

Time for “The Talk” . . . Now What? Autonomy Support and Structure in Mother-Daughter Conversations About Sex

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Abstract

This study explored how mothers communicated with their young adolescent daughters about the high-stakes topic of sex, as well as more everyday topics, from a Self-Determination Theory perspective. Mothers and their 11- to 14-year-old daughters (44 dyads) participated in two conversations and reported on their experiences. In the everyday conversation, maternal autonomy support was positively related to daughters' experience, engagement, and desire for additional conversations. In the sex conversation, maternal structure was positively associated with daughters' engagement, experience, and desire for additional conversations. Mothers were less autonomy supportive in conversations about sex, as compared to everyday topics. Maternal perceptions of threat were associated with less autonomy support in both conversations and worry during the conversation was negatively associated with autonomy support in the everyday conversation, and with structure in the sex conversation. Implications for intervention are discussed.

Keywords

adolescent sexuality, mother-child conversations, maternal autonomy support

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Over the past several decades, the percentage of teens who are sexually active has increased while the age of initiation of sexual behavior has decreased (Kaye et al., 2009). According to the most recent data from the Centers for Disease Control and Prevention (2010), nearly half of all high school students report having had sexual intercourse. Furthermore, 39% reported that they did not use a condom and 77% that they did not use birth control pills the last time they had sex. Engagement in such behaviors places adolescents at risk for sexually transmitted diseases, pregnancy, and a host of other problems (Kirby, 2001). Given the occurrence and sequelae of high-risk behaviors, scholars have focused on identifying ways to reduce risky behavior. Parent-child communication has been consistently acknowledged as important in affecting adolescent behavior (e.g., Bersamin, Walker, Fisher, & Grube, 2006; Dilorio, Kelley, & Hockenberry-Eaton, 1999; Whitaker & Miller, 2000). However, parents and adolescents report having infrequent, if any, conversations about sex despite the fact that both parents and children report wanting to have these conversations (Kaiser Family Foundation, 1999; Miller, Kotchick, Dorsey, Forehand, & Ham, 1998; National Campaign to Prevent Teen Pregnancy, 2002). Although parents report receiving the message that they should talk with their children, they also report feeling ill-equipped for the task (Geasler, Dannison, & Edlund, 1995). Similarly, children report that their parents appear uncomfortable and are not approachable or available to talk about important topics (Benson, Galbraith, & Espeland, 1998).

Thus simply instructing parents to talk with their children about sex appears insufficient. In order to provide parents with guidance and support, it is critical to understand what parents are doing during these conversations as well as the impact of their behavior. This study explored how mothers communicated with their daughters about the high-stakes topic of sex as well as other topics, and the relations between mothers' behavior during the conversation and daughters' engagement in and experience of the conversations.

Previous Studies on Parent-Child Communication and Sex

The majority of studies exploring relations between communication and adolescent risk-taking have defined communication as whether or not parents and children discuss topics related to sex, ignoring *how* parents and children communicate. Not surprisingly, the results of these studies have been mixed; with some showing positive associations between parent-child communication about sex and aspects of children's sexual behavior, others finding associations mediated by other variables (e.g., child gender, parent

beliefs), and some finding no associations (DiIorio, Pluhar, & Belcher, 2003). However, studies that have examined process variables present a clearer picture.

Several authors have found that open and receptive communication, typically measured by self-report questionnaires, was associated with reduction of sexual risk (e.g., Dutra, Miller, & Forehand, 1999; Fasula & Miller, 2006; Whitaker, Miller, May, & Levin, 1999). Lefkowitz, Kahlbaugh, and Sigman (1996), in observational studies of parent-child conversations about sex, identified another important dimension of communication: conversational dominance, defined as the percentage of time mothers and adolescents each spoke. In a study of 11- to 14-year-olds and their mothers, mothers spoke more than twice as often as their children in conversations about sexuality relative to everyday topics and conflicts. Other studies have found that the more mothers dominated sexuality conversations, the less children knew about AIDS as compared to their mothers' knowledge (Lefkowitz, Romo, Corona, Au, & Sigman, 2000) and that children whose parents were more directive during AIDS conversations tended to know less about AIDS than children of less directive mothers (Whalen, Henker, Hollingshead, & Burgess, 1996). Thus, whether parents direct and dominate conversations appears to be a key dimension of mother-adolescent communication about sexuality. Building on this work, in this study, we utilized the theoretical framework of Self-Determination Theory (SDT) to understand the process of communication between parents and adolescents and to understand the results of previous studies. In particular, we coded motivationally relevant aspects of mothers' behavior during mother-adolescent conversations as well as corresponding adolescent experiences.

Self-Determination Theory and Parent-Child Communication

According to SDT, individuals have three basic needs: *autonomy*, *competence*, and *relatedness* (Deci & Ryan, 1985). When the environment supports these needs, motivation, adjustment, and well-being result; however, environments that undermine the fulfillment of needs lead to a lack of motivation, ill-being, and other negative outcomes (Deci & Ryan, 1995; Ryan, Deci, & Grolnick, 1995).

Autonomy support vs. control, structure, and involvement are three dimensions of the environment that facilitate the satisfaction of these needs (Deci & Ryan, 1987; Grolnick & Ryan, 1989). In the context of parent-child interactions, autonomy support means taking children's perspectives, encouraging

their initiations, and providing them with developmentally appropriate opportunities to make choices. At the opposite end, controlling children means pressuring them toward particular agendas and overriding or redirecting their initiations. From an SDT perspective, contexts can be seen as varying along a continuum from controlling to autonomy supportive.

Structure refers to the organization of the environment to facilitate competence (Farkas & Grolnick, 2010). Structured environments are predictable and understandable; children know what is expected of them and how others will respond to their actions. In the context of parent-child interactions, structure includes providing a guiding framework, introducing key information, providing feedback, and using interventions likely to be useful and appropriate to the child's developmental level.

Involvement refers to the extent to which parents are interested in, knowledgeable about, and play an active role in their children's lives. When children feel their parents are aware of what happens, and take an active role in their lives on a day-to-day basis, their feelings of connection and relatedness are enhanced. Autonomy support, structure, and involvement facilitate children's motivation, competence, and adjustment (Farkas & Grolnick, 2010; Grolnick & Slowiaczek, 1994; Pomerantz & Eaton, 2001; Skinner, Johnson, & Snyder, 2005; Soenens & Vansteenkiste, 2005).

Internalization, an additional component of SDT, is the active developmental process by which children integrate and transform societal values into personal values. Parents can force children to engage in certain behaviors, but they cannot force children to "own" the values and attitudes behind a particular behavior. By making sense of parental messages and finding meaning in them, children accept, transform, and integrate these messages into personal values. Therefore, children are most likely to internalize parental values when the environment satisfies their needs for autonomy, competence, and relatedness (Grolnick, 2003).

According to SDT, when parents converse with adolescents in a way that values their initiatives, acknowledges their feelings, and minimizes pressure (i.e., provide autonomy support), adolescents should feel more autonomous, competent, and related, and want to talk more with their parents. This theory is supported by research on children's friendships in which parents' communication of prohibitions in an autonomy supportive (vs. controlling) style was related to greater internalization of parents' rules for friendships and less affiliation with deviant peers (Soenens, Vansteenkiste, & Niemiec, 2009). Looking at conversations specifically, both Powers (1988) and Walker and Taylor (1991) showed that parents' use of a conversation style consistent with

autonomy support when discussing moral issues facilitated greater moral development in children. The theory also fits well with the work on conversational dominance discussed earlier. Furthermore, when parents provide a clear framework for discussion, feedback, and key information (i.e., structure), children's need satisfaction and engagement should be facilitated, as should the likelihood of future conversations. Structure is a dimension that has not been previously studied within the literature on adolescent sexuality. This study thus examined autonomy support and structure during conversations about sex and other topics. Mothers' involvement during the conversations was not rated since parents and adolescents were constrained by the study to converse and thus involvement was not expected to vary greatly.

Parental Worry and Concern for Consequences of Sex

Many parents fail to engage their children in conversations about sex as they find talking about sexual topics particularly challenging. Previously identified barriers to communication include mothers' embarrassment, fear they will not know the answer to their children's questions, and difficulty explaining things clearly or finding the right time and place (Jaccard, Dittus, & Gordon, 2000). While various factors affect whether parents talk with their children about sex, several factors may affect their style of communication. In particular, the stress and worry that parents experience with regard to sex may affect their provision of autonomy support. In a study exploring the effects of perceived threat on parenting behavior, Gurland and Grolnick (2005) found that parents' perception of threat for their children was positively related to controlling behavior. Parents' experience of threat, combined with wanting the best for their children, led to feelings of worry and concern. In turn, these feelings translated into controlling parenting practices. Similarly, mothers' desire to protect their children from the perceived dangers of sex may lead them to behave in a more controlling manner. This may explain Lefkowitz and colleagues' (1996) findings that mothers were more dominating and didactic during conversations about sex. Indeed, concern and worry about dating and sexuality have been associated with less mutuality and more didactic, controlling conversational styles (Kahlbaugh, Lefkowitz, Valdez, & Sigman 1997; Whalen et al., 1996). Finally, mothers' own attitudes toward supporting versus controlling autonomy in children are likely to contribute to their interactional styles (Grolnick, Gurland, DeCoursey, & Jacob, 2002).

Current Study

Parent-child communication about personal matters, including sex, is more likely to occur with mothers than fathers, as mothers tend to be more familiar with their adolescents' lives and health status (Bearman, Jones, & Udry, 1997). Given the observed differences in mothers' communication with their sons and daughters about sex (Raffaelli, Bogenschneider, & Flood, 1998), as well as the fact that mothers are more likely to talk with their daughters than with sons (DiIorio et al., 2003), this study focused on mothers and daughters.

We expected some consistency in mothers' styles of communication and daughters' experience across the two conversations (everyday and sex) given that both members of the dyads have their own styles and that the dyad has a history of communicating about numerous issues. However, consistent with findings on conversational dominance (Lefkowitz et al., 1996) mothers were hypothesized to behave on average in a more controlling manner during conversations about sex, as compared to everyday topics. Mothers' autonomy support and structure during the conversations were predicted to positively relate to daughters' reports of need satisfaction, engagement during and satisfaction with the conversation, desire for more conversations with their mothers, and beliefs about the importance of talking with their mothers about sex. In addition, mothers who endorsed more autonomy supportive attitudes were expected to be more autonomy supportive during the conversations than mothers who endorsed controlling attitudes. Finally, mothers who reported worrying more and perceiving greater threat in the environment were expected to provide less autonomy support.

Method

Participants and Procedure

Forty-four mothers ($M = 42.6$ years) and their 44 11- to 14-year-old ($M = 12.5$ years; $SD = 1.06$) daughters from a medium-sized, New England city participated. The sample was mostly European American (86%), relatively highly educated (40% reported some college or other training, 30% graduated from college, and 30% reported schooling beyond college), and lived primarily in two-parent families (73%). Mothers varied in their religious affiliations: 36% identified as Catholic, 28% as other Christian denominations, 16% as Jewish, 2% as Quaker, 2% as Unitarian, 2% as Wiccan, and 14% did not report a religious affiliation. Household incomes varied: 7% earned less than US\$25,000, 18% earned between US\$25,000 and US\$50,000, 25% earned between US\$50,000 and US\$75,000, 18% earned between

US\$75,000 and US\$100,000, 25% earned greater than US\$100,000, and 7% declined to report their income.

Participants were recruited from a variety of sources, including parent groups, newsletters, community events, and word-of-mouth. Families expressing an interest in participating were contacted, informed about study details, and scheduled for a one-time laboratory visit. After consent and adolescent assent forms were signed, mothers and daughters completed individual difference questionnaires in separate rooms assisted by different experimenters so that they could not see or hear each other's answers. Once the questionnaires were complete, the video camera was turned on and dyads were brought to the same room to have two conversations, one about an "everyday topic" and the other about "sex." For the first conversation, a member of the research team directed dyads to an envelope with 4 index cards with the following topics: friends, school, summer vacation, after-school activities/sports. Dyads were told,

We're interested in the ways moms and daughters talk about different things. Please talk about one or more of these topics for the next 10 minutes. Don't worry, I'll keep track of the time and come back in 10 minutes.

After 10 minutes, the experimenter reentered the room and each member of the dyad completed a questionnaire about her experience of the conversation.

The experimenter repeated the procedure for the second conversation, instructing mothers and daughters: "Now we'd like you to have a conversation about sex. Again, I'll keep track of the time and come back in 10 minutes." After completing a final questionnaire about their experience during the sex conversation, dyads were informed that the study was complete, given US\$30, and provided with a packet containing resources about talking with children about sex.

Questionnaire Measures

Individual Difference Scales—Mothers

Demographic information sheet. Mothers answered questions including participants' ages, racial, ethnic, and linguistic backgrounds, parents' education, employment, family income, religion, and structure and composition of the family.

Parenting Attitude Scale. This five-item subscale assesses parents' attitudes toward supporting versus controlling children's behavior (Grolnick, Benjet, Kurowski, & Apostoleris, 1997). Items (e.g., "My daughter does not know why she is supposed to do what I tell her to do; Children should always do what their parents say, no matter what") are rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Previously reported Cronbach's alpha for this scale was .72 (Grolnick et al., 2002) and the alpha in this study was .65. More controlling attitudes on this scale have been linked to controlling behavior in the laboratory (Grolnick et al., 2002; Grolnick, Price, Beiswenger, & Sauck, 2007).

World Out There. This 23-item questionnaire assesses mothers' perceptions of threat in their children's current and future environment (e.g., "The world is a pretty safe place for kids today; It makes me nervous to think about all the dangers kids are exposed to these days"; Gurland & Grolnick, 2005). Items are rated on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores represent greater perceived threat. Gurland and Grolnick (2005) reported an alpha of .81 and the alpha in this study was .89.

Individual Difference Scale—Daughters

Adolescent Questionnaire. Daughters responded to one item assessing their belief about the importance of talking with their mothers about sex, rated on a 5-point scale from 1 (*not at all important*) to 5 (*very important*).

Conversation Experience Scale—Mothers

Maternal Experience Questionnaire. Mothers reported on their level of worry during both conversations. Mothers responded to the question, "During the conversation you and your daughter just had (about sex), how worried did you feel?" on a scale from 1 (*not at all worried*) to 5 (*very worried*).

Conversation Experience Scales—Daughters

Need Satisfaction Questionnaire. This six-item measure of daughters' need satisfaction was adapted from *The Basic Need Satisfaction in Relationships Scale* (La Guardia, Ryan, Couchman, & Deci, 2000). Items, for example, "During the conversation with my mother . . . I had a say in what happened, and I could voice my opinion" (autonomy); ". . . I felt very capable and effective" (competence); ". . . I felt loved and cared about" (relatedness), were rated on a scale from 1 (*not true at all*) to 7 (*very true*). Higher scores represent greater need satisfaction. Cronbach's alphas were .53 and .77 (autonomy), .58 and .70 (competence) and .67 and .75 (relatedness) for the everyday and sex conversation, respectively.

Adolescent Experience Questionnaire. This 10-item questionnaire, created for this study, assessed daughters' satisfaction during each conversation. A principal-components factor analysis yielded a one-factor solution by the Mineigen criteria for the everyday conversation, ($\alpha = .90$, eigenvalue: 5.15), and for the sex conversation ($\alpha = .96$, eigenvalue: 6.82). Sample items include "How satisfied are you with the way this conversation went?" and "How worthwhile was this conversation that you had with your mother?" Daughters also reported their desire to have more conversations with their mothers on a scale from 1 (*not at all*) to 5 (*very much*).

Coding of Videotapes

Videotaped conversations were rated for maternal autonomy support and structure and daughters' level of engagement. Raters were graduate and advanced undergraduate students familiar with SDT. Two or more raters independently rated each conversation and discussed disagreements until a consensus rating was reached; raters coded in larger groups with expert raters until sufficient proficiency in rating was obtained.

Autonomy support. A rating system for maternal autonomy support was developed for this study based upon previously used rating scales (Grolnick et al., 2007). Conversations were rated in 5 two-minute intervals on a scale from 1 (*highly controlling*) to 5 (*highly autonomy supportive*) and a mean rating across intervals for each conversation was computed. Mothers were rated as highly controlling when they interrupted the child, lectured, or took over the conversation. A high autonomy support rating was given when mothers took their daughters' perspectives, allowed them to explore their own ideas, answered their questions, and took a noncritical stance. The Shrout-Fleiss interrater intraclass correlation was .97.

Structure. A rating system for maternal structure was developed. Mothers were assigned a global rating for each conversation on a scale from 1 (*low structure*) to 5 (*high structure*). Mothers were rated as high in structure when they provided an organizing framework for the discussion by posing clear, open-ended questions, provided feedback closely following their children, appeared to consider the various directions the conversation could go, and anticipated how their children might react. A low rating was given when mothers seemed at a loss for how to proceed with the conversation, asked confusing or closed-ended questions, repeated questions, did not appear to consider the various directions the conversation could go, and were unable to anticipate how their children might react. The Shrout-Fleiss intraclass interrater correlation was .90.

Engagement. Daughters' engagement in the conversations was assessed using a rating scale adapted from an earlier study of parent-child conversations (Leyva, Reese, Grolnick, & Price, 2008). Daughters were assigned a global rating for each conversation on a scale ranging from 1 (*highly unengaged*) to 5 (*highly engaged*). Highly engaged girls appeared eager to be involved in the conversation, often elaborating on their own or their mothers' verbalizations. Girls rated as unengaged refused to talk about the topic, required numerous prompts to stay on task, and seemed uninterested. The Shrout-Fleiss interrater intraclass correlation was .94.

Results

Preliminary Analyses

Analyses were conducted to determine whether participants differed on study variables based upon demographics. Possible differences in race/ethnicity (European American, other), and religious affiliation (Catholic, Christian, Jewish, other) were examined with ANOVAs while relations with age, grade, and maternal education were examined with correlations. No differences on study variables by race/ethnicity or religious affiliation were in evidence and there were no significant correlations between age, grade, or maternal education and study variables. Means and standard deviations for all variables are provided in Table 1.

Consistency and Mean Differences Across Conversations

As expected, correlations amongst the dependent variables suggest some consistency in girls' experience in the two conversations (see Table 2). This was the case for mothers as well. Mothers who were high in autonomy support in the everyday conversation also tended to be high in autonomy support in the sex conversation ($r = .40, p < .01$). An even stronger relationship was observed between mothers' provision of structure in each conversation ($r = .79, p < .001$).

In addition, as hypothesized, mothers were more controlling during the sex conversation than the everyday conversation, $t(43) = 2.50, p < .02$; however, there was no difference in structure.

Relations Between Mothers' Behavior and Daughters' Experience

To examine the hypothesis that higher ratings of maternal autonomy support and structure during the conversations would be associated with daughters'

Table 1. Means and Standard Deviations of Mother and Daughter Variables

Category	Variable	Mean	SD	Actual range	Possible range
Individual differences					
Mother	Controlling attitudes	2.14	0.61	1.17-3.83	1-5
	Perceptions of threat	3.56	0.56	2.43-4.87	1-6
Daughter	Importance of talking w/mother about sex	3.25	1.01	1.00-5.00	1-5
Conversation variables					
Everyday					
Mother	Worry during conversation	1.34	0.53	1.00-3.00	1-5
	Daughter	Autonomy	6.74	0.42	5.50-7.00
	Competence	6.16	0.76	4.33-7.00	1-7
	Relatedness	6.10	1.14	2.50-7.00	1-7
	Satisfaction w/ conversation	4.08	0.60	1.89-5.00	1-5
	Desire more conversations	3.77	1.01	1.00-5.00	1-5
Sex					
Mother	Worry during conversation	1.52	0.55	1.00-3.00	1-5
Daughter	Autonomy	5.91	1.26	2.00-7.00	1-7
	Competence	5.56	1.22	1.50-7.00	1-7
	Relatedness	6.09	1.06	3.00-7.00	1-7
	Satisfaction w/ conversation	3.65	0.93	1.22-4.89	1-5
	Desire more conversations	2.98	1.21	1.00-5.00	1-5
Behavior ratings					
Everyday					
Mother	Autonomy support	3.23	0.90	1.20-4.60	1-5
	Structure	3.13	1.06	1.00-5.00	1-5
Daughter	Engagement	3.89	0.85	1.50-5.00	1-5
Sex					
Mother	Autonomy support	2.88	0.79	1.20-4.50	1-5
	Structure	2.94	1.19	1.00-5.00	1-5
Daughter	Engagement	3.35	1.21	1.00-5.00	1-5

Table 2. Correlations Among Daughters' Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13
Everyday													
1. Autonomy	—	.39**	.27†	.38*	.35*	.11	.28†	.19	.48**	.23	.12	.21	.16
2. Competence		—	.20	.38*	.29†	.27†	.39**	.46**	.39**	.20	.14	.27†	.09
3. Relatedness			—	.45**	.46**	.12	.35*	.18	.64***	.33*	.23	.30†	.22
4. Satisfaction w/conversation				—	.70***	.23	.38*	.17	.52***	.63***	.57***	.45**	.60***
5. Desire more conversations					—	.23	.26†	.20	.57***	.57***	.66***	.46**	.58***
6. Engagement						—	-.03	-.14	.23	.20	.21	.52***	.22
Sex													
7. Autonomy							—	.76***	.59***	.62***	.43**	.53***	.19
8. Competence								—	.34*	.40**	.36*	.34*	.06
9. Relatedness									—	.59***	.45**	.55***	.29†
10. Satisfaction w/conversation										—	.75***	.78***	.62***
11. Desire more conversations											—	.63***	.61***
12. Engagement												—	.43**
13. Importance of talking w/ mother about sex													—

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Correlations Between Mothers' Behavior and Daughters' Experience

Daughters'	Everyday conversation		Sex conversation	
	Autonomy support	Structure	Autonomy support	Structure
Autonomy	-.09	-.00	.09	.31*
Competence	.21	.14	.13	.13
Relatedness	.31*	.18	.09	.43**
Satisfaction w/conversation	.37*	.24	-.06	.49***
Desire more conversations	.33*	.22	.03	.43**
Engagement	.51***	.51***	.17	.66***
Importance of talking w/ mother about sex	—	—	-.04	.21

* $p < .05$. ** $p < .01$. *** $p < .001$.

more positive experiences, greater satisfaction with the conversations, and more engagement, correlations within the two conversations were first conducted (see Table 3). In the everyday conversation, autonomy support was positively related to girls' engagement, their report of feeling more related, more satisfied, and wanting to have more conversations with their mothers. Structure was only related to girls' engagement in the everyday conversation; mothers who provided more structure had more engaged daughters. In the sex conversation, autonomy support was not significantly related to girls' experience. However, structure was related to daughters' engagement, their report of feeling more autonomous, more related, more satisfied, and wanting to have more conversations with their mothers.

Because correlations between mothers' provision of autonomy support and structure in each conversation were significant, such that mothers who were high in autonomy support were also high in structure in the everyday ($r = .60, p < .001$) and sex conversations ($r = .41, p < .01$), we also conducted hierarchical linear regressions to examine the independent effects and possible interactions of mothers' autonomy support and structure on girls' experience of the conversations. Based upon the pattern of correlations obtained, autonomy support was entered in Step 1 in the analyses of daughters' experience during the everyday conversation. Higher levels of autonomy support were associated with girls feeling more related to their mothers ($B = .39, SE = .19, p < .05$), greater satisfaction with the conversation ($B = .25, SE = .10,$

$p < .05$), more desire to have more conversations with their mothers ($B = .37$, $SE = .16$, $p < .05$), and greater engagement ($B = .49$, $SE = .13$, $p < .001$). In Step 2, structure was added to the model; its inclusion only accounted for a marginally significant increase in the variance in daughters' engagement during the conversation ($B = .25$, $SE = .13$, $p < .06$). Finally, entry of the interaction between autonomy support and structure in Step 3 resulted in no significant change in the variance explained in any of the dependent variables.

In the analyses of daughters' experience during the sex conversation, structure was entered in Step 1. Higher levels of structure were associated with girls' reports of feeling more autonomous ($B = .32$, $SE = .16$, $p < .05$), more related ($B = .38$, $SE = .12$, $p < .01$), experiencing greater satisfaction ($B = .38$, $SE = .11$, $p < .001$), wanting to have more conversations with their mothers ($B = .44$, $SE = .14$, $p < .01$), and with greater engagement ($B = .67$, $SE = .12$, $p < .0001$). When autonomy support was added in Step 2, it only accounted for a significant increase in the variance in daughters' satisfaction with the sex conversation; unexpectedly, higher autonomy support was associated with less satisfaction after controlling for structure ($B = -0.37$, $SE = .17$, $p < .05$). Finally, the interaction between autonomy support and structure, entered in Step 3, resulted in no significant change in explained variance in any dependent variable.

Predictors of Conversation Style

In order to examine the hypotheses that maternal worry, perceptions of threat, and more controlling attitudes would be associated with mothers' more controlling behavior during the conversations, simultaneous regression analyses were conducted. Mothers' autonomy support and structure were each regressed onto mothers' controlling attitudes, perceptions of threat, and worry during the conversations (see Table 4). Mothers' controlling attitudes were not predictive of their autonomy support during the everyday conversation; however, consistent with predictions, mothers who perceived greater threat in the environment as well as those who reported worrying more were rated as less autonomy supportive during the everyday conversation. For the sex conversation, mothers who endorsed more controlling attitudes and who perceived greater threat were rated as less autonomy supportive. There was no significant relationship between worry during the sex conversation and maternal autonomy support. Similar analyses conducted for maternal structure showed that mothers who reported greater levels of worry during the sex conversation were rated lower in their provision of structure.

Table 4. Regression Analyses Examining Predictors of Conversation Style

Dependent variable:Autonomy support—Everyday conversation					
Predictor variables	B	SEB	t	F	R ²
				3.66*	.23
Controlling attitudes	-0.05	0.21	-0.25		
Perceived threat	-0.53	0.24	-2.20*		
Worry	-0.45	0.25	-1.78†		
Dependent variable:Autonomy support—Sex conversation					
Predictor variables	B	SEB	t	F	R ²
				5.40**	.30
Controlling attitudes	-0.51	0.18	-2.88**		
Perceived threat	-0.54	0.20	-2.74**		
Worry	-0.23	0.20	-1.16		
Dependent variable: Structure—Everyday conversation					
Predictor variables	B	SEB	t	F	R ²
				.55	.04
Controlling attitudes	0.09	0.28	0.31		
Perceived threat	-0.35	0.32	-1.09		
Worry	-0.07	0.33	-0.22		
Dependent variable: Structure—Sex conversation					
Predictor variables	B	SEB	t	F	R ²
				2.26†	.15
Controlling attitudes	-0.40	0.30	-1.34		
Perceived threat	-0.33	0.33	-0.98		
Worry	-0.68	0.34	-2.03*		

†p < .10. *p < .05. **p < .01.

Discussion

This study aimed to contribute to the literature on parent-child conversations about sexuality by examining the process of mother-daughter communication from a Self-Determination Theory perspective. Primary hypotheses involved relations between mothers' behavior and daughters' experience during and

after the conversations. First, as expected, there was some consistency in mothers' behavior and daughters' experience across the two conversations. In addition, as predicted, mothers were rated as more controlling in the conversation about sex than in that about everyday topics but did not differ in level of structure. This is consistent with the findings on conversational dominance in that the emotion-arousing area of sexuality appears to elicit a more didactic and "teachy" style in mothers (e.g., Kahlbaugh et al., 1997; Lefkowitz et al., 1996). It is also consistent with findings within social domain theory (e.g., Smetana & Daddis, 2002) in which parents are more controlling in domains over which they perceive themselves to have more legitimate authority and this may be more the case for sex than everyday events. Importantly, there were differential effects of mothers' autonomy support and structure in the two types of discussions. In particular, during discussions of everyday topics, autonomy support was most predictive of girls' positive experience, relatedness, and engagement. However, when mothers and daughters discussed sex, structure contributed most to daughters feeling more engaged, autonomous, related, satisfied, and wanting to have more conversations with their mothers.

While the theoretical distinction between structure and autonomy support has received some attention (e.g., Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010), few empirical studies have examined differential effects of these two contextual dimensions. That this study found different effects for structure and autonomy support in the two types of conversations suggests that this is a key distinction, which merits greater attention in studies of socialization. In understanding the differential effects of structure and autonomy support in the two conversations, we suggest that perhaps because young adolescents have had practice talking with their mothers for (at least) 10 minutes about friends, school, summer vacation, sports, and/or after-school activities, they overall feel quite capable of doing so competently. Therefore, an environment that facilitates their experience of autonomy may be key to their positive experience. Yet when it comes to talking about the much less commonly discussed topic of sex, adolescents may be less comfortable and at a loss for how to navigate such conversations, particularly if they perceive discomfort on the part of their parents. Thus, structure, which sets the stage for adolescents to participate, may be more important. With regard to autonomy support, a suppression effect was also detected; when levels of structure were held constant, greater autonomy support tended to *decrease* daughters' satisfaction with the sex conversation. This unexpected finding underscores the importance of structure in facilitating successful engagement in a conversation about sex and suggests that autonomy support alone may not be facilitative when it comes to girls' satisfaction.

It is important to consider the possible bidirectional effects of the aforementioned results. Perhaps daughters who feel more connected to their mothers, are more engaged, and want to talk more with their mothers, actually elicit more autonomy support from their mothers. That is, mothers who have more satisfied and connected daughters may not feel the need to behave in a controlling manner during conversations about everyday topics. If this were the case, one would expect similar relations between autonomy support and girls' experience during the sex conversations; yet, no relation was observed. Furthermore, it seems unlikely that mothers of more autonomous, related girls who are more engaged, tend to enjoy their conversations, and want to talk more with their mothers about sex, would have any reason to provide greater structure.

Finally, neither maternal autonomy support or structure was significantly related to girls' report of feeling competent during either conversation or girls' belief in the importance of talking with their mothers about sex. One reason for this could be the measure of competence, as many girls asked what "competent" meant. Although all who asked were given the same definition, it seems a different measure of competence is needed for this age group. In addition, with a larger sample the relation with structure might be significant (as this belief was strongly related to other child outcomes related to maternal structure).

Predictors of Maternal Behavior

Mothers who endorsed more autonomy supportive attitudes were more autonomy supportive during conversations with their daughters about sex. However, autonomy supportive attitudes were not associated with mothers' behavior during the everyday conversations. This finding is not in line with past research that has found parenting attitudes to be highly predictive of behavior under a variety of conditions (Grolnick et al., 2007). Given that mothers were less controlling in general during this conversation, it may be that mothers had little invested in the outcome of the everyday conversation, as compared to the sex conversation and tasks that have been examined in the laboratory in the past.

Perceptions of threat were associated with lower levels of maternal autonomy support during both the everyday and sex conversations. We suggest that perceptions of threat may arouse emotions that interfere with effective communication. Worry during the conversations differentially impacted mothers' behavior—being negatively related to structure only during the conversation about sex. Taken together with the aforementioned findings relating mothers' behavior to daughters' experience of the conversation, maternal worry and

threat emerge as barriers to effective communication (Whalen et al., 1996). Therefore, it will be important to help parents understand the ways in which their behavior has differential impacts depending upon the conversation topic. Future studies should explore whether these findings hold true for other high-stakes topics, such as alcohol and drug use.

Measurement Issues

Rating scales were developed to assess autonomy support and structure during conversations. Although both scales achieved excellent reliability, this was the first time each was used. Given the strong relationship between the two parenting dimensions, future studies should validate both rating scales, particularly maternal structure, in an effort to understand the unique ways in which these parenting dimensions affect adolescents during high- and low-stakes conversations. In addition, the alphas for the need satisfaction questionnaire were not as high as expected, perhaps due to the removal of negatively worded items. Unlike in the original college-aged sample (LaGuardia et al., 2000), the negatively and positively worded items were not related in this sample. This is consistent with the authors' past experience wherein children did not agree with negatively worded items, yet strongly disagreed with positively worded items.

Limitations and Directions for Further Research

Participants were primarily European American and relatively highly educated. Because of the lack of heterogeneity in our sample, the results cannot be generalized to other populations. Future studies should examine communication styles in parents of different racial/ethnic groups and education levels. Indeed, Lefkowitz et al. (2000) found that the structure and experience of parent-adolescent conversations about sexuality differed for European American and Latino dyads, and Gilmore, Chen, Haas, Kopak, and Robillard (2011) found that relations between parent-child communication and adolescents' risky sexual behaviors differed for African American, Chinese American, Mexican American, and White youth. The age range of the sample was also a limitation in that, though there were no age effects on study variables, there is certainly change in the meaning of sexual activity across this age span. Another limitation was the number of participants. Home visits should be considered as a 90-minute laboratory visit is not possible for all interested families. The subject matter of this study made recruiting

challenging; however, as a result of up-front communication about the study's focus, nearly all families who expressed an interest eventually participated. Future studies should examine other dyads (i.e., mother-son, father-daughter, and father-son). From an SDT perspective, different results would not be anticipated; however, past studies have found differences in sex communication depending on parent and child gender (Lefkowitz, Boone, Sigman, & Au, 2002). The exploration of different gender pairings is crucial in order to provide the most appropriate guidance to parents.

Given that this study was not longitudinal, it is impossible to draw conclusions about causality and the directionality of the relations between mothers' behavior and daughters' experience in the conversations. The coding system, which was global, did not allow for determination of what made mothers increase or decrease their controlling or structuring behavior at any moment. Future studies might use turn-by-turn coding and sequential analysis to further address the dynamics of mother-daughter conversations about sex. Internalization was not measured directly, nor was actual risk behavior. This was a first step in exploring the conversational climate mothers create when talking with their daughters about low- and high-stakes topics from an SDT perspective. Future studies should attempt to connect parenting behavior directly with adolescent risk-taking.

Finally, the everyday conversation occurred before the sex conversation. This was purposeful in that the sex conversation was likely to be more emotion-arousing. Beginning with a less charged conversation is a design that has been utilized in other multiple conversation studies (e.g., Lefkowitz et al., 1996). While order effects could be an issue, Kahlbaugh et al. (1997) counterbalanced the order of conflict and sexuality conversations and showed no order effects on any affective conversational variables. Nevertheless, future studies could counterbalance order of conversations.

In sum, this study identified critical parenting behaviors during conversations, adding to the existing literature linking quality of communication to adolescent risk-taking. These results support findings from other areas, such as family influence in adolescent smoking (e.g., de Leeuw, Sholte, Harakeh, van Leeuwe, & Engels, 2008) suggesting that it is the quality of discussions, rather than their frequency, that most relates to risky behavior. Results suggest simply instructing parents to talk with their children is not enough; parents need concrete strategies for navigating conversations about sex. Building upon this research, interventions can be developed that help parents provide more structure. In addition, interventions can help parents to manage their worry and concern to increase the likelihood of effective conversations.

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