Family Communication Patterns and Teen Drivers' Attitudes Toward Driving Safety

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ABSTRACT

Introduction: Family communication patterns (FCPs) play an important role in reducing the risk-taking behaviors of teens, such as substance use and safer sex. However, little is known about the relationship between family communication and teen driving safety.

Method: We analyzed the baseline data from a randomized trial that included 163 parent-teen dyads, with teens who would be receiving their intermediate driver's license within 3 months. FCPs were divided into four types—pluralistic, protective, consensual, and laissez-faire—and were correlated with the frequency of parent-teen discussions and teens' driving safety attitudes.

Results: The ratings on four types of FCPs were distributed quite evenly among teens and parents. Parents and teens agreed on their FCP ratings ($p = .64$). In families with communication patterns that were laissez-faire, protective, and pluralistic, parents talked to their teens less about safe driving than did parents in families with a consensual communication pattern ($p < .01$). Moreover, the frequency of parent-teen communication about safe driving was positively associated with teen attitudes toward safe driving (adjusted $\beta = 0.35$, $p = .03$).

Discussion: Health care providers need to encourage parents, particularly those with non-consensual FCPs, to increase frequency of parent-teen interactions. J Pediatr Health Care. (2013) *27*, 334-341.

KEY WORDS

Teen drivers, family communication, driving safety

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Motor vehicle crashes are the leading cause of death among teenagers in the United States, accounting for more than one third of deaths in this age group (Centers for Disease Control and Prevention [CDC], 2009). Every day in the United States in the year 2008, nine teens aged 16 to 19 years died and nearly 1000

were treated for motor vehicle injuries in emergency departments (CDC, 2009; National Highway Traffic Safety Administration, 2009). Teenage crash risk is particularly high during the first 6 months of driving (Insurance Institute for Highway Safety, 2009; Williams, 2003).

Parents can play a vital role in promoting safe driving to their teens. In addition to controlling access to the car, parents can impose limits on high-risk driving conditions (e.g., late at night, with peer passengers, and on high-speed roads), teach skills, and help their teens develop safe driving behaviors (Hartos, Eitel, & Simons-Morton, 2002; Simons-Morton, Hartos, & Beck, 2003; Simons-Morton, Hartos, Leaf, & Preusser, 2005; Zakrajsek, Shope, Ouimet, Wang, & Simons-Morton, 2009). Researchers suggest that one way parents can promote driving safety is to effectively communicate with their teens about safe driving behaviors (Ginsburg, Durbin, García-España, Kalicka, & Winston, 2009; Simons-Morton & Ouimet, 2006). Such family communication may be particularly important for new drivers living in rural areas because rural teens often start driving at earlier ages and rural roads pose a number of additional hazards and challenges (Karlaftis & Golias, 2002; Peek-Asa, Britton, Young, Pawlovich, & Falb, 2010).

> Parents can play a vital role in promoting safe driving to their teens.

Research showed that family communication patterns (FCPs), which refer to repeated interaction styles and behaviors among family members, are associated with reduced risk behaviors (Chaffee, McLeod, & Wackman, 1973; McLeod, Atkin, & Chaffee, 1972; Koesten & Anderson, 2004; Koesten, Miller, & Hummert, 2002). During the past four decades, FCPs have been used to understand family communication norms and their influence on adolescent development. The findings indicate that FCPs are important for adolescent socialization (Karofsky, Zeng, & Kosorok, 2001; Koerner & Cvancara, 2002). Several published studies have linked FCPs to attitudes and protective behaviors concerning reducing alcohol and other drug usage (Koesten et al., 2002; Koesten & Anderson, 2004), delaying sexual intercourse, or using contraception if they have intercourse (Miller, Levin, Whitaker, & Xu, 1998).

FCPs often are measured across two dimensions: socio-orientation and concept-orientation. Socio-orientation measures the degree of harmony in family communication. Interactions in families at the high end of this dimension typically emphasize avoidance of controversy and obedience to parents. Conversely, concept-orientation measures the level of openness in family communication. Interactions in families at the high end of this dimension often encourage members to interact frequently and for large amounts of time (Chaffee et al., 1973; McLeod et al., 1972).

Based on the score on these two dimensions, FCPs can be divided into four types: pluralistic, protective, consensual, and laissez-faire (Fitzpatrick & Ritchie, 1994). Families with pluralistic FCPs often emphasize communication and free expression of ideas and opinions, encouraging their children to consider all sides of an issue before forming and expressing their opinions even if they differ from those of others. Families with protective FCPs place a strong emphasis on child obedience and downplay interaction; parents emphasize that their children should avoid social conflict and give in on arguments to circumvent antagonizing others. Families with consensual FCPs are encouraged to discuss issues and express opinions, although children often are expected to ultimately agree with their parents. Finally, families with laissez-faire FCPs downplay interaction and place little pressure on children to conform. Parents and children in these families tend to pursue their individual goals without concern for the needs and desires of others (Chaffee et al., 1973; Fitzpatrick & Ritchie, 1994; McLeod et al., 1972).

Safe driving is an example of a health behavior connected positively with a high level of parental involvement (Hartos et al., 2002; Simons-Morton et al., 2003; Simons-Morton et al., 2005; Zakrajsek et al., 2009). Existing literature suggests that family communication plays an important role in delivering positive and encouraging messages about driving safety and fostering teen drivers' safety attitudes and behaviors (Ginsburg et al., 2009; Simons-Morton & Ouimet, 2006). However, no studies have examined the role of FCPs in teen driving safety, which is important because different patterns may yield different outcomes. The objectives of this study are to describe the FCPs in the context of safe teen driving among a sample of teens who anticipated receiving their intermediate driver's license and their parents, and to examine the associations of FCPs, the frequency of parent-teen discussions on safe driving, and new teen drivers' attitudes toward driving safety.

METHOD

Data and Procedure

Data used for this analysis were compiled from the baseline measurements of a randomized controlled intervention trial aimed at teaching parents of teens to improve communication about driving safety. After receiving approval from the principals, a letter introducing the study was sent home with all eligible students from nine participating schools. A research assistant contacted families who expressed interest via a returned postage-paid postcard and/or a phone call and screened them for eligibility. An in-person meeting

was then scheduled for eligible parent-teen dyads to sign the informed consent and complete the baseline questionnaire. This study was approved by the Human Subjects Protection Committees at the respective institutions where the study was conducted.

Study Population

The study subjects included parent-teen dyads, with teens who anticipated receiving their intermediate driver's license within 3 months and their parents who were spending the most time teaching their teens to drive. Only parent-teen dyads were included; if either the parent or teen declined participation, the dyad was not enrolled. A total of 336 families returned postcards or indicated interest. Of these, 52 were ineligible, 48 refused to participate, and 73 could not be located after multiple contacts. Thus a total of 163 parent-teen dyads were recruited between May 2008 and June 2010, with a participation rate of 48.5%.

Measures

Family communication patterns

Family communication patterns were assessed using the Family Communication Pattern Scale, a validated 10-item scale with separate versions for parents and their children (McLeod et al., 1972). The instrument contained two subscales: *socio-orientation* (five items) and *concept-orientation* (five items), with established reliability from 0.61 to 0.84 and 0.54 to 0.82, respectively (Chaffee et al., 1973). Parents (or teens) were asked how often they (or their parents) said each of 10 statements to their children (or them) when discussing driving safety, using a 4-point Likert scale, with 0 indicating "never" and 3 indicating "often." Both subscales had score ranges between 0 and 15. Using a median score as cut-off point for the two subscales, FCPs was divided into four types: pluralistic (high concept-orientation but low socio-orientation), protective (low concept-orientation but high socio-orientation), consensual (high concept-orientation and socio-orientation), and laissez-faire (low concept-orientation and socio-orientation; Fitzpatrick & Ritchie, 1994).

Parent-teen discussions on safe driving topics

Parent-teen discussions on safe driving topics were based on six commonly identified driving safety topics (wearing a seat belt, never drinking and driving, avoiding distractions, maintaining safe speeds, not driving aggressively, and being a good passenger; Williams, 2003).

For each topic, parents were asked if and how frequently they talked about the topic with their teens in the past 6 months, using a 5-point Likert scale, with 1 indicating "never" and 5 indicating "very frequently." The teens were posed the same questions and asked to rate if and how frequently their parents talked with them about each topic in the past 6 months. Summary scores were then calculated separately for parents and teens to measure their reported frequency of discussions on each topic, with a high score denoting more frequent discussions.

Attitudes toward driving safety

Teens' attitudes toward driving safety were measured using the 21-item instrument that was modified from an existing tool from the California Department of Motor Vehicles to evaluate teen driving knowledge, attitudes, and skills following a classroom-based educational program (13 items; California Department of Motor Vehicles, 2003). An additional eight questions were adapted from the Ohio Department of Public Safety Rural Driving Guide (Ohio Department of Public Safety, 2005), to include driving behaviors related to rural roadways. The respondents were asked to rate, on a 6-point Likert scale, the extent to which they agreed or disagreed with statements that reflected attitudes about safe driving, with 1 indicating "strongly disagree" and 6 indicating "strongly agree." Summary scores were calculated for 21 items, with higher scores denoting more safety-prone attitudes. The internal consistency reliability test was conducted among teens' responses to the 21-item instrument with a Cronbach coefficient alpha of 0.73.

Demographics

Demographic characteristics included in this study were parents' gender, age, race, education level, marital status, and employment status. Teens' characteristics included their age, gender, race, grade, age of first drive, whether they drove unsupervised, and whether they had regular access to a car.

Statistical Analysis

Descriptive analysis was used to describe FCPs, including pluralistic, protective, consensual, and laissez-faire styles and frequency of parent-teen discussions on driving topics. The difference in distribution of teens' and parents' FCP ratings was compared using the χ^2 test. The agreement in FCP rating between parent-teen dyads was assessed using Bowker's test of symmetry.

Multiple linear regression models were used for the two outcomes of interest: (a) teens' reported frequency of parent-teen discussions on safe driving topics, and (b) teens' attitudes toward driving safety, adjusting for teens' characteristics including age, gender, race, age of first drive, unsupervised driving, and access to a car. Because the focus of this study was on outcomes of teens' attitudes, only the teens' score on FCPs was included in the adjusted models (Saphir & Chaffee, 2002). All analyses were conducted in SAS version 9.2.

RESULTS

Characteristics of Study Participants

A total of 163 parent-teen dyads participated. Of 163 participating parents, most were mothers (82.8%), White (97.6%), married (82.8%), and employed full time (74.2%). In addition, more than 60% of the parents (61.5%) earned a college or higher degree (Table 1). The teen sample included 87 girls (53.4%) and 76 boys (46.6%). Of the teens, most had regular access to a car (81.8%), and were age 15 years (92.6%). Nineteen participants (11.7%) first began driving at age 12 years or younger; more than 90% of participants first drove a car at age 14 years or younger, and nearly half (48.5%) had experience with unsupervised driving (Table 1).

FCPs Rated by Teens and Their Parents

The ratings on four types of FCPs were distributed quite evenly among teens and parents (Table 2). Of 163 dyads included, 47 teens (28.8%) rated their FCPs as consensual, 39 teens (23.9%) rated their FCPs as laissez-faire, 41 teens (25.2%) rated their FPCs as pluralistic, and 36 teens (22.1%) rated their FCPs as protective. Agreement existed between parent and teen ratings ($p = .64$), and parents also had a similar distribution in their FCPs ratings compared with their teens ($p = .81$).

The average total score of parent-teen discussions on six safe driving topics was about the same for participating teens and their parents, with both having mean scores of 22.8, using a scale of 5 to 30 points. The mean difference scores between participating parent-teen pairs for each individual driving topic ranged from –0.1 to 0.2, indicating a large amount of agreement on safe driving topics being discussed between teens and their parents.

FCPs and Frequency of Parent-Teen Discussions

FCPs were associated with frequency of parent-teen discussions on safe driving topics ($p < .01$; Table 3). In particular, results of Tukey's tests on means of all four types of FCPs showed that teens from families with consensual FCPs reported significantly higher scores on frequency of parent-teen discussions on driving topics than did teens from families with pluralistic, protective, and laissez-faire FCPs ($p < .01$). However, no significant difference in frequencies of discussions was reported by teens from families with pluralistic, protective, and laissez-faire FCPs.

Relationship of FCPs, Frequency of Parent-Teen Discussions, and Teens' Attitudes Toward Driving Safety

The results from multiple linear regression models using teen's perceptions showed that teens who reported more frequent parent-teen discussions on driving topics had significantly more positive attitudes toward driving safety (adjusted $\beta = 0.34$, $p = .02$). The significance remained unchanged after adjusting for FCPs (adjusted $\beta = 0.35$, $p = .03$; Table 4). However, whereas FCPs were associated with frequency of parent-teen discussions on safe driving topics, FCPs were not associated with teen attitudes toward driving safety ($p = .71$).

We further assessed the relationship between parents' reported frequency of parent-teen discussions on driving topics and teens' attitudes toward driving safety. The results showed that parents' reported frequency of driving discussions was not correlated with teens' attitudes toward driving safety ($r = 0.04$, $p = .62$).

DISCUSSION

This study investigated the associations of FCPs, the frequency of parent-teen discussions, and teens' attitudes toward driving safety. Research indicates that teens remain strongly influenced by their parents while they are learning to drive (Hartos et al., 2002; Simons-Morton et al., 2005). Our results suggest that teens and their parents agreed on their family communication patterns as well as the frequency with which six safe driving topics were discussed. FCPs were associated with frequency of parent-teen discussions on safe driving topics. Furthermore, the frequency of parent-teen communication about safe driving reported by teens was positively associated with teens' attitudes toward safe driving. However, the frequency of communication reported by parents was not related to teens' positive attitudes toward driving safety.

> …the frequency of parent-teen communication about safe driving reported by teens was positively associated with teens' attitudes toward safe driving.

The existing research has revealed that although parents are concerned about teen driving safety and are supportive of safe driving interventions, they generally exhibit poor monitoring and control of risky driving behaviors. Parents also fail to clearly define driving rules and expectations. Often, parents are either unaware of the need of their teens or not well equipped to utilize effective communication strategies with teens regarding safe driving (Beck, Hartos & Simons-Morton, 2006; Hartos, Beck, & Simons-Morton, 2004; Hartos et al., 2002; Simons-Morton et al., 2003). Our findings suggest that there is a critical need for parents to learn to use more effective communication strategies.

Consistent with existing literature on FCPs and parent-adolescent interactions (Fitzpatrick & Ritchie, 1994; Ginsburg et al., 2009; McLeod et al., 1972; Saphir & Chaffee, 2002), we found that when

TABLE 1. Characteristics of the study population (*N* = 163 parent-teen dyads)

Characteristic	*n*	%
Parents		
Gender		
Father	28	17.2
Mother	135	82.8
Age (y)		
30-39	24	14.9
40-49	112	69.6
50-59	25	15.5
Marital status		
Married	135	82.8
Divorced/separated/widowed/single	28	17.2
Race		
White	159	97.5
Non-White	4	2.5
Education		
Some college or lower	62	38.5
Four-year college graduate	56	34.8
Some graduate school or higher	43	26.7
Employment		
Employed full time	121	74.2
Employed part time/other	42	25.8
Teens		
Gender		
Male	76	46.6
Female	87	53.4
Age (y)		
15	151	93.2
16-17	11	6.8
Grade		
9	21	12.9
10	131	80.4
11 and 12	11	6.8
Race		
White	156	95.7
Non-White	7	4.3
Age at first drive (y)		
≤ 12	19	11.7
13	21	12.9
14	107	65.6
≥ 15	16	9.8
Unsupervised driving		
Yes	79	48.5
No	84	51.5
Regularly have access to a car		
Yes	130	81.8
No	29	18.2

compared with laissez-faire, protective, and pluralistic families, families with consensual FCPs, which encourage family members to discuss issues and express opinions but expect children to ultimately agree with their parents, have more parent-teen discussions on driving topics. This finding on increased parent-teen discussions on driving topics in families with consensual FCPs (e.g., high socio-orientation and concept-orientation) differs from previous study findings linking FCPs to adolescents' sexual behaviors and attitudes. A previous study found a positive correlation between socio-orientation and number of sexual partners, whereas concept orientation was negatively correlated with the number of sexual partners (Koerner & Cvancara, 2002; Koesten & Anderson, 2004). This finding might be attributed, in part, to the greater likelihood that children in consensual families learn his/her parent's ideas and adopt their values (Chaffee, McLeod, & Atkin, 1971). It also might be that consensual FCPs result in teens perceiving a more consistent FCP, allowing for less ambiguity in the interpretation of safe driving expectations. In addition, parents could have more control over their teens' driving behavior than sexual behaviors; thus the pattern of parent-teen interactions could differ regarding the two behaviors. Our results were supported by the study of Ginsburg et al. in 2009, in which parenting style and adolescent driving safety behaviors and attitudes were examined. They found that compared with teens with uninvolved parents (parents who offer neither support nor restriction), teens with authoritative parents (parents who closely monitor with warmth and support) or authoritarian parents (parents who place restrictions with little warmth) reported a higher rate of seat belt use and lower rates of speeding and cellular phone use while driving (Ginsburg et al., 2009).

Supported by existing study findings on the parent-adolescent communication influence on adolescent behaviors and attitudes regarding health (Karofsky et al., 2001; Koesten & Anderson, 2004; Koesten et al., 2002; Miller et al., 1998), we also found that more frequent parent-teen interactions or discussions correlated with teens having more positive attitudes toward driving safety. One possible explanation of why frequent parent-teen interactions may affect teens' attitudes is that the repetition of driving safety concepts could enhance a teen's understanding and acceptance of parental safe driving messages (Martino, Elliott, Corona, Kanouse, & Schuster, 2008). Increased interaction could help develop a stronger foundation that safe driving is a family expectation. More parent-teen interactions also may increase the likelihood of the right message being delivered at the right time or signal to the teen that the topic is important to the parent (Cacioppo & Petty, 1984). Another explanation is that more interaction is likely to increase feelings of comfort regarding driving safety conversations, convey sincere parental interest to the teen, and foster a more connected parental-teen relationship (Miller, Kotchick, Dorsey, Forehand, & Ham, 1998). Timely and effective parent-teen communication about driving safety is essential. Our data indicate that it might be optimal to begin conversations about safe driving before teens receive their intermediate driver's licenses. Regardless, parents and safe driving advocates can use the intermediate driver's license as a "teachable moment" to reinforce driving safety (Saphir & Chaffee, 2002; Simons-Morton et al., 2005). Parents need to find opportunities to discuss driving safety with their teens

TABLE 2. Family communication patterns: comparison between teens and their parents (*N* = 163 parent-teen dyads)

Variable	*N*	Pluralistic[a] *n* (%)	Protective[a] *n* (%)	Consensual[a] *n* (%)	Laissez-faire[a] *n* (%)	*p* value
Teen's rating	163	41 (25.2)	36 (22.1)	47 (28.8)	39 (23.9)	
Parent's rating	163	38 (23.3)	37 (22.7)	42 (25.8)	46 (28.2)	
χ^2 test[b]						0.8049
Bowker's test of symmetry[c]						0.6377

[a]*Pluralistic (high on concept-orientation but low on socio-orientation), protective (low on concept-orientation but high on socio-orientation), consensual (high on both concept-orientation and socio-orientation), and laissez-faire (low on both concept-orientation and socio-orientation).*
[b]*χ^2 test was performed to compare the marginal distribution of family communication patterns rated by between teens and parents. Ratings of teen and parent from the same family were not paired.*
[c]*Bowker's test of symmetry was performed to compare the marginal distribution of family communication patterns rated by between teens and parents. Ratings of teen and parent from the same family were paired.*

early on and throughout their path to becoming independent drivers.

Recognizing the critical role of parental involvement, several parent-based teen driving intervention trials, including the *Checkpoints Program,* have been designed to help parents define driving limits for their teen drivers (Hartos et al., 2002; Simons-Morton et al., 2003; Simons-Morton et al., 2005; Zakrajsek et al., 2009). One limitation is that these programs do not directly teach parents the skills to effectively communicate about safe driving with their teens (Ginsburg et al., 2009; Shope, 2010). Our findings, along with others, suggest that, in addition to setting driving rules or limits, increasing communication and improving parent-teen interactions is crucial to encouraging safe driving in teens (Hartos et al., 2002; Simons-Morton et al., 2003; Simons-Morton et al., 2005; Zakrajsek et al., 2009).

Although researchers and legislators can serve as strong advocates for driving safety among teens, pediatric health care providers who counsel children and adolescents play a critical role in working with families. They can encourage parents to be positive role models and remind parents about the important role they play in their teens' safe driving behaviors, as well as help teens understand their parents' actions and desire to ensure their driving safety (D'Angelo, Halpern-Felsher, & Abraham, 2010; Ginsburg et al., 2009; Williams, & Shults, 2010). One of useful tools that can be used for helping parents keep their teens safe on the road is

TABLE 3. Analysis of variance model of family communication patterns and frequency of parent-teen discussions on driving safety topics (*N* = 163 teens)

		Frequency of parent-teen discussions on driving safety topics				
					Comparison with consensual FCPs	
FCPs[a]	*n*	Mean	*SD*	Group[b]	Difference	*p* value
Pluralistic	36	22.4	4.4	A	–3.4	< .0001
Protective	41	21.7	6.1	A	–4.1	< .0001
Consensual	47	25.7	3.4	B	Ref	Ref
Laissez-faire	39	21.0	4.6	A	–4.7	< .0001

FCPs, Family communication patterns; SD, standard deviation.
[a]*FCPs were divided into four types: pluralistic (high on concept-orientation but low on socio-orientation), protective (low on concept-orientation but high on socio-orientation), consensual (high on both concept-orientation and socio-orientation), and laissez-faire (low on both concept-orientation and socio-orientation).*
[b]*Tukey's studentized range tests (HSD) on means of all four groups were performed. A significant difference between two means from different groups (e.g., A vs. B) was set at the 0.05 level.*

TABLE 4. Multivariable analysis of family communication patterns, frequency of parent-teen discussions, and teens' attitudes toward driving safety (*N* = 163 teens)

	Teen's attitudes toward driving safety			
	Model 1		Model 2	
	β[b]	*p* value	β[b]	*p* value
Frequency of parent-teen discussions	0.34	.0204	0.35	.0280
FCPs[a]				.7071
Pluralistic			2.13	
Protective			–0.08	
Consensual			Ref	
Laissez-faire			0.32	

FCPs, Family communication patterns.
[a]*FCPs were divided into four types: pluralistic (high on concept-orientation but low on socio-orientation), protective (low on concept-orientation but high on socio-orientation), consensual (high on both concept-orientation and socio-orientation), and laissez-faire (low on both concept-orientation and socio-orientation).*
[b]*Both models are adjusted for teen's age, gender, race, age of first drive, whether or not they drive unsupervised, and whether they have regular access to a car.*

the *Parents are the Key* campaign developed by the Centers for Disease Control and Prevention (2010).

This study has limitations. The cross-sectional nature of the baseline data could limit our ability to draw causal-influences. Another limitation is that this study was conducted among parents and teens from rural schools in one state, with the majority of parents being White and highly educated, which could limit the generalizability of our results. Finally, FCPs were assessed only for the topic of driving safety in this study. To better understand parents' influence on teens' safe driving, future studies should incorporate measures on FCPs related to more broad areas.

CONCLUSIONS

Safe driving is an important topic for parent/teen conversations. In addition to discussions about rules regarding access to and use of a car, parents should frequently discuss safe driving behaviors. Our study shows that the frequency of parent-teen interactions is associated with teen attitudes toward safe driving and that families with communication patterns that are laissez-faire, protective, and pluralistic need to be encouraged to talk to their teen more frequently about safe driving. To improve their teens' attitudes toward safe driving, parents need to make sure that driving safety messages are well delivered and received by their teens. Materials that help parents develop effective conversational styles may be an important focus for prevention.

> …families with communication patterns that are laissez-faire, protective, and pluralistic need to be encouraged to talk to their teen more frequently about safe driving.

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