% as authoritarian, and 19% as uninvolved. Compared with teens with uninvolved parents, those with authoritative parents reported one half the crash risk in the past year (odds ratio [OR]: 0.47 [95% confidence interval [CI]: 0.26–0.87]), were 71% less likely to drive when intoxicated (OR: 0.29 [95% CI: 0.19–0.44]), and were less likely to use a cellular telephone while driving (OR: 0.71 [95% CI: 0.50–0.99]). Teens with authoritative or authoritarian parents reported using seat belts nearly twice as often (authoritative: OR: 1.94 [95% CI: 1.49–2.54]; authoritarian: OR: 1.85 [95% CI: 1.08–3.18]) and speeding one half as often (authoritative: OR: 0.47 [95% CI: 0.36–0.61]; authoritarian: OR: 0.63 [95% CI: 0.40–0.99]) as teens with uninvolved parents. No significant differences in crash risk or seat belt use were found between permissive and uninvolved parents.

CONCLUSIONS: Clinicians should encourage parents to set rules and to monitor teens' driving behaviors, in a supportive context. *Pediatrics* 2009;124:1040–1051

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KEY WORDS

adolescent, parenting, driving safety, motor vehicle crashes, accidents, survey, authoritative parenting, parenting style

ABBREVIATIONS

GDL—graduated driver licensing
NYDS—National Young Driver Survey
CI—confidence interval
OR—odds ratio

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Motor vehicle crashes are the leading cause of adolescent fatalities and acquired disabilities.¹ These injuries exist within the broader context of adolescent health, in which >70% of deaths are behaviorally related.² Because adolescent health is so tightly linked to behavior, research has focused on strategies that promote positive behavioral choices.^{3–6} A growing consensus recognizes that teaching driving techniques is not enough to affect adolescent driving safety; we also must influence driving-related attitudes and behaviors.⁷ Incorporating the knowledge gained from addressing attitudes and actions for other adolescent behaviors into the driving context is a sound place to begin.⁷

Effective involved parents represent a key factor in promoting positive adolescent behaviors.^{8–10} Parental monitoring has a significant independent influence over adolescent substance use,^{11,12} sexual initiation,^{13,14} delinquency,^{15,16} and aggression.¹⁶ Parents also play an important role in driving safety. Several studies have found that parental monitoring, with appropriate restrictions, influences driving safety.^{17–20} In particular, a formal, written, driving-related, parent-teen agreement with clear parental expectations reduces risky driving among teens,^{21,22} likely by reducing discordance between parent and teen interpretations of expectations and limits.²³

Monitoring is only one aspect of the protective influence of parental involvement. Parents are trusted sources of health and safety information and therefore serve as key informants and role models.^{24–26} In fact, family connection has been found to be pivotal in reducing vulnerability across all major risk domains.²⁷ Central to this connection is warmth, caring, and support.²⁷ The importance of warmth and support raises the question of how parents can best commu-

nicate their insistence on monitoring driving-related behaviors.

Parenting style considers the balance between 2 aspects of parenting, namely, control (monitoring/restrictions) and warmth/support. Baumrind^{28,29} and Maccoby and Martin³⁰ described 4 discrete parenting styles. Authoritarian parents place restrictions with little warmth. Permissive parents provide warmth and emotional support with few restrictions. Uninvolved parents offer neither support nor restrictions. Authoritative parents closely monitor their children with warmth and emotional support, as well as responsiveness and firm boundaries. Authoritative parents most successfully promote positive behavioral and emotional outcomes in adolescents and best foster effective family connections.^{31–33} Although parenting styles vary according to socio-demographic group, the authoritative style has been found to benefit all adolescents, regardless of ethnicity, socioeconomic status, or family structure.³⁴ Little is known, however, about the optimal interplay between parental warmth, support, and control in relation to driving safety.

We previously reported data on self-reported behaviors, attitudes, and exposures to factors that contribute to driving safety from the National Young Driver Survey (NYDS).³⁵ To enhance the scientific foundation for parenting style as a predictor of driving safety, the objective of the current analyses was to explore the association between parenting style and adolescent-reported driving safety behaviors and attitudes.

METHODS

Study Group

The NYDS was conducted with a nationally representative sample of 5665 ninth-, 10th-, and 11th-graders from March to May 2006. The survey at-

tained school-level and student-level response rates of 57% and 85%, respectively. Full details on the NYDS design, sampling framework, methods, and results were reported by Ginsburg et al.³⁵

Survey Design

The NYDS gathered data on behaviors and attitudes that affect driving safety. It incorporated measures from previously validated surveys, including demographic characteristics thought to be correlated with driving safety (eg, age, gender, race, and population density), social and behavioral measures that may influence safety (eg, self-reported school performance, substance use, and seat belt use), and driving experience, including crash history. Behavior items were self-reported, and attitude items gave personal opinions of the degree to which factors affected teen safety.

The NYDS was designed by using the Teen-Centered Method, a mixed qualitative/quantitative method that facilitates idea generation and then incorporates the ideas into surveys.³⁶ Teen-generated items from the formative qualitative stages were included in a section that explored attitudes by asking about the difference 25 factors made “in whether or not teens are safe in cars.” Respondents answered on a 3-point scale (ie, no, some, or a lot of difference). In this analysis, we explored attitudes only in areas in which we also collected data on self-reported behaviors. The institutional review boards of The Children’s Hospital of Philadelphia and Macro International, the survey contractor, approved the survey protocol. Both active and passive parental permission forms were available, which allowed each school to accommodate its typical practice for negligible-risk surveys. Adolescents assented to survey participation.

Derivation of Parenting Style Variables

This article focuses on the variables describing parental support, rules, and monitoring and their associations with adolescent self-reported behaviors and attitudes. Two major considerations underscored the choice of items for the parenting variables. First, because parenting was only one of many constructs included in the school-administered NYDS, only a brief set of items (4 items) could be used. Second, the wording of the items needed to be appropriate for the high school population, which included both drivers and nondrivers; therefore, the frame for parenting practices was general rather than driving specific. The support and rules statements were taken from the Attitudes and Behaviors Survey (survey items 29b and 29e) of the Search Institute,³⁷ and the monitoring statements were drawn from the parental monitoring work by DiClemente et al.³⁸ The 4 items chosen were as follows: item 1 (support): “My parents give me help and support when I need it”; item 2 (rules): “In my family, there are clear rules about what I can and cannot do”; item 3 (monitoring): “My parents keep track of where I am when I am not in school and away from home”; item 4 (monitoring): “My parents want to know who I am with when I am not in school and away from home.” Participants responded to each statement on a 5-point scale ranging from strongly agree to strongly disagree, with a mid-point neutral response of neither agree nor disagree. Internal consistency of the items on parental rules and monitoring in the NYDS was good (Cronbach’s $\alpha = .76$).

On the basis of responses to the parenting items, we constructed a 4-category, theoretically derived, parenting style variable based on the interplay of control (defined as monitor-

ing and rules) and support. A dichotomous control variable was derived; high control corresponded to strongly agree or agree responses for the rules and monitoring items (items 2–4). All other combinations of responses for the rules and monitoring items were categorized as low control. A dichotomous support variable resulted from reclassifying responses as high support for strongly agree or agree responses for the support item and low support for all other responses. A 4-category, parenting style variable emerged from the combinations of levels of control and support, on the basis of the work of Baumrind²⁸ and Steinberg and colleagues,^{12,39,40} that is, (1) authoritarian (low support and high control), (2) authoritative (high support and high control), (3) permissive (high support and low control), and (4) uninvolved (low support and low control).

Statistical Analyses

We examined associations between parenting categories and variables strongly associated with crashes and death (crashes as a driver,⁴¹ crashes as a passenger,^{42,43} seat belt use,^{44,45} alcohol use overall and while driving,⁴⁶ cellular telephone use while driving,^{43,47} speeding,^{48,49} and driving while angry/road rage^{50,51}). Bivariate analyses of parenting style and demographic characteristics, driving behaviors, and attitudes were performed by using robust χ^2 tests of association. To assess the association between parenting style and outcome variables, multivariate logistic regression analysis was performed with SUDAAN (Research Triangle Institute, Research Triangle Park, NC), controlling for the following variables: gender, age, race/ethnicity, academic grades, driving experience, and hours driven per week. Logistic regression modeling results are expressed as adjusted odds ratios (ORs) with corresponding 95% confidence in-

tervals (CIs). Statistical significance was set at .05 (2-tailed). Driving-related behavior analyses were performed with data for respondents with driving experience ($N = 4519$). Analyses of non-driving-related behaviors and attitudes were performed with data for the full sample ($N = 5665$).

RESULTS

One half of parents were described as authoritative (high in support and control), 23% as permissive, 19% as uninvolved, and 8% as authoritarian (Table 1). Tables 2 and 3 present the distributions of demographic characteristics and self-reported behaviors in the overall sample and within each parenting style subgroup. The differences in parenting style according to gender, age, and academic performance were consistent with the findings of other studies.^{52–54} Uninvolved parents were the reference group for all analyses.

Table 4 shows that adolescents with authoritative parents, compared with those with uninvolved parents, experienced a significantly lower crash risk in the previous year (OR: 0.47 [95% CI: 0.26–0.87]). Similarly, those with au-

TABLE 1 Parenting Style Distribution ($N = 5665$)

Parenting Style	Control	Support	Proportion of Sample, %
Authoritarian ^a	High	Low	8
Authoritative ^b	High	High	50
Permissive ^c	Low	High	23
Uninvolved ^d	Low	Low	19

To be categorized as having parents with high levels of control, respondents needed to provide agree or strongly agree responses for all 3 rules and monitoring items. Similarly, to be categorized as having parents who gave high levels of support, respondents needed to provide agree or strongly agree responses for the parental support item. All other responses were categorized as low.

^a In lay language, authoritarian parents might say, “You’ll do as I say.”

^b In lay language, authoritative parents might say, “I care about you, and I’ll give you the freedoms you earn, but for safety-related issues you’ll need to do as I say.”

^c In lay language, permissive parents might say, “I trust you; you’ll do the right thing.”

^d In lay language, uninvolved parents might say, “Do what you want.”

TABLE 2 Baseline Characteristics of Survey Participants and Associations With Parenting Style (*N* = 5665)

Demographic Features	Proportion of Total, %	Parenting Style, %					<i>P</i>
		Authoritarian	Authoritative	Permissive	Uninvolved	Total	
Gender							
Female	49	9	53	19	18	100	.001
Male	51	7	46	27	20	100	
Race/ethnicity							
White	62	8	51	23	18	100	.01
Black	16	6	51	23	20	100	
Hispanic	16	12	42	24	22	100	
Other	6	10	40	24	26	100	
Grade							
9	37	7	51	22	20	100	.208
10	33	8	51	23	18	100	
11	30	9	45	25	20	100	
Age							
14 y	14	9	47	20	23	100	.001
15 y	33	7	52	22	16	100	
16 y	31	10	47	24	19	100	
17 y	18	7	48	24	21	100	
18 y	4	5	35	32	28	100	
Academic performance							
A/B	73	7	56	22	15	100	.001
C	21	11	35	26	28	100	
D/F	6	6	26	21	47	100	
Urbanicity							
Central city	15	9	46	23	22	100	.227
Rural/town	44	8	51	22	19	100	
Suburban	40	8	49	24	19	100	
Driving status							
Not driving yet	26	8	49	22	21	100	.078
Learning to drive	39	9	50	23	18	100	
Driving independently	35	7	48	25	20	100	
Licensing							
Not licensed yet	29	11	45	23	20	100	.076
Driving with adult	31	7	52	23	19	100	
Restricted license	15	8	53	23	16	100	
Unrestricted license	24	6	49	25	19	100	
Most helpful in teaching how to drive							
No one	9	11	26	27	36	100	.001
Parent	61	7	55	23	15	100	
Another relative/friend	15	12	38	22	28	100	
Driver's education	14	8	51	22	20	100	

Bivariate analyses between parenting style and demographic characteristics, driving behaviors, and attitudes were performed by using robust χ^2 tests of association.

thoritative parents experienced fewer crashes as a passenger in the previous year (OR: 0.73 [95% CI: 0.57–0.95]). Tables 5 to 7 explore the relationships between parenting style and key driving safety behaviors, including seat belt use, substance use, cellular telephone use, speeding, and road rage/anger. A low OR is protective for all behaviors except seat belt use, for which a high OR is desired. A high OR is protective for attitudes.

Table 5 demonstrates that the likelihood of adolescents wearing a seat

belt as a driver or passenger was nearly doubled for adolescents with authoritative or authoritarian parents, compared with those with uninvolved parents. Adolescents in those families also were nearly twice as likely to think that seat belt use affects safety. No significant differences in adolescent crash risk or seat belt use were reported for families with permissive parents.

Table 6 shows the association between parenting style and substance use-related behaviors and attitudes.

Youths with authoritative parents were least likely to report substance (alcohol or drugs) use while driving, and those with authoritarian or authoritative parents were less likely to report any alcohol use, compared with those with uninvolved parents. Compared with adolescents with uninvolved parents, adolescents with authoritative parents reported greater risk perception for drivers smoking marijuana (OR: 2.50 [95% CI: 2.10–2.98]) and youths with authoritarian parents reported greater risk percep-

TABLE 3 Behaviors of Survey Participants and Associations With Parenting Style (N = 5665)

Behaviors	Proportion of Total, %	Proportion of Parenting Style, %				P
		Authoritarian	Authoritative	Permissive	Uninvolved	
Crashes as driver in past 12 mo ^a						
None	88	88	91	88	81	.001
≥1	12	12	9	12	19	
Severe crashes in lifetime as driver ^a						
None	93	97	95	91	85	.001
≥1	7	3	5	9	15	
Crashes as passenger in past 12 mo						
None	80	78	83	78	75	.001
≥1	20	22	17	22	25	
Severe crashes in lifetime as passenger						
None	74	75	76	75	68	.01
≥1	26	25	24	25	32	
Seatbelt use as passenger						
Often or always	70	72	77	65	59	.001
Not often or always	30	28	23	35	41	
Seatbelt use while driving ^a						
Often or always	79	84	85	75	67	.001
Not often or always	21	16	15	25	33	
Cellular telephone use while driving ^a						
At least sometimes or occasionally	48	46	44	54	52	.01
Rarely or never	52	54	56	46	48	
Speeding ^a						
At least sometimes or occasionally	51	48	43	58	63	.001
Rarely or never	49	52	57	42	37	
Driving while angry ^a						
At least sometimes or occasionally	25	30	20	25	35	.001
Rarely or never	75	70	80	75	65	
Alcohol use while driving ^a						
At least sometimes or occasionally	9	8	4	13	18	.001
Rarely or never	91	92	96	87	82	
No. of days in past 30 days had 1 drink of alcohol						
0	67	65	77	60	53	.001
1–5	23	28	18	27	29	
≥6	9	7	5	13	18	

Bivariate analyses between parenting style and demographic features, driving behaviors, and attitudes were performed by using robust χ^2 tests of association.

^a Driving-related behavior analyses were performed with data for 4519 respondents with driving experience.

TABLE 4 Effects of Parenting Style on Crashes

Parenting Style	OR (95% CI)			
	Crashes as Driver in Past 12 mo ^a	Severe Lifetime Crashes as Driver ^a	Crashes as Passenger in Past 12 mo	Severe Lifetime Crashes as Passenger
Authoritarian	0.76 (0.36–1.59)	0.75 (0.14–3.96)	0.89 (0.59–1.35)	0.76 (0.52–1.12)
Authoritative	0.47 (0.26–0.87) ^b	0.37 (0.13–1.05)	0.73 (0.57–0.95) ^b	0.73 (0.58–0.94) ^b
Permissive	0.79 (0.36–1.71)	0.65 (0.30–1.44)	0.92 (0.64–1.30)	0.76 (0.56–1.04)
Uninvolved	1.0	1.0	1.0	1.0

ORs were controlled for gender, age, race/ethnicity, academic grades, driving experience, and hours per week driving a car. Desired ORs would be low for these behaviors.

^a Driving-related behavior analyses were performed with data for 4519 respondents with driving experience.

^b Statistically significant at $P < .05$.

tion for drivers drinking alcohol (OR: 2.67 [95% CI: 1.56–4.56]).

Table 6 reveals that authoritative parenting was associated with a protective effect on cellular telephone use and text messaging while driving. Those teens

were less likely to report cellular telephone use while driving (OR: 0.71 [95% CI: 0.50–0.99]) and were more likely to view text messaging as negative (OR: 1.55 [95% CI: 1.20–1.99]) and cellular telephone use as dangerous (OR: 1.20 [95%

CI: 1.0–1.46]). Authoritarian parenting also had a negative effect on text messaging attitudes (OR: 1.68 [95% CI: 1.16–2.44]). No significant differences regarding cellular telephone use or text messaging were reported for teens with permissive versus uninvolved parents.

Table 7 demonstrates that both authoritative (OR: 0.47 [95% CI: 0.36–0.61]) and authoritarian (OR: 0.63 [95% CI: 0.40–0.99]) parents had protective effects on speeding, as well as on attitudes about speeding, racing, and drivers showing off. Permissive parents did not provide significant protection from speeding or racing, compared with uninvolved parents.

TABLE 5 Associations Between Parenting Style and Seatbelt Use

Parenting Style	OR (95% CI)		
	Seatbelt Use as Driver ^a	Seatbelt Use as Passenger	Seatbelt Use of Drivers With Passengers (Attitude)
Authoritarian	1.85 (1.08–3.18) ^b	1.73 (1.21–2.48) ^b	1.58 (1.19–2.09) ^b
Authoritative	1.94 (1.49–2.54) ^b	1.74 (1.39–2.18) ^b	2.19 (1.79–2.68) ^b
Permissive	1.12 (0.83–1.51)	1.07 (0.82–1.38)	1.19 (0.92–1.54)
Uninvolved	1.0	1.0	1.0

ORs were controlled for gender, age, race/ethnicity, academic grades, driving experience, and hours per week driving a car. Desired ORs would be high for these behaviors.

^a Driving-related behavior analyses were performed with data for 4519 respondents with driving experience.

^b Statistically significant at $P < .05$.

Table 7 shows the link between parenting style and an adolescent's emotional state while driving (including road rage). Teen drivers with authoritative parents were one half as likely to admit driving while angry (OR: 0.51 [95% CI: 0.39–0.66]). Youths with permissive parents were 37% less likely to report driving while angry. Youths with authoritarian parents were no less likely to drive while angry than were youths with uninvolved parents. Authoritative parents were positively associated with all emotion-related variables.

DISCUSSION

This study demonstrates the strong association between parenting style and teen crash risk and begins to explain this risk in terms of related driving behaviors and attitudes regarding those behaviors. Parental rules and monitoring are key determinants of safe teen driving behaviors and attitudes. When rules and monitoring are accompanied by parental support, the benefit is amplified and is most consistently protective. This study confirms that safe driving belongs on the list of adolescent behaviors (including substance use, sexual initiation, delinquency, and aggression) known to be positively influenced by authoritative parenting.^{31–33,55,56}

Our data affirm that engaged parents, in contrast to uninvolved parents, were protective to youths in the domain of safe driving. Permissive par-

ents (high support alone) had few statistically significant effects on driving safety. Notable exceptions were effects on driving while angry and attitudes about intoxicated driving. Parents offering strong rules and monitoring with little support had their greatest effect on topics reinforced by laws, including seat belt use, speeding, racing, and substance use.

Because the NYDS included behaviors and attitudes, it offers a rich view into how parents potentially promote desirable teen driver safety behaviors. Reported behaviors reveal present actions. Data on attitudes deepen our understanding by suggesting how likely teens are to adopt or to dismiss a behavior.⁵⁷ Current behavioral theories point to the importance of both attitudes and perceived norms as strong antecedents to adopting safe behaviors.^{57–59}

Parental monitoring is known to affect driving safety.^{17–20} Current driving legislation supports monitoring. Most states have graduated driver licensing (GDL) laws that restrict early independent driving (eg, limiting peer passengers and nighttime driving), to allow teens to gain experience under low-risk driving conditions.⁴¹ GDL contributed substantially to the decrease in driving-related adolescent fatalities between 1995 and 2005.⁶⁰ GDL potentially can enhance the effect of monitoring because parents can point to

TABLE 6 Associations Between Parenting Style and Driving-Related Substance Use and Cellular Telephone Use

Parenting Style	OR (95% CI)									
	Substance Use While Driving					Cellular Telephone Use While Driving				
	Behaviors		Attitudes			Behaviors		Attitudes		
	Substance Use While Driving ^a	No. of Days When Teen Had ≥ 1 Alcoholic Drink	Driver Has Been Smoking Marijuana	Driver Has Been Drinking Alcohol	Driver Has Been Drinking Alcohol	Passengers Have Been Drinking Alcohol	Passengers Have Been Smoking Marijuana	Cellular Telephone Use While Driving ^a	Driver Talking on Cellular Telephone	Driver Text Messaging
Authoritarian	0.55 (0.27–1.13)	0.70 (0.51–0.95) ^b	1.47 (1.10–1.96) ^b	2.67 (1.56–4.56) ^b	1.20 (0.86–1.69)	1.35 (1.01–1.81) ^b	1.02 (0.68–1.53)	1.25 (0.89–1.74)	1.68 (1.16–2.44) ^b	
Authoritative	0.29 (0.19–0.44) ^b	0.40 (0.32–0.50) ^b	2.50 (2.10–2.98) ^b	1.99 (1.46–2.71) ^b	1.80 (1.40–2.33) ^b	2.12 (1.74–2.60) ^b	0.71 (0.50–0.99) ^b	1.20 (1.00–1.46) ^b	1.55 (1.20–1.99) ^b	
Permissive	0.86 (0.61–1.20)	0.89 (0.73–1.10)	1.38 (1.08–1.75) ^b	1.45 (1.06–2.00) ^b	1.23 (0.94–1.60)	1.07 (0.80–1.43)	1.14 (0.86–1.50)	0.92 (0.71–1.18)	0.90 (0.70–1.16)	
Uninvolved	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	

ORs were controlled for gender, age, race/ethnicity, academic grades, driving experience, and hours per week driving a car. Desired ORs would be low for behaviors and high for attitudes.

^a Driving-related behavior analyses were performed with data for 4519 respondents with driving experience.

^b Statistically significant at $P < .05$.

TABLE 7 Associations Between Parenting Style and Driving-Related Speeding or Racing and Anger or Road Rage

Parenting Style	OR (95% CI)						
	Speeding or Racing				Anger or Road Rage		
	Behaviors	Attitudes			Behaviors	Attitudes	
Drives >10 mph Over Speed Limit ^a	Driver Speeds	Driver Races Other Cars	Car Is Fast and Driver Is Showing Off	Drives When Angry ^a	Driver Feels Strong Emotions	Driver Has Road Rage	
Authoritarian	0.63 (0.40–0.99) ^b	1.62 (1.21–2.16) ^b	2.12 (1.48–3.03) ^b	1.67 (1.24–2.25) ^b	0.96 (0.62–1.48)	1.23 (0.91–1.67)	1.39 (1.02–1.89) ^b
Authoritative	0.47 (0.36–0.61) ^b	1.59 (1.27–2.00) ^b	2.08 (1.70–2.54) ^b	1.98 (1.59–2.47) ^b	0.51 (0.39–0.66) ^b	1.26 (1.01–1.57) ^b	1.75 (1.44–2.14) ^b
Permissive	0.78 (0.59–1.02)	0.91 (0.73–1.14)	1.28 (0.99–1.66)	1.04 (0.79–1.37)	0.63 (0.48–0.83) ^b	1.05 (0.84–1.32)	0.95 (0.71–1.25)
Uninvolved	1.0	1.0	1.0	1.0	1.0	1.0	1.0

ORs were controlled for gender, age, race/ethnicity, academic grades, driving experience, and hours per week driving a car. Desired ORs would be low for behaviors and high for attitudes.

^a Driving-related behavior analyses were performed with data for 4519 respondents with driving experience.

^b Statistically significant at $P < .05$.

laws supporting their actions. Even in states with weak or nonexistent GDL laws, parents are aware of the benefits of enforcing similar restrictions to protect their children.^{61,62} To promote teen driver safety further, parents should monitor other safety-related behaviors that affect focused driving (eg, substance use, fatigue, and distractions).^{63,64}

Hartos et al^{17,18} found that, although most parents do set limits for newly licensed teen drivers, restrictions tend to be short-lived and lenient. When parents imposed stricter rules regarding teen passengers and nighttime driving, teens reported safer driving behaviors¹⁸ and fewer crashes.⁶⁵ Various parent-teen agreements have been used to codify restrictions,^{22,66,67} to offer an understanding of both teen and parent responsibilities and expectations, and to create a framework whereby restrictions are reduced with increased experience.^{21–23,68} Perhaps because of the clarity and structure they provide, parent-teen agreements have both short-term and sustained benefits.^{21,65}

Monitoring may facilitate effective targeted discussions or may be construed as controlling.⁶⁹ Shope et al¹⁹ found that it was the combination of parental monitoring, nurturing, and family connectedness that decreased crash rates. Our data revealed that an

orientation involving firmness only did affect certain domains; however, support coupled with clear rules, expectations, and monitoring was more consistently protective.

Although parenting style is rooted in personal experience, it does not need to be static.^{70,71} Parents adapt their style for different children and different circumstances,^{70,71} responding to the specific needs and temperament of each child. An irresponsible teen may be more likely to elicit an authoritarian response (“you’ll do this because I say so”), whereas a responsible teen may engage easily in the responsive discussions valued by authoritative parents.²⁰ Although it is difficult to determine when parents’ behavior drives teens’ behavior and vice versa, this dynamic may provide an opportunity for intervention.

The added protective benefit of warmth and support to balance parental control may be explained in part by the effect on teens’ willingness to disclose. Monitoring is dependent on parents’ knowledge of teens’ behavior.^{69,72} Responsive warm parents create an environment in which adolescents are more likely to share their activities and whereabouts.^{73,74}

For parents to be part of the solution, we need to approach them with sensitivity regarding the unique challenge

posed by the process of learning to drive. Although it represents the single greatest risk to adolescent health, parents’ attitudes about driving are more nuanced than are those regarding other behaviors. Parents uniformly want their children to avoid drugs and delinquency and to forgo early sexual initiation. In contrast, parents want adolescents to drive because it offers benefits to family functioning and can be a healthy step toward independence.⁶² The challenge is not to prevent the behavior but to ensure that it is acquired with appropriate safety measures in place. This can be accomplished best by instituting unwavering safety rules regarding seat belt use^{44,75} and substance use,^{19,63} by introducing more-complex driving tasks only as experience is gained,⁷⁶ and by minimizing distractions.^{77,78} To promote these safety issues, parents need to have a high level of involvement in task acquisition and then monitor driving behaviors closely.

The American Academy of Pediatrics 2006 policy statement on teen drivers recognizes the important role of pediatricians in working with families to promote teen driving safety.⁷⁹ It recommends that pediatricians alert parents and teens to high-risk situations for teen drivers, encourage parents to be positive role models, and encourage

written teen-parent contracts.⁷⁹ Our findings suggest that pediatricians also should apply their knowledge about parenting and adolescent development to their anticipatory guidance about driving. They can offer parents guidance on how to insist on appropriate consistent monitoring while remaining warm and supportive. This may help teens understand that driving-related monitoring and restrictions are not about “control” but rather about caring and parents’ desire to ensure their safety.

Because the NYDS collected data at one time point, we cannot determine whether parenting practices produced desired outcomes or adolescent behavior evoked the parenting styles. Furthermore, although youths who characterized their parents as authoritative demonstrated desired driving safety outcomes, we cannot know whether parents’ behavior or teens’ subjective interpretation of that behavior offered protection. Although teens’ reporting of parenting behaviors has limitations, research suggests that obtaining information from adolescents is promising⁸⁰ and has predictive validity.⁸¹ Glasgow et al⁸² emphasized that adolescents represent fundamental informers with accurate perceptions concerning family dynamics.

The constructed variable of parenting style did not measure all of the dimensions of control/demandingness or support/responsiveness covered with longer, more-complete measures. Because we needed to limit the length of the NYDS to make it appropriate for the school setting, we asked questions limited to the core constructs of parental style, that is, support and control. Future studies might include both teen and parent reports,^{81,83} more-comprehensive measures of parenting style,^{84,85} or assessments of parenting styles and teen behaviors and attitudes at multiple time

points.³¹ Those studies could include both general and driving-specific parenting style measures to determine the importance of preexisting parenting styles for driving-specific rules and monitoring (eg, parent-teen agreement and in-vehicle monitoring technology) effectiveness.

Because the 4 parenting styles are not equally distributed, our ability to note significant differences between the less-common parenting styles (authoritarian and permissive) and uninvolved parenting was reduced. Therefore, these data should not be overinterpreted to conclude that there is little benefit of giving support or rules/monitoring alone, compared with being uninvolved. Most importantly, although we can report that parenting style is associated with reported behaviors and attitudes, only future, well-researched interventions will be able to conclude that an altered parenting style changes behavior.

CONCLUSIONS

Parents matter. Driving safety can be added to the growing list of positive health behaviors associated with parental involvement. Youths who perceived their parents as involved, including those with orientations involving rules and support (authoritative), rules only (authoritarian), or support only (permissive), generally had more-desirable attitudes and behaviors regarding driving safety than did those with uninvolved parents. However, adolescents with supportive active parents (rules, monitoring, and support) were most protected.

These results have a clear, actionable message for parents. To protect teens from crashes, parents should set rules and effectively monitor driving behaviors. On the basis of our results and other health behavior literature, effective monitoring typically is most effective when given in a supportive context.

Clinicians and other trusted parenting sources should be conveying this message to parents.

Our findings call for further work to explore how parents can be most effective in fostering safe driving behaviors. Parental support remains a poorly defined concept, and optimal monitoring strategies need to be established as new technologies are created to support this important parental role. Moreover, evidence-based interventions need to continue to be developed to increase awareness and implementation of authoritative parenting behaviors, as well as to help teens become more receptive to parental involvement in their safety.

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Associations Between Parenting Styles and Teen Driving, Safety-Related Behaviors and Attitudes

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