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Recommended Citation

Pettigrew, J., Miller-Day, M., Shin, Y., et al. (2018). Parental messages about substance use in early adolescence: Extending a model of drug-talk styles. *Health Communication*, 33(3), 349-358. doi: 10.1080/10410236.2017.1283565

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This is an Accepted Manuscript of an article published in *Health Communication*, volume 33, issue 3, in 2018, available online at DOI: [10.1080/10410236.2017.1283565](https://doi.org/10.1080/10410236.2017.1283565). It may differ slightly from the final version of record.

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HHS Public Access

Author manuscript

Health Commun. Author manuscript; available in PMC 2019 March 01.

Published in final edited form as:

Health Commun. 2018 March ; 33(3): 349–358. doi:10.1080/10410236.2017.1283565.

Parental Messages about Substance Use in Early Adolescence: Extending a Model of Drug Talk Styles

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Abstract

This study extends a typology of parent-offspring drug talk styles to early adolescents and investigates associations with adolescent substance use. Data come from a self-report survey associated with a school-based, 7th grade drug prevention curriculum. Mixed-methods were used to collect data across four measurement occasions spanning 30 months. Findings highlight frequencies of various drug-talk styles over time (i.e., situated direct, ongoing direct, situated indirect, ongoing indirect, never talked), messages adolescents hear from parents, and comparisons of alcohol, cigarette, and marijuana use by drug talk style. This study advances understanding of parent-adolescent communication about substances and holds practical implications for drug prevention efforts.

Keywords

parent-child communication; adolescent substance use; health messages; prevention programing; drug talk styles

Early adolescent substance use—commonly called drug use—is a national health concern, especially since it is linked to other problem behaviors such as bullying (Kuntsche, Knibbe, Engels, & Gmel, 2007), early initiation of sexual intercourse (Paul, Fitzjohn, Herbison, & Dickson, 2000), unintentional injuries (Boden & Fergusson, 2011), and later problem use and abuse of substances (D’Amico, Ellickson, Collins, Martino, & Klein, 2005). To address this concern with early adolescents, prevention scholars argue that one of the most promising approaches is through parent-adolescent communication about substances (e.g., alcohol, cigarettes, marijuana, and other drugs) and substance use expectations (Harakeh, Scholte, De Vries, & Engels, 2005; Reimuller, Hussong & Ennett, 2011; Van Der Vorst et

al., 2005). This study focuses on alcohol, cigarettes, and marijuana because they are the most commonly used substances in early adolescents (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2016) and thus aims to contribute to both a basic theoretical understanding of parent-child communication as well as the pragmatic implications for health behavior.

Parent-Adolescent Communication about Alcohol, Tobacco, and other Substances

Families have considerable impact on the developmental trajectories of children, despite the fact that peers become increasingly important during early adolescence (Nation et al., 2003; Spoth, Redmond, & Shin, 2001). Parent-adolescent communication plays a particularly significant role in substance use prevention (Miller-Day, 2008; Reimuller et al., 2011; Shin, Lee, Lu, & Hecht, 2015). Parents are the individuals with whom children are most likely to talk about substances and youth consider parents to be credible sources of drug information (Kelly, Comello, & Hunn, 2002; Miller-Day, 2002; Miller-Day, 2008). For example, in a study of almost 83,000 youth in grades 7-12 across 36 communities in the United States, Kelly et al. (2002) found that youth most frequently reported that mothers had talked to them about alcohol, getting drunk, and other substances, followed by fathers, and then teachers. Kelly et al. (2002) concluded that parental communication increases adolescents' perceived sanctions against substance use and thereby reduces experimentation. Still others find that parents' own drinking or smoking predict adolescent use, demonstrating the powerful effects of nonverbal communication and modeling (Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001; Kam, Basinger, & Abendschein, 2015). Recent cross-national data from Europe demonstrates that youth whose parents are authoritative (warm relationships and strict rules) and permissive (warm relationships without strict rules) report significantly less substance use than youth whose parents are authoritarian (strict rules without warm relationships) or neglectful (neither warm relationships nor strict rules) (Calafat et al., 2014). Because positive parent-child interaction fosters warm relationships, this finding suggests that positive parent-child communication lessens substance use and other negative adolescent outcomes.

Early work on parent-adolescent communication tended to focus more generally on whether communication occurs, how often, and its' overall quality (Miller-Day & Kam, 2010) with a growing number of studies further specifying this communication and its effects (for review see Kam & Miller-Day, 2017). For example, a study of youth in Nicaragua, Central America demonstrated that an expressive family environment is positively associated with substances-specific prevention communication, which in turn is related to lower levels of substance use (Pettigrew, Shin, Stein, & van Raalte, 2017). A study using a Dutch sample showed that restrictive parental rules for marijuana use were related to less use (Vermeulen-Smit, Verdurmen, Engels, & Vollebergh, 2015), even when controlling for a supportive family climate and parent's own marijuana use. Other studies have demonstrated that parental communication impacts youth norms, which leads to lower substance use levels (e.g., Kam et al., 2015; Kam & Middleton, 2013). Thus, we can conclude that poor parent-child communication (e.g., infrequent communication, low amounts of time spent together) is

associated with greater youth substance use (Otten et al., 2007), whereas parent-adolescent communication that is open and frequent can be protective of youth problem behaviors (Harakeh et al., 2005). All of these studies point to the importance of family communication and underscore the role of substances-specific communication.

Equally important and not fully examined are studies that describe not only *that* parents engage in substances-specific conversations but also the tenor and content of parent and youth communication, especially during the important early adolescent developmental period. To examine this communication, it is essential to learn what messages adolescents remember hearing and the conversational style they perceive their parents employing. Thus, the present study extends previous work by highlighting actual messages early adolescents report hearing from parents as well as the types of drug talks that youth encounter.

Theoretical Framework

Studies of parent-adolescent communication about substances often have been guided by primary socialization theory (Oetting & Donnermeyer, 1998). This theory argues parents are pro- or anti-drug socialization agents, shaping attitudes, norms, intentions, and behaviors. Particularly useful, Miller-Day and Dodd (2004) developed a typology of “drug talks” describing four types of conversational approaches parents employed when delivering messages about substance use to their late teen and young adult offspring that reflect two orthogonal dimensions: timing and directness.

The first dimension is time. On one end of the timing dimension are *ongoing messages* about substances (rules, behaviors, attitudes, expectations) that are integrated seamlessly into everyday life while at the other end are *situated messages* that are episodic or occur in response to specific events (e.g., a conversation about drinking and driving before heading off to the senior prom) (Miller-Day & Dodd, 2004). The same content may be communicated in an ongoing or a situated manner, so one way to differentiate these conversational styles is the frequency of communication (see Miller-Day & Kam, 2010): ongoing conversations occur often over an extended period whereas situated messages only occur as one or two specific instances.

The second dimension, directness, differentiates the content of the messages. One on hand, *direct messages* unambiguously address the topic of substances (e.g., verbal comments or conversations about rules, behaviors, attitudes, expectations). On the other hand, *indirect messages* address drugs in an ambiguous or less specific manner (e.g., nonverbal cues or hints about substances) (Miller-Day & Dodd, 2004).

Timing and directness distinguish four parent-offspring communication styles: Situated Direct, Ongoing Direct, Situated Indirect, and Ongoing Indirect (Miller-Day & Dodd, 2004). The situated direct style of drug talks includes direct verbal statements specifically addressing substances and most closely resembles the “let’s sit down and have a talk” style often promoted in the media (Miller-Day & Dodd, 2004). The ongoing direct style of drug talks is typified by parents and youth who frequently, openly, and actively talked about substance use during the course of everyday life and over time. The situated indirect style

tends to rely on nonverbal messages or verbal hints, insinuating rules and expectations rather than stating them. Finally, the ongoing indirect style implies relatively implicit anti-substance use expectations and conservative norms about substance use through nonverbal means or through verbal hints with low levels of directness. These styles may occur as dialogic conversations or passing remarks. It is also possible that drugs are not mentioned, creating a fifth “never talked” style.

The research to-date depicting the full range of drug talk styles has heavily relied on retrospective accounts of college-aged youth (e.g., Miller-Day, 2008; Miller-Day & Dodd, 2004; Reid-Quñones, 2011). This is not surprising when communication research in general has suffered from an overreliance on adult samples, with only 3.7% of articles in prominent communication journals including participants under the age of 18 (Miller-Day, Pezalla, & Chesnut, 2013). There are some recent studies investigating direct parent-adolescent communication about substances and its relation to early adolescent outcomes (Choi et al., 2017; Miller-Day & Kam, 2010; Kam, 2011; Kam & Middleton, 2013; Pettigrew et al., 2017), but Miller-Day and Dodd’s drug talk styles were derived from analysis of young adults and have not fully been validated in existing studies or with early adolescent populations. Moreover, it is reasonable to expect that drug talks and messages reported by college students may be very different from messages reported by early adolescents because of developmental differences (Pecchioni, Wright, & Nussbaum, 2005) and because exposure to and experimentation with substances increases dramatically from middle-school to college (Johnston et al., 2016). Consequently, the present study aims to explore drug talk styles and messages with early adolescents. Specifically, we pose the following research questions, which refer to timing and directness (RQ1) and message content (RQ2):

RQ1: Which of the five drug talk styles do early adolescents report over time?

RQ2: What drug-related messages do early adolescents report hearing from parents?

In addition, we investigate drug talk styles’ relationship to early adolescent substance use. Research documents that parents vary in their approach to family communication, in general (see Koerner & Fitzpatrick, 2002), and substances specific communication, in particular (see Choi et al., 2017). Thus, we expect there will be various types of drug talk styles, but we do not anticipate that they all equally associate with use. Miller-Day and Dodd (2004) argued that direct (rather than indirect) messages would be most effective in socializing anti-substance use norms. A series of subsequent studies partially supported this claim by documenting an inverse relationship between direct communication and substance use that is mediated by anti-use norms (e.g., Kam et al., 2015; Miller-Day & Kam, 2010). Another study showed that the protective effects of a warm family environment were mediated by direct communication about substances (Pettigrew et al., 2017).

Previous studies, however, have two methodological limitations that this study seeks to overcome. First, these studies operationalized direct communication through a unidimensional measure, which does not compare indirect versus direct communication. Second, previous studies have largely focused on alcohol without examining if effects hold for other substances like cigarettes and marijuana. In these ways, extant research has not investigated the full range of drug talk styles and differential effects on various substances.

The current study expands previous research by examining how drug talk styles relate to the three most common substances among early adolescents (alcohol, cigarettes, and marijuana). Based on previous research that highlights the importance of substance-specific prevention communication (e.g., Choi et al., 2017; Mares et al., 2012; Pettigrew et al., 2017) we hypothesize:

H1: Youth in direct drug talk styles will be less likely to report lifetime uses of alcohol, cigarette, and marijuana than those in indirect and never talked styles.

Methods

Participants and Procedures

Data for this study come from an evaluation of a school-based, 7th grade, *keepin' it REAL (kiR)* drug prevention curriculum (see Colby et al., 2013; Graham et al., 2014; Miller-Day & Hecht, 2013). The *keepin' it REAL* curriculum uses a narrative approach to prevention to highlight the personal experiences of youth with the social processes of drug offers and use. The lessons enhance student communication and other socio-emotional skills in competently resisting offers of alcohol, tobacco, and other substances. The curriculum has no content that directly addresses parent-adolescent communication about substances, nor were parents directly involved in any of the curriculum assignments or activities.

Pre- and posttest paper-and-pencil self-report surveys were administered by a professional survey research center during school hours in both treatment and control conditions. Students in treatment schools received a version of the *keepin' it REAL* program and those in control schools did not. Data for this study were collected over four waves, starting in the fall of 7th grade (2009) and subsequently during spring of 7th, 8th, and 9th grades in 2010, 2011, and 2012. To explore RQ1 and RQ2, we used data from all waves of both treatment and control schools. To test H1, we used treatment and control schools, but restricted our analysis to wave 1 data, which occurred prior to any treatment.

Participants attended rural school districts in 39 schools across two Midwestern states. The sample at wave 1 ($n = 3310$) was 49% female and ranged in age from 11 to 14 ($M = 12.31$, $SD = .50$). Participants were 92% White (Anglo), 3% African American (Black), 2% Latino/a, and less than 1% Asian or Pacific Islander, which matched demographics for the geographic region.

Measures

Drug talk styles (Waves 1, 2, 3, &4)—The instrument to assess drug talk styles was developed based on direct/indirect and situated/ongoing conversational dimensions (Miller-Day & Dodd, 2004). A single item was used, which read: “Please indicate which of the following scenarios most resembles how your parent has talked with you about alcohol, tobacco, or other drug use.” Youth then selected only one of six response options that operationalized drug talk styles. Scholarship available at the outset of data collection (i.e., 2010) distinguished between situated and ongoing conversations in terms of frequency (i.e., Miller-Day & Kam, 2010), thus, frequency of conversations was used to differentiate this dimension whereas the level of specificity of the conversation was used to distinguish

conversation directness. Response options included: (a) situated direct style: “We have participated in 1-2 specific conversations about alcohol and other drugs, with my parent(s) providing me with information, guidelines, or advice;” (b) ongoing direct style: “We have participated in many conversations about alcohol and other drugs, with my parent(s) providing me with information, guidelines, or advice;” (c) situated indirect style: “I recall a few times when my parent(s) hinted to me in an indirect way about alcohol and other drugs without really providing me with any information, guidelines, or advice;” (d) ongoing indirect style: “My parent(s) very often hinted to me in an indirect way about alcohol and other drugs without really providing me with any information, guidelines, or advice;” (e) never talked: “My parent(s) never talked with me about alcohol and other drugs;” and, (f) other. The “other” category was available with a blank textbox where participants could write their response. The same measure was used during each of the four waves of data collection. For RQ1 and H1, we used this single item with five response categories. For RQ2, we used the “other” category to conduct a qualitative analysis.

Lifetime substance use (Wave 1)—Since alcohol, cigarettes, and marijuana are the most frequently used substances among youth in early adolescence (Johnston et al., 2016), we examined lifetime usage rates for only these substances. Using Hansen and Graham’s (1991) measure, students were asked, “How many drinks of alcohol have you had in your entire life?” (1 = None, 10 = More than 30 drinks) and “How many cigarettes have you smoke in your entire life?” (1 = None, 10 = More than 20 packs of cigarettes). “How many times have you used marijuana in your entire life?” (1=Never, 7 = More than 30 times). Higher scores indicated more lifetime use of alcohol, cigarettes, and marijuana.

Mixed Method Analysis Plan

A mixed-method approach was used to address RQ1, RQ2 and H1. Examining RQ1, frequencies of drug talk styles were computed using SPSS version 20. Frequencies were computed for all waves of student responses from the total sample of both treatment and control schools.

To explore RQ2, we conducted a qualitative content analysis of the comments provided in the “other” textbox on the survey to identify messages youth reported hearing from parents. A total of 331 participants wrote “other” responses, with the vast majority providing comments only during one wave of data collection ($n = 277$). Some participants provided comments at two waves ($n = 44$), with substantially fewer providing comments at three ($n = 7$) or all four ($n = 3$) waves of data. Given the vast majority of comments were provided at only one or two waves of data collection, we used responses ($n = 398$) as the unit of analysis. Fifteen responses were removed from the data set because they were determined to be either absurd (e.g., “Blue is my favorite number in the alphabet”) or uncodable (e.g., “I don’t have a family”). Removing these statements left 383 responses for coding. Responses were coded using the qualitative software, MaxQDA10.

Qualitative coding procedures—Coding open-ended responses involved becoming familiar with the data and formal coding, which, in general, followed primary cycle coding (Tracy, 2012). To familiarize ourselves with the data, the first and second authors read all

responses and then met to devise a general coding strategy. An initial codebook was created and then discussed at a meeting with the research team. Through procedures used in consensual coding (Hill, 2012), a final codebook was devised. All data were then coded by the first author with a randomly selected subset of 40 responses (10%) coded by the second author. Inter-coder reliability was assessed on this subset by calculating Krippendorff's alpha (Hayes & Krippendorff, 2007), which was .83.

Our coding was guided by our research questions and the data. That is, we sought to identify drug talk styles and parental messages. While we initially expected responses in the "other" category would represent new types of drug talk styles, the data did not support this approach to coding. Instead, the majority of responses included messages youth heard from their parents about substance use rather than more global information about their interactions. Therefore, we separated our data into responses that contained parental messages and ones that did not. We then coded messages youth reported hearing into conceptually related groupings using a process of constant comparison (Tracy, 2012).

Quantitative analysis—To test H1, we restricted data to drug talk styles from wave 1 as these data were collected prior to the intervention activities. Computing statistics for only Wave 1 data, then, avoided any potential intervention effects on reports of early adolescent substance use behaviors. Three separate one-way analyses of variance (ANOVA) were run to compare mean levels of lifetime alcohol, cigarette, and marijuana use (dependent variables) for drug talk styles (independent variable). A Tukey post hoc analysis compared differences between situated direct, ongoing direct, situated indirect, ongoing indirect, and never talked styles.

Results

Frequencies of Drug Talk Styles Over Time

The frequency of the drug talk scenarios adolescent respondents reported at each wave of data collection is presented in Table 1. Across all waves, the most commonly reported type of discourse was *situated direct* talk. Respondents indicated that, during their lifetime, they and at least one parent had engaged in 1 to 2 specific conversations about alcohol, tobacco, or other drugs. The least reported drug talk style was *never talked*, with fewer than 10% of participants at each wave nominating this response.

Examining frequencies of talk styles across waves reveals that more youth perceive parents as communicating messages directly than indirectly. For example, at the beginning of 7th grade (wave 1), 61% of youth reported participating in direct conversations and only 27% reported participating in indirect conversation types. Participants also reported more situated conversations than ongoing conversations. Summing the percentages of situated conversations at the beginning 7th grade (wave 1), 7% more participants reported situated than ongoing conversations. Findings show that parents actively address the issue of alcohol, tobacco, and other substance use between 7th and 9th grade for youth in our sample of both treatment and control conditions. While perhaps not relaying these messages with great frequency, parental messages about substance use seem to be communicated with directness.

Parental Messages about Substance Use

An average of 5% of respondents in each wave selected the “other” option, rather than one of the predefined scenarios and included comments in the provided textbox. Our analysis revealed 251 open-ended responses that contained parental messages about early adolescent substance use. Where reasonable, we organized these into direct, indirect, and mixed messages. We developed *in-vivo* categories (i.e., phrases drawn directly from the words of the respondents) and sub-codes to fully explain these broad categories. Direct parental messages included: “*don’t do drugs*” (67%, $n = 169$), “*my parents don’t care what I do*” (5%, $n = 13$), and “*they told me it was my choice*” (3%, $n = 8$). Indirect messages were labeled, “*they know I wouldn’t*” (22%, $n = 56$), and the mixed messages were labeled “*[drugs] are bad but not all the time*” (2%, $n = 5$). We describe each of these. We then share patterns of how these messages fit into the five drug talk styles (e.g., never talked, situated direct, etc.).

“Don’t do drugs”—Most responses conveyed that parents directly discouraged substance use. Many used the simple directive “don’t do drugs” ($n = 31$) whereas others explained that drugs “are bad,” “not good for you,” “for losers,” or that substance users “are stupid.” ($n = 34$). These messages leave no question about the parent’s views of drugs. Relatedly, many of the messages ($n = 49$) describe the negative *effects of substance use* (e.g., telling youth they could die, ruin their lives, harm themselves or others, or do poorly in school) including messages that talked about physical and social dangers and problems that stem from substance use. One response summarized, “You should never use drugs, because you will kill your body, or hurt your loved ones, or people that are around you or care about you.” Some parents shared *stories and examples* ($n = 25$) illustrating why youth should not use substances. The stories most often involved a family member (e.g., grandparent, sibling) where the main character served to illustrate the negative consequences of use. For example, “They tell me the story about how my grandpa died from smoking;” “My parents used to smoke and my brother chews and they give me examples of what could happen if I ever did.” Parents also *set rules or sanctions* for use in their household ($n = 17$). Typical of these responses, youth reported parents saying “you would be grounded forever,” or “[my dad] says...he will skin my hide.” These early adolescents made it clear that their parents had established household rules for getting caught using drugs. A few of the responses ($n = 7$) indicated that parents had given *advice* about “what to do in a scenario.” Finally, two responses indicate hearing *praise* for not using substances. For example, one student wrote, “I have told my mom about how my friends do stuff like that and I ignore it, she’s proud.”

“I don’t care”—Another set of responses ($n = 13$) conveyed parental noncommittal attitudes and/or acceptance of adolescent substance use. Respondents wrote, “My mom does not care what I do, and knows that I drink and smoke;” “They tell me not to, but don’t care if I do;” and “My parents don’t care what I do, it’s my life.” One youth who provided responses in both 8th and 9th grade stated that he/she participated in substance use with his/her parents. In 8th grade this participant said, “we smoke weed and snort [illegible] together and I have shot up with them too,” and in 9th grade reported that his/her parents “offered me drugs.” While it is possible that the responses were fabricated, the consistency from year to year, suggests at least a plausible account of his/her experience. While certainly

not typical, a small minority of responses indicated pro-substance use socialization messages.

“It’s your choice”—Another set of direct messages (n = 8) indicated that while parents discouraged use, the burden of choice was ultimately the adolescent’s. One responses stated his/her parents say “I can do what I want, but that does not mean I will not get grounded,” whereas others were instructed “to be smart about it” or “make good choices.” One student wrote, “They tell me that if I want to ruin my life and smoke there is nothing they can do about it.” In general, these statements dissuaded substance use (or at least abuse) but left the decision to the adolescent.

“They know I won’t”—Whereas “don’t do drugs,” “I don’t care,” and “it’s your choice” were direct parental communiques, youth also picked up on indirect messages. We coded 56 responses as containing indirect messages about alcohol, tobacco and other drugs. Exemplary of these statements, one response stated, “My parents don’t talk about it with me because they know I would never do it.” The interpretation of these tacit messages was predominantly anti-drug and youth explained reasons why they felt their parents did not need communicate directly. Youth stated their parents “expect me to know better;” “[they] know I already know the dangers;” and, “[they] told me how disappointed they would be if they ever smelled alcohol on me or found out I was using drugs.” Others stated that they were trusted: “They know they can trust me to know not to do stupid stuff that could harm me or my family and friends.” Youth reported a non-use expectation, even if substance use was not directly prohibited.

“They are bad, but not all the time”—We also identified nine responses that contained mixed messages about substance use. Four responses revealed that parents conveyed that the youth needed to *wait* until substances such as alcohol or tobacco were legal for them (e.g., ages 21 or 18 respectively in the United States) or until they moved out of the house. Another four expressed a *mismatch* between actions and words. For example, “My dad talks to me about stuff, but not my mom. Her boyfriend smokes marijuana” and “Every time my mom has a smoke she says do not ever start.” The final response coded into this category stated, “They have spoken to me about it but it was years ago and my mom’s exact words were, ‘They are bad but not all the time’.” While a minority of responses, these mixed messages may be significant, particularly the discrepancy between parental use and their verbal messages.

Messages within drug talk styles—Some open-ended responses included both parental messages and also allowed us to classify them into the five drug talk styles. Examining the matrix of these messages and drug talk styles revealed three noteworthy patterns. First, indirect styles demonstrated more variation in the messages. While direct styles almost uniformly conveyed “don’t do drugs”, indirect styles included everything from “it’s your choice” and “they know I won’t” messages. Second, responses coded into the ongoing direct style shared that the impetus for the ongoing messages came from life circumstances, such as school programing, drug treatment programs, and parental occupations. Finally, a large proportion of messages coded into the “never talked” style also was coded as “they know I

won't." So while youth reported that their parents never talked with them, they also shared reasons why they have not had drug talks. Most of these responses shared that youth were trusted to make good decisions.

Relationship to Substance Use

Finally, we tested for significant differences among youth alcohol, cigarette, and marijuana use based on their drug talk style, hypothesizing that youth in direct drug talk styles will be less likely to report lifetime uses of alcohol, cigarette, and marijuana than those in indirect and never talked styles. To do this, we computed separate one-way ANOVA models for each substance with Tukey post-hoc comparisons. ANOVA models were significant for lifetime alcohol use [$F(4,1903) = 8.06, p < .001$], lifetime cigarette use [$F(4,1936) = 6.54, p < .001$], and lifetime marijuana use [$F(4, 1942) = 6.12, p < .001$]. Tukey post-hoc analysis revealed significant difference for all substances among the five drug talk styles. Specifically, mean levels of alcohol use were significantly lower for direct styles (i.e., ongoing direct and situated direct) compared to indirect styles (i.e., ongoing indirect and situated indirect), whereas indirect styles were not significantly different from having never talked about substances. For cigarettes and marijuana, lower use was found for direct and indirect styles when compared to the never talked style, but there was no significant difference between direct and indirect styles. Findings partially supported H1, although the pattern is complicated by the substance used. Means, standard deviations, and post hoc comparisons for alcohol, cigarettes, and marijuana are reported in Table 2.

Discussion

This study extends theory and research on parent-adolescent drug talk styles by including an early adolescent population, identifying messages communicated to youth, and testing the relationships among drug talk styles (e.g., direct styles against indirect and never talked styles) and alcohol, cigarette, and marijuana use. Findings tie into existing research on parent-adolescent drug talks and hold implications for primary socialization theory (Oetting & Donnermeyer, 1998). In this section, we discuss findings in light of existing theory and research and admit limitations of the current study.

Drug talk styles, parental messages, and substance use

One primary contribution for family and health communication is that findings share new data about the relative frequency of *each* drug talk style. Specifically, findings suggest patterns of messages heard within various drug talk styles, developmental issues related to timing of drug talks, and the relationships among drug talk styles and substances use.

Developmental issues

Looking at the situated versus ongoing nature of the communication, it is important to note that frequencies reported here with this young adolescent sample diverge significantly from the first-year college student sample with which the typology was developed. Miller-Day and Dodd (2004) wrote that over 75% of the sample reported ongoing conversations, 17% reported situated conversations, and 3% reported never talking. In our sample, comparable percentages across waves, were 51% reported ongoing conversations, 37% situated

conversations, and 8% never talked. This study did not look at how drug talk styles change over time, but it is logical to conclude that the differences between previous studies and the current findings stem from developmental differences. More early adolescents report never talked than young adults. This developmental difference may signal a reasonable and appropriate parenting practice. Perhaps some parents do not wish to prematurely introduce the topic so wait until they anticipate youth have more exposure to substances.

Another interesting difference between early adolescents and college samples is that the balance between situated and ongoing drug talk styles was more equitable among younger adolescents. This may indicate that parents of early adolescents, as a group, broach the topic of substance use through situated remarks or conversations that over the years accumulate into an ongoing drug talk style. Development issues that become salient during adolescents, such as autonomy-granting (Steinberg, 2001), differentiating from one's family of origin (Bowen, 1978), peer relational skill development (Duran & Prusank, 2015), identity (Hecht, 2015), and increased exposure to substances (Johnston et al., 2016) may all play a role in how parent-adolescent drug talks change as youth age. More developmental research, such as examining how drug talks change over time, is needed.

Relationships with substance use

This study also gives insight into the associations between direct, indirect, and never talked styles and substance use for 7th grade youth. Previous research supports the conclusion that youth in families with little general warmth or expressiveness tend to use substances more than their counterparts in warm families that welcome conversations about a variety of topics (see Calafat et al., 2014; Choi et al., 2017; Pettigrew et al, 2017). While one drug talk style will not fit all types of families (Choi et al., 2017; Miller-Day, 2002), the evidence suggests that, for alcohol, directly addressing substance use is best. In other words, finding ways to encourage direct communication that are palatable for families who do not gravitate toward this drug talk styles is an important consideration for parents of early adolescents. In terms of cigarettes or marijuana, findings for 7th graders show that either directly or indirectly addressing substance use is better than never talking.

Interestingly, the difference between ongoing and situated styles may not be as influential in youth substance use. Instead, findings show that the relative directness of the conversational style matters most. Differences between direct and indirect styles were significant only for alcohol but the patterns were similar for cigarettes and marijuana use. Lowest use is seen among those reporting direct communication styles, followed by slightly higher use for those reporting indirect styles, and the highest use for those reporting never talked. Marijuana use is somewhat different because direct and indirect styles have similar usage rates with higher rates in the never talked style. The question remains, then, if these effects are actually weaker or more varied than those for directness.

One plausible explanation for these differences is that adolescents view alcohol use differently from cigarette or marijuana use, therefore different parental message strategies have the same effect. Adolescent cigarette use in the U.S. had been in decline and is now leveled off while alcohol use has remained comparatively high (Johnston et al., 2016). At the same time, the perceived risk of and disapproval of smoking is also historically higher than

the perceived risk and disapproval of alcohol (Johnston et al., 2016). These trends may explain why direct messages and indirect messages are equally associated with less cigarette use among youth: Even a hint of parental disapproval is sufficient to persuade youth that smoking is not worthwhile.

A similar explanation for the effectiveness of direct and indirect styles may have existed for marijuana when these data were collected in 2007, although with more recent public discourse around the legalization of marijuana in the United States and declining adolescent perceptions of risk for marijuana use (Johnston et al., 2016), this finding may no longer hold. Instead, direct remarks and conversations may now be needed to have the same protective effect. Recent research with a Dutch population, for example, found that explicit parental rules about marijuana use relate to lower levels of marijuana and other illicit drug use (Vermeulen-Smit et al., 2015) even after controlling for general family warmth. As youth in the U.S. adopt more sanguine attitudes toward marijuana and various states legalize it for medicinal and recreational purposes, the pattern of relationships between use and drug talk styles may begin to look more similar to alcohol.

Whatever the explanation, the finding that substance use is grouped by the directness of the messages, not the timing (i.e., frequency), is novel and important. It may not be necessary for parents to have ongoing talks with their youth as long as they clearly, directly communicate their expectations for substance use with adolescents at some point. This finding is important to share with parents, especially given that alcohol, cigarette, and marijuana use is often believed to pave a path toward more problematic substance use. Based on primary socialization theory, too, instructing parents in best-practices for direct message strategies is important. Parents transmit their values and expectations to youth and when they do so using direct communication tactics, there appears to be a payoff in decreased alcohol use. Findings from this study suggest that parents of 7th grade youth should communicate directly, which leads to the second major contribution of this study.

Content of parental messages

While some previous studies have identified strategies for direct and indirect communication, much of this qualitative work has been done with young adults (e.g., Miller-Day, 2008; Miller-Day & Dodd, 2004; Reid-Quiñones, 2011) and there are good reasons to suspect that the messages 18-year-olds hear are different than what 13-year-olds report. Indeed, some of our findings diverged from the content reported in previous studies (i.e., Miller-Day & Dodd, 2004; Miller-Day & Kam, 2010). For example, some of the direct strategies included by Miller-Day and Kam (2010) were not commonly mentioned by young adolescents in our sample (i.e., show information on the web, TV or in the news about the dangers of using drugs; ask about your thoughts and opinions about drinking). Participants in our study also shared new messages that were not captured in the Miller-Day and Kam (2010) scale (i.e., wait until you're old enough; use your best judgment; we expect you to know better; I'm proud of your decisions not to use). Compared to Miller-Day and Dodd (2004) who found that entering freshmen in college reported various types of direct parental messages (e.g., warnings and disapproval, consequences of use, and family expectations

around substances use), findings from this study showed that younger adolescents predominantly were given direct, indirect, and mixed messages.

Many of the other direct message categories we identified with our young adolescent sample correspond with the messages identified by Miller-Day and Dodd (2004). For example, the “don’t do drugs” category definitely warns and disapproves of drugs, in addition to sharing family rules and sanctions. “It’s your choice” also corresponds with analysis of Latino/a college students’ reports of drug talks (Reid-Quiñones, 2011). Some differences include that some youth in our sample were told to wait until they were older.

Indirect messages coalesced around anti-use socialization. Youth came to understand that substance use was discouraged. Indirect messages, then, may be effective inasmuch as they produce anti-use norms with youth. Some studies have documented that developing anti-use norms can be protective against use (e.g., Kam et al., 2015) and indirect messages may be one way to socialize these norms, leading to decreased use.

One of the main findings was the emergence of a category of mixed-messages. While our study did not examine effects of these types of messages on substance use, other studies have done so, if indirectly. For example, one study found that messages about drinking responsibly and messages expressing conditions in which drinking is acceptable were indirectly related to youth’s positive alcohol norms and intentions to drink (Kam et al., 2015). Since responsible drinking implies that some drinking is acceptable while other drinking is not, youth can easily see this as a mixed message. This study also found that mothers’ alcohol use moderated the effects of these messages (Kam et al., 2015), which aligns with previous research (Miller-Day, 2008) that found the only parental strategy effective in reducing alcohol use among entering college freshmen was a no tolerance rule. In other words, mixed messages such as parental substance use or conditional acceptance, may be interpreted by youth as permissive, thereby increasing substance use.

Importantly, too, our analysis problematizes the “never talked” style. Synthesizing findings from qualitative and quantitative analysis recommends a change for this group in particular. Qualitative analysis shows that youth who report never taking about drugs also tended to believe that such a conversation was unnecessary. Early adolescents in our sample, shared that their parents trusted them, believed they were not stupid enough to do drugs, or closely monitored their whereabouts at all times. For some parents, never talking is likely an uncertainty management tactic (cf. Brashers, 2001) as the parents would rather not know if their youth is drinking or smoking. For others, having open conversation about a topic like substance use may not have fit with their default family communication pattern (for review, see Koerner & Schrodt, 2014) and therefore was unwelcomed. For still others, the conversation probably is unnecessary because parents have a close relationship with their youth and intimate knowledge of their dispositions, enabling them to customize conversations to their children’s needs and experiences. Regardless the motivation, however, because the quantitative analysis showed that “never talked” youth were most at risk, parents may falsely presume that youth do not need to hear from them and may avoid the taboo topic, echoing one response “there is no reason to [talk], plus it is weird.” Instead, for parents who have not conversed with their early adolescents, we recommend direct

conversation, either situated or ongoing, that clearly communicates family expectations, rules, and rewards and sanctions for compliance.

Trigger events

A third important contribution this study makes is to note that some drug talks are proactive while others are reactive, responding to “trigger” events such as news stories, personal events, or in response to prevention programming at school and in the community. In fact, many open-ended statements coded as ongoing direct were in response to some type of outside prevention programming (e.g., school-based programs like *kiR*, family-based interventions, Alcoholics Anonymous meetings). Of course not all trigger events were school programs, but some of the changes in drug talk types is likely attributable to youth instigating talks or being primed to notice parental remarks about substances. In other words, for some, parent-adolescent drug talks may be initiated or directed by youth. This finding demonstrates the important role of the mesosystem (i.e., Bronfenbrenner, 1986) and corresponds with existing theory and research on bi-directional effects of parent-child socialization (for review, see O’Connor, 2002). Narrative Engagement Theory (Miller-Day & Hecht, 2013) explicitly predicts that successful narrative health messages will result in social proliferation, or extended conversations outside the prevention context. To examine the potential for social proliferation to extend intervention effects, further research could not only differentiate between responses from treatment or control schools but also identify how participants discuss school and community-based programming with their families (i.e., how they differ in terms of drug talks and other parental socialization messages) and friends and to what effects. Likewise, future research on parent-adolescent drug talks could usefully include items that assess the motivation for drug talks, ascertaining what events or experiences serve as “triggers” for parent-adolescent drug talks as well as the moderating and mediating effects of these talks in intervention evaluation.

Limitations

As with any study, there are limitations to the sample, data collection, and analysis which should be kept in mind. Our sample was youth attending rural school districts in two states, and there may be important differences in terms of geographic location and ethnic identification that affect reports of their parental messages and/or substance use. Another limitation was our measure of drug talk scenarios. We operationalized situated and ongoing conversation styles in terms of frequency, which requires the advancement of a new measurement. Future research should develop a more insightful and contextualized measure to access the specificity of drug talk styles. Indeed, we found that many of the open-ended responses matched conceptually with the existing typology, indicating there may be a mismatch between early adolescents’ understandings of “1-2 specific conversations” and the conceptualization of the situated style. Relatedly, we also treated drug talk styles as mutually exclusive, but there may be some overlap for different topics (e.g., for alcohol there is an ongoing direct style, but for cigarettes there is a situated indirect style) and styles may change, especially as youth age. Future research might do well to explore the frequency and the type of conversation in separate items or sets of items and validation of such measures is needed. Despite these limitations, our study makes important contributions to understanding family and health communication.

Conclusion

Findings from this study not only hold implications for theories of parent-child communication but also inform prevention programming directed toward parents. Findings encourage direct drug talks, not just as a reactive strategy (e.g., when a kid is found drunk), but as a proactive strategy. Findings also offer examples of normative messages that parents share with youth, namely “don’t do drugs,” and, in our estimation, the best messages are those that accentuate consequences of use through narratives (personal or vicarious) and also messages that equip youth to handle social situations competently. These messages align with those taught in various evidence-based interventions in school and family settings (Pettigrew & Hecht, 2015). Parental messages such as these can help develop communication competence and resistance skills in youth. Youth hear direct messages about substances from media, peers, prevention programs, so parents, too, should join the conversation with their youth about substances.

Acknowledgments

This publication was supported by Grant Number R01DA021670 from the National Institute on Drug Abuse to The Pennsylvania State University (Michael Hecht, Principal Investigator). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Institutes of Health. Portions of this paper were presented at the 2013 annual meeting of the National Communication Association.

References

- Boden JM, Fergusson DM. Alcohol and depression. *Addiction*. 2011; 106:906–914. DOI: 10.1111/j.1360-0443.2010.03351.x [PubMed: 21382111]
- Bowen M. *Family therapy in clinical practice*. New York, NY: Jason Aronson; 1978.
- Brashers DE. Communication and uncertainty management. *Journal of Communication*. 2001; 51:447–497. DOI: 10.1111/j.1460-2466.2001.tb02892.x
- Bronfenbrenner U. Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*. 1986; 22:723–742.
- Calafat A, García F, Juan M, Becoña E, Fernández-Hermida JR. Which parenting style is more protective against adolescent substance use? Evidence within the European context. *Drug and Alcohol Dependence*. 2014; 138:185–192. DOI: 10.1016/j.drugalcdep.2014.02.705 [PubMed: 24679841]
- Colby M, Hecht ML, Miller-Day M, Krieger JL, Syvertsen AK, Graham JW, Pettigrew J. Adapting school-based substance use prevention curriculum through cultural grounding: A review and exemplar of adaptation processes for rural schools. *American Journal of Community Psychology*. 2013; 51:190–205. DOI: 10.1007/s10464-012-9524-8 [PubMed: 22961604]
- D’Amico EJ, Ellickson PL, Collins RL, Martino S, Klein DJ. Processes linking adolescent problems to substance-use problems in late young adulthood. *Journal of Studies on Alcohol and Drugs*. 2005; 66:766–775.
- Duran RL, Prusank DT. Children’s peer relationships outside the family. In: Nussbaum JF, editor *The handbook of lifespan communication*. New York, NY: Peter Lang; 2015. 113–134.
- Ennett ST, Bauman KE, Foshee VA, Pemberton M, Hicks K. Parent-child communication about adolescent tobacco and alcohol use: What do parents say and does it affect youth behavior? *Journal of Marriage and the Family*. 2001; 63:48–62.
- Graham JW, Pettigrew J, Miller-Day M, Krieger JL, Zhou J, Hecht ML. Random assignment of schools to groups in the drug resistance strategies rural project: Some new methodological twists. *Prevention Science*. 2014; 15:516–525. DOI: 10.1007/s11121-013-0403-9 [PubMed: 23722619]

- Hansen WB, Graham JW. Preventing alcohol, marijuana, and cigarette use among adolescents: Peer pressure resistance training versus establishing conservative norms. *Preventive Medicine*. 1991; 20:414–430. DOI: 10.1016/0091-7435(91)90039-7 [PubMed: 1862062]
- Harakeh Z, Scholte RHJ, De Vries H, Engels R. Parental rules and communication: Their association with adolescent smoking. *Addiction*. 2005; 100:862–870. [PubMed: 15918816]
- Hayes A, Krippendorff K. Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures*. 2007; 1:77–89.
- Hecht ML. Adolescent identity and substance use prevention. In: Nussbaum JF, editor *The handbook of lifespan communication*. New York, NY: Peter Lang; 2015. 177–194.
- Hill CE, editor *Consensual qualitative research*. Washington, DC: American Psychological Association; 2012.
- Johnston LD, O'Malley PM, Miech RA, Bachman JG, Schulenberg JE. *Monitoring the Future national survey results on drug use, 1975-2015: Overview, key findings on adolescent drug use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2016.
- Kam JA. Identifying changes in youth's subgroup membership over time based on their situated communication about substance use with parents and friends. *Human Communication Research*. 2011; 37:324–349.
- Kam JA, Middleton AV. The associations between parents' references to their own past substance use and youth's substance use beliefs and behaviors: A comparison of Latino and European American youth. *Human Communication Research*. 2013; 39:208–229. DOI: 10.1111/hcre.12001
- Kam JA, Miller-Day M. A family communication perspective on substance use prevention, intervention, and coping [Special issue]. *Journal of Family Communication*. 2017; 17:##–##. [PubMed: 29056872]
- Kam JA, Basinger ED, Abendschein B. Do adolescent perceptions of parents' alcohol consumption undermine or enhance what parents say about alcohol? The interaction between verbal and nonverbal messages. *Communication Research*. 2015; :1–19. DOI: 10.1177/0093650214565922
- Kelly KJ, Comello MLG, Hunn LCP. Parent-child communication, perceived sanctions against drug use, and youth drug involvement. *Adolescence*. 2002; 37:775–787. [PubMed: 12564828]
- Koerner A, Fitzpatrick M. Understanding family communication patterns and family functioning: The roles of conversation orientation and conformity orientation. *Communication Yearbook*. 2002; 26doi: 10.1207/s15567419cy2601_2
- Koerner AF, Schrodt P. An introduction to the special issue on family communication patterns theory. *Journal of Family Communication*. 2014; 14:1–15. DOI: 10.1080/15267431.2013.857328
- Kuntsche E, Knibbe R, Engels R, Gmel G. Bullying and fighting among adolescents—Do drinking motives and alcohol use matter? *Addictive Behaviors*. 2007; 32:3131–3135. DOI: 10.1016/j.addbeh.2007.07.003 [PubMed: 17689874]
- Miller-Day MA. Parent-adolescent communication about alcohol, tobacco, and other drug use. *Journal of Adolescent Research*. 2002; 17:604–616.
- Miller-Day M. Talking to youth about drugs: What do youth say about parental strategies? *Family Relations*. 2008; 57:1–12.
- Miller-Day M, Dodd A. Toward a descriptive model of parent-offspring communication about alcohol and other drugs. *Journal of Social and Personal Relationships*. 2004; 21:73–95.
- Miller-Day M, Hecht ML. Narrative means to preventative ends: A narrative engagement framework for designing prevention interventions. *Health Communication*. 2013; 28:657–670. DOI: 10.1080/10410236.2012.762861 [PubMed: 23980613]
- Miller-Day M, Kam J. More than just openness: Developing and validating a measure of situated parent-child communication about alcohol. *Health Communication*. 2010; 25:293–302. DOI: 10.1080/10410231003698952 [PubMed: 20512711]
- Miller-Day M, Pezalla A, Chesnut R. Children are in families too! The presence of children in communication research. *Journal of Family Communication*. 2013; 13:150–165. DOI: 10.1080/15267431.2013.768251
- Mares SHW, Lichtwarck-Aschoff A, Burk WJ, van der Vorst H, Engels RCME. Parental alcohol-specific rules and alcohol use from early adolescence to young adulthood. *Journal of Child*

- Psychology and Psychiatry. 2012; 53:798–805. DOI: 10.1111/j.1469-7610.2012.02533.x [PubMed: 22329834]
- Nation M, Crusto C, Wandersman A, Kumpfer KL, Seybolt D, Morrissey-Kane E, Davino K. What works in prevention: Principles of effective prevention programs. *American Psychologist*. 2003; 58:449–456. DOI: 10.1037/0003-066X.58.6-7.449 [PubMed: 12971191]
- O'Connor TG. Annotation: The 'effects' of parenting reconsidered: Findings, challenges, and applications. *Journal of Child Psychology and Psychiatry*. 2002; 43:555–572. [PubMed: 12120853]
- Oetting ER, Donnermeyer JF. Primary socialization theory: The etiology of drug use and deviance. *Substance Use & Misuse*. 1998; 33:995–1026. [PubMed: 9548633]
- Otten R, Harakeh Z, Vermulst AA, Regina JJ, Van den Eijnden M, Rutger CM, Engels E. Frequency and quality of parental communication as antecedents of adolescent smoking cognitions and smoking onset. *Psychology of Addictive Behaviors*. 2007; 21:1–12. [PubMed: 17385950]
- Paul C, Fitzjohn J, Herbison P, Dickson N. The determinants of sexual intercourse before age 16. *Journal of Adolescent Health*. 2000; 27:136–147. [PubMed: 10899475]
- Pecchioni LL, Wright KB, Nussbaum JF. *Life-Span Communication*. Mahwah, NJ: Lawrence Erlbaum Associates; 2005.
- Pettigrew J, Shin Y, Stein JB, van Raalte LB. Effects of family communication on adolescent drug use through efficacy in Nicaragua, Central America: A test of primary socialization theory. *Journal of Family Communication*. 2017; 17:##-##. [PubMed: 29056872]
- Pettigrew J, Hecht ML. Developing school-based prevention curricula. In: Bosworth K, editor *Prevention science in school settings: Complex relationships and processes*. New York, NY: Springer; 2015. 151–174.
- Reid-Quñones K. Parent-child communication about substance use: Experiences of Latino emerging adults. 2011 Unpublished doctoral dissertation.
- Reimuller A, Hussong A, Ennett ST. The influence of alcohol-specific communication on adolescent alcohol use and alcohol-related consequences. *Prevention Science*. 2011; 12:389–400. DOI: 10.1007/s11121-011-0227-4. [PubMed: 21667141]
- Shin Y, Lee JK, Lu Y, Hecht ML. Exploring parental influence on the progression of alcohol use in Mexican-heritage youth: A latent transition analysis. *Prevention Science*. 2015; 17:188–198. DOI: 10.1007/s11121-015-0596-1
- Spoth RL, Redmond C, Shin C. Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes 4 years following baseline. *Journal of Consulting and Clinical Psychology*. 2001; 69:627–642. [PubMed: 11550729]
- Steinberg L. *We Know Some Things: Parent-Adolescent Relationships in Retrospect and Prospect*. *Journal of Research on Adolescence*. 2001; 11:1–19. DOI: 10.1111/1532-7795.00001
- Tracy SJ. *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. Wiley-Blackwell; 2012.
- Van Der Vorst H, Engels RC, Meeus W, Dekovic M, Van Leeuwe J. The role of alcohol-specific socialization in adolescents' drinking behavior. *Addiction*. 2005; 100:1464–1476. [PubMed: 16185208]
- Vermeulen-Smit E, Verdurmen JE, Engels RC, Vollebergh WA. The role of general parenting and cannabis-specific parenting practices in adolescent cannabis and other illicit drug use. *Drug & Alcohol Dependence*. 2015; 147:222–228. DOI: 10.1016/j.drugalcdep.2014.11.014 [PubMed: 25500130]

Table 1

Frequencies (%) of Reponses Categories by Wave

	w1 (%)	w2 (%)	w3 (%)	w4 (%)	Mean across waves (%)
Situated direct	31.3	31.6	32.3	31.2	31.6
Ongoing direct	29.9	27.1	21.4	22.7	25.3
Situated indirect	16.6	19.1	20.6	20.3	19.2
Ongoing indirect	10.8	11	12	12.5	11.6
Never talked	6	7	8.6	9.6	7.8
Other	5.5	4.1	5.1	3.8	4.6
	n = 2069	n = 1932	n = 1577	n = 1659	

Note. Fewer participants responded at w3 than w4 because one school declined surveys in w3 but did participate in w4.

Table 2

ANOVA Comparing Lifetime Substance Use Means (Standard Deviations) with Drug Talk Style

	Alcohol <i>F(4, 1903) = 8.06, p < .001</i>	Cigarette <i>F(4, 1936) = 6.54, p < .001</i>	Marijuana <i>F(4, 1942) = 6.12, p < .001</i>
Situated Direct	1.88 (1.31) _a	1.25 (1.04) _a	1.03 (0.28) _a
Ongoing Direct	1.89 (1.37) _a	1.27 (1.18) _a	1.04 (0.32) _a
Situated Indirect	2.17 (1.60) _b	1.44 (1.46) _a	1.06 (0.46) _a
Ongoing Indirect	2.23 (1.55) _b	1.40 (1.31) _a	1.03 (0.23) _a
Never Talked	2.52 (2.21) _b	1.83 (2.01) _b	1.22 (1.08) _b

Note: Means (Standard Deviations) with no subscript in common differ at $p < .05$ using Tukey post hoc comparisons.

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