

TRANSMISSION OF TEEN PREGNANCY ATTITUDES
BETWEEN MOTHERS AND ADOLSCENT DAUGHTERS

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BETWEEN MOTHERS AND ADOLESCENT DAUGHTERS

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ABSTRACT

Mothers have a significant influence in transmitting sexuality-related attitudes to their daughters. Although, mothers may influence her older and younger daughters differently. Including more than one child from the family was important for analyzing birth order as a moderator on mothers' attitude transmission. However, little is known about how maternal attitudes towards teen pregnancy influence her adolescent daughters' teen pregnancy attitudes or how mothers' influence is moderated by birth order and maternal acceptance. I examined how mothers' attitudes toward teen pregnancy were associated with her daughters' attitudes toward teen pregnancy the following year (controlling for daughters' own attitudes at Time 1; T1) ($N = 36$ triads). Using multilevel modeling, I found that mothers' attitudes were more significantly related to her older, but not younger, daughters' attitudes. Further, I found that mothers' attitudes were significantly related to her older daughters' teen pregnancy attitudes only under conditions of low maternal acceptance. These associations were dependent on the context of the mother- daughter relationship and birth order.

Introduction

Experiencing a teen pregnancy is associated with several adverse life trajectories. Adolescents who become mothers at a young age are less likely to be successful in their education and careers, are more likely to be single parents, and are more likely to live in poverty than their peers who became mothers at a later age (Borkowski, Whitman, & Farris, 2007). In recent years, the rate of teenage pregnancy has been declining globally. In the United States, between 2008 and 2013, the teenage pregnancy rate dropped 36 percent (Kost et al., 2017). Despite these trends, the United States has consistently reported a higher teen pregnancy rate than any other developed country in the world (Sedgh et al., 2015). In 2010, 614,000 females between the ages of fifteen and nineteen became pregnant in the US, (a teen pregnancy rate of 57 per 1,000 females; Sedgh et al., 2015). These rates show that teenage pregnancy remains a salient public health issue within the United States.

Previous research has found that mothers and daughters have a unique relationship, specifically regarding sexual communication and value transmission. It has consistently been found that mothers and daughters engage in more sexual communication than any other parent and child gender dyad (Flores & Barroso, 2017; Wilson & Koo, 2010). Additionally, in one study, Wilson & Koo (2010) found that mothers reported higher self-efficacy, more confidence in their ability to communicate sexual health information to their adolescent, and fewer perceived barriers to communication than fathers. Additionally, they found that mothers believed engaging in sexual activity had more negative consequences for their adolescent daughters than for their adolescent sons (Wilson & Koo, 2010). These findings support the idea that mothers

have a unique and significant influence on their daughters, specifically regarding sexual communication, and that mothers might play an especially influential role in transmitting sexuality-related attitudes to their daughters. However, few studies have examined the role of maternal attitudes on adolescent daughters' attitudes, particularly attitudes toward teen pregnancy.

The primary aim of this study was to analyze the associations between mothers' teen pregnancy attitudes and her older and younger adolescent daughters' teen pregnancy attitudes, over a span of one year. Birth order and maternal acceptance (e.g. being warm and nurturing; Schwartz et al., 2009) with each of her daughters were used as moderators when examining this association. Most previous studies of associations between mothers' and adolescents' attitudes have included only one child in the family and have not accounted for variables, such as birth order, that are unique to studies that include more than one child. Maternal attitudes and value transmission were important factors to consider because they have a direct influence on adolescents' attitude formation (Christopher, 2001). This influence can be explained using a symbolic interaction perspective and the potential role of parents, especially mothers, can be examined.

Symbolic Interactionism

Christopher's (2001) theory of adolescent sexual development, which is based in symbolic interactionism, provided the theoretical framework for the current study. Symbolic interactionism explains that all human behavior, including sexual behavior, is symbolic and meaning has to be made of these symbols (Longmore, 1998). Meaning making occurs through socialization and interactions with others, as well as interactions with one's own environment (Longmore, 1998).

According to Christopher (2001), socialization about sex and sexual communication are a means of transmitting attitudes, values, and expectations regarding sex. When parents socialize their adolescent children about sex, they bring their own norms to the interaction. Parents' norms about sexual behavior represent the meaning they give to sexual roles and are grounded in their values, beliefs, and relationship quality with their children (Christopher, 2001). By socializing their children, they can transmit their own values, attitudes, and meanings about sex to their children.

Adolescence is a particularly salient time for identity formation as adolescents are cognitively capable of recognizing and adapting others' perspectives in a way that preadolescents are not capable of (Christopher, 2001). Additionally, adolescence is often when sexual self-concept and socialization increases and evolves (Longmore, 1998). Adolescents formulate their ideal sexual self and engage in behaviors based on their assigned meanings. However, young adolescents likely do not have personal experience to base their meaning-making on, which is why mothers are important influencers during this time. Older adolescents likely have more experiences that provide meaning to their sexual self as well as more advanced cognitive abilities (Christopher, 2001).

However, not all children make meaning of sex the same way as their parents as some develop attitudes and values that differ from those of their parents. Christopher (2001) discusses how the environment of the parent-child relationship is influential and directly influenced by parental values and attitudes. For example, if parents create a highly supportive environment, they are more likely to have a high level of closeness with their child. Further, adolescents are more likely to accept their parents' values as

their own if they feel they have a highly supportive and close relationship with their parents (Christopher, 2001).

Level of closeness within the parent-child relationship has been found to moderate the transmission of norms and values specifically regarding parental attitudes towards sexual behavior, such that adolescents who feel close to their parents are more likely to share similar attitudes (Christopher, 2001). Specifically, mothers play an influential role in socializing adolescents about sexual behaviors. For example, one study found that reporting a close relationship with their mother was predictive of delaying sexual intercourse for adolescents (L'Engle & Jackson, 2008). When there is a high level of closeness between mothers and adolescents, the adolescent is more likely to set boundaries and engage in sexual behaviors that are aligned with their mother's values. When mothers and adolescents are more distant, the adolescents might be more likely to engage in sexual behaviors that go against their mother's values (Christopher, 2001).

Birth Order as a Moderator

Birth order is an important moderator to consider because previous research has shown that mothers' attitudes are more influential on their older child's attitudes than their younger child's attitudes (McHale et al., 2001). Further, McHale et al. (2001) found that older siblings are more likely to view their parents as role models, while younger siblings are more likely to look up to their older siblings as role models. Additionally, McHale and colleagues (2001) found that older siblings' attitudes were more consistent and important predictors of younger siblings' attitudes than were parents' attitudes. These findings are consistent with social learning principles, which explain that individuals (e.g., younger siblings) learn by imitating and modeling other individuals (e.g., older

sisters) who they view as powerful, loving, and similar to themselves (Whiteman, McHale, & Soli, 2011).

In the present study, we examined the moderating effects of birth on teen pregnancy attitude transmission between a mother and her older and younger daughters. This study helped to expand our current understanding of the moderating effects that birth order has on value transmission from mother to daughters. Based on previous research and social learning principles, I hypothesized that mother's attitudes will be more influential on her older daughter's attitudes than her younger daughter's attitudes.

Teen Pregnancy Attitudes and Value Transmission

Several previous studies have established that parents may fill an essential role in providing sexual information to their children, as well as shaping their adolescent child's sexual attitudes and values regarding sexual risk-taking, which can directly influence their behaviors (Dittus & Jaccard, 2000; Parkes, Henderson, Wight, & Nixon, 2011; Widman et al., 2015). Parents' value transmission regarding sexual attitudes and values is especially salient when their child is in early adolescence. This is because young adolescents often have not engaged in sexual behaviors yet, so they do not have personal experience on which to base their attitude and value formation (Cox Jr., Shreffler, Merten, Schwerdtfeger Gallus, & Dowdy, 2015).

Additionally, several studies have found that an important number of young teens report feelings of ambivalence, or even some level of intention, about becoming pregnant as a teenager (Cox Jr. et al., 2015; Kerpelman et al., 2016). This belief is more salient among younger adolescents for several reasons. First, because of the level of cognitive development that young teens experience, it is often more challenging for them to reason

through the pros and cons of becoming pregnant as a teenager (Sheeder et al., 2010; Cox Jr. et al., 2015). Further, a number of female adolescents, especially young adolescents, report that they do not view becoming a teen mom as a completely negative prospect. While adolescents who hold this view are often aware of the consequences associated with becoming a teen mom, they instead focus on the perceived benefits (e.g. become closer to their families, increase intimacy in their romantic relationships; Afable-Munsuz et al., 2006).

Maternal Acceptance as a Moderator

Parents, specifically mothers, are significantly influential on shaping their adolescents' attitudes and opinions on engaging in sexual behavior during adolescence. For example, one study found that when adolescents reported high levels of pressure from their parents to remain a virgin, they also were likely to report positive feelings about abstaining from sex. Further, adolescents who reported positive feelings about abstaining from sex had a high likelihood of remaining a virgin one year later (Heywood, Patrick, Pitts, & Mitchell, 2016).

Values and attitudes are more effectively transmitted in the context of positive parent-adolescent relationships that are characterized by high levels of warmth and support (Kincaid, Jones, Sterrett, & McKee, 2012). When parents have supportive relationships with their adolescent children, they are also more likely to be able to convey decision making skills to their child, which can directly impact their involvement in risk behaviors, including risky sexual behaviors that may put teens more at risk for experiencing a teen pregnancy (Kincaid, Jones, Sterrett, & McKee, 2012). Further, Kincaid et al. (2012) found that high levels of parental support, emotional connection,

and parental warmth, within the parent-adolescent relationship, can be an especially significant protective factor against risky sexual behavior for adolescent girls.

Additionally, another study found that when parents provided a highly controlling structure (e.g. excessive emphasis on obedience, excessive surveillance), adolescents were less likely to internalize their parents' values and likely complied with the motivation of avoiding potential consequences (e.g. punishment) or in order to receive positive consequences (e.g. parental approval; Hardy, Padilla-Walker, & Carlo, 2008). These findings suggest that relationship quality might play a significant moderating role between parental value transmission and adolescent internalization of these values. To support this idea, one study looked at the connection between the adolescents' perceived maternal opposition to their engagement in sex and mother-adolescent relationship quality. When both perceived maternal opposition to sex and relationship quality were rated at their highest, adolescents were predicted to be 13 times less likely to both engage in sex and experience a teen pregnancy than when these variables were at their lowest (Dittus & Jaccard, 2000).

While there is a clear relation between maternal acceptance and value transmission between mothers and adolescents, to my knowledge, there are no studies that have focused on the association between mothers' teen pregnancy attitudes and her older and younger daughters' teen pregnancy attitudes using relationship quality (e.g. maternal acceptance) as a moderator. In the present study, I examined how mothers' attitudes towards teen pregnancy at Time 1 are associated with daughters' attitudes towards teen pregnancy at Time 2, controlling for daughters' attitudes at Time 1. This

study expanded our current understanding of how maternal acceptance of daughters moderates value transmission regarding teen pregnancy attitudes.

Present study

The purpose of the present study was to examine the associations between mothers' teen pregnancy attitudes and her older and younger daughters' teen pregnancy attitudes over a one-year period. Based on previous research, I hypothesized mothers' teen pregnancy attitudes to be associated with her daughters' teen pregnancy attitudes at T2. Additionally, I examined relationship quality between mothers and daughters and birth order as moderators for the associations between mothers' and daughters' teen pregnancy attitudes. Based on previous research, I hypothesized that under conditions of high maternal acceptance, there would be a stronger positive association between mothers' and daughters' attitudes. Also, I hypothesized that the mothers' attitudes towards teen pregnancy would be more strongly associated with her older daughters' attitudes than her younger daughters' attitudes. This study built on previous research by focusing specifically on how attitudes about teen pregnancy are transmitted from mothers to both older and younger daughters over time.

Method

Participants

As part of a larger study, mothers and her older and younger daughters ($N = 36$ triads) were recruited from social media sites (e.g. Facebook), school directory information, and through the use of convenience sampling in both rural and urban areas of a Midwestern state. Data collection occurred between 2013 and 2015. In order to be eligible for the study, younger sisters had to be between the ages of 11 and 18 and report having an older sister. Older sisters were 18.88 years ($SD = 4.29$; range 14-37) and younger sisters were 15.05 years ($SD = 1.76$; range 11-17). The average age gap between the older and the younger sister was 3.88 years ($SD = 4.14$). Of the mothers, twenty-six reported their relationship status as being married, seven were divorced, two were in non-cohabiting relationships, one was married but separated, and one was widowed. The mothers reported on the following highest completed levels of education: 11th grade (1), graduated from high school (2), vocational/trade school (3), some college (1), associate's degree (4), graduated college (10), master's degree (10), JD, MD, or PhD (4), other (2). Twenty-five of the triads were European American, four were Hispanic/Latina, three were African American, and one was Asian. One other reported being biracial and three triads did not report their race.

Procedures

Mothers, older daughters and younger daughters, were asked to complete observational tasks, interviews, and survey data at Time 1 (T1), but only the survey data were used for this study. Survey data were collected again one year later at Time 2 (T2). Informed consent was obtained from parents for participants under 18 years of age and

assent was given. For participants 18 years of age and older, informed consent was obtained directly. Participants completed the survey using Qualtrics.

Measures

To assess *attitudes towards teen pregnancy*, mothers and daughters answered nine items about their opinions in the past year using a 5-point scale (1 = *Disagree*; 5 = *Agree*) (East & Jacobson, 2001; Killoren, Zeiders, Updegraff, & Umana-Taylor, 2015). Example items were “In my neighborhood and community when a teenager has a child she gains the respect of others” and “I believe that people will admire or look up to a teenager who has a child of her own.” Higher scores indicated more positive views towards teen pregnancy. Cronbach’s alphas for mothers, older daughters, and younger daughters at all time points ranged from .87 - .97.

To assess *maternal acceptance*, younger and older sisters each answered the 8-item acceptance subscale of the Children’s Reports of the Parent Behavior Inventory (Schwarz, Barton-Henry, & Pruzinsky, 1985). An example item was “My mother speaks to me in a warm and friendly voice.” Cronbach’s alphas for older daughters was .92, and .90 for younger daughters.

Results

Preliminary Analyses

Analyses were run using SPSS. Descriptive statistics and correlations for all study variables are presented in Table 1. I found several significant correlations. For example, mothers' attitudes towards teen pregnancy at T1 were positively correlated with daughters' attitudes towards teen pregnancy at T2. Daughters' teen pregnancy attitudes at T1 and T2 were positively correlated.

Descriptive Statistics and correlations for all study variables, separated by birth order, are presented in Table 2. For younger sisters, I found that mothers' attitudes towards teen pregnancy at T1 was significantly correlated with the younger daughters' attitudes towards teen pregnancy at T2.

Additionally, I used correlations and *t*-tests to determine if mothers' relationship status and mothers' education level were significant control variables to consider. Neither variable was found to be significant, so they were not included as controls. All of the main variables were normally distributed and centered.

Three-Way Interaction Analyses

Because we included data from two adolescent daughters in the same family, we used multilevel modeling procedures that allowed us to account for the nested nature of the data (Raudenbush & Bryk, 2002). Using multilevel modeling procedures, I ran a three-way interaction model using mothers' attitudes towards teen pregnancy (T1), birth order (0 = younger daughters, 1 = older daughters), and mothers' acceptance (T1) (controlling for adolescents' age and attitudes at T1) and the interaction between mothers' attitudes, mothers' acceptance, and birth order were entered as predicting

adolescents' attitudes at T2. While this interaction was not significant at the .05 level, it was marginally significant, ($b = -.65, p = .07$; see table 3).

In order to test the effect of birth order, using only data from younger daughters, I ran a regression using mothers' acceptance and mothers' attitudes towards teen pregnancy (T1) (controlling for younger daughters' attitudes at T1) and the interaction between mothers' attitudes and mothers' acceptance as predictors of younger daughters' attitudes at T2. This interaction was found to be non-significant, ($b = -.03, p = .90$).

Using only data from older daughters, I ran a regression using mothers' acceptance and mothers' attitudes towards teen pregnancy (T1) (controlling for older daughters' attitudes at T1) and the interaction between mothers' attitudes and mothers' acceptance were entered as predicting older daughters' attitudes at T2. Estimates and standard errors are reported in Table 4. This interaction was significant, ($b = -.71, p = .01$). I then represented the significant interaction for older sisters visually using a two-way interaction graph (Figure 1). I also represented the non-significant interaction for younger sisters visually using a two-way interaction graph (Figure 2). It was found that mothers' teen pregnancy attitudes at T1 were positively correlated with her older daughters' teen pregnancy attitudes at T2, in the context of low maternal acceptance ($t = 3.57, p < .01$). The association was not significant in the context of high maternal acceptance ($t = -1.14, p = .26$).

Two-Way Interaction Analyses

Because the three-way interaction was marginally significant, I ran two-way interaction models separately for birth order and mothers' acceptance as moderators in order to assess any power issues due to our small sample size. In the first model, mothers'

attitudes toward teen pregnancy (T1) and birth order (controlling for adolescents' age and attitudes at T1) and the interaction between mothers' attitudes and birth order were entered as predicting adolescents' attitudes at T2.

In the second model, mothers' attitudes toward teen pregnancy (T1), birth order, and mothers' acceptance (T1) (controlling for adolescents' age and attitudes at T1) and the interaction between mothers' attitudes and mothers' acceptance were entered as predicting adolescents' attitudes at T2.

A significant interaction between mothers' attitudes and maternal acceptance on daughters' teen pregnancy attitudes was found (see Table 5). I probed the interaction using simple slope analyses and plotted the interaction with maternal acceptance one standard deviation above the mean and one standard deviation below the mean (Figure 3; Aiken & West, 1991). I used three values in the range of relationship quality (e.g. the mean relationship quality, one standard deviation above the mean, and one standard deviation below the mean value) and entered those values into simple regressions (Aiken & West, 1991). I found that mothers' teen pregnancy attitudes at T1 were significantly associated with daughters' attitudes toward teen pregnancy in the context of low maternal acceptance ($t = 3.57, p < .01$), but not high maternal acceptance ($t = -1.14, p = .26$).

Discussion

In this study, I examined the associations between mothers' teen pregnancy attitudes and her older and younger adolescent daughters' teen pregnancy attitudes, over a span of one year, using birth order and maternal relationship quality as moderators. The findings of this study contribute to the literature in several ways. First, this study specifically studied the transmission of teen pregnancy attitudes from mothers to daughters. While previous studies have shown that parents play an important role in shaping their adolescent children's sexual attitudes (e.g., Widman et al., 2015; Parkes et al., 2011; Dittus & Jaccard, 2000), there have been no studies examining the role that mothers play in the development of their daughters' attitudes toward teen pregnancy. Second, this study included mothers and older and younger daughters from the same family, which allowed us to analyze the unique association mothers have on her older and younger daughters. The majority of studies examining the transmission of values from parent to child have focused on one parent and one adolescent in the family, even though the majority of families in the U.S. have at least two children. By examining two daughters in the same family, my study provides a unique contribution to the literature.

Overall, my findings were consistent with symbolic interactionism, which explains that parents socialize their adolescent children about sex and transmit their own values, attitudes, and meanings about sex onto their children (Christopher, 2001). My study expands on these ideas and suggests that mothers play a salient role in transmitting attitudes and values about teen pregnancy to their daughters, as previous research has not specifically examined teen pregnancy attitudes in the context of sex socialization and value transmission. As predicted, the results of this study showed that mothers' teen

pregnancy attitudes at Time 1 were significantly related to daughters' teen pregnancy attitudes the following year, over and above daughters' attitudes at Time 1. This association, however, depended on sibling status and levels of maternal acceptance. Specifically, for older daughters, the association between mothers' attitudes toward teen pregnancy and adolescents' attitudes toward teen pregnancy was stronger under conditions of low maternal acceptance, compared to conditions of high maternal acceptance. The finding that mothers' attitudes were more significantly associated with older, but not younger daughters' attitudes is consistent with previous research that has found that mothers' attitudes are more influential on their older children's attitudes compared to their younger children's attitudes. Most likely this is due to older siblings being more likely to view their parents as role models, and younger siblings being more likely view their older siblings as role models (McHale et al., 2001).

There are several potential explanations as to why the association between mothers' and older daughters' attitudes were only significant under conditions of *low* maternal acceptance. It is possible that low levels of maternal acceptance serve as extrinsic motivation for adolescent daughters to express attitudes similar to their mothers' attitudes. If low maternal acceptance does act as extrinsic motivation to adopt similar values, it is possible that the daughters have internalized these values, not because they fully accept them, but because they might feel shame or guilt for not agreeing, due to the less accepting relationship with their mother. This explanation is supported by Social Determination Theory and is an example of introjection (Deci & Ryan). Introjection refers to internalization in which individuals take in a value or belief, but do not accept that value as their own (Deci & Ryan, 2002).

Further, under conditions of low maternal acceptance, mothers may not act in autonomy-granting ways when socializing her daughter about teen pregnancy. Examples of autonomy-granting behaviors are recognizing daughters' perspectives, providing a clear rationale when explaining values and attitudes, and allowing daughters to choose the extent to which they agree and adopt the attitudes of their mother (Knafo & Assor, 2007). Because most of the mothers in the sample held fairly negative views regarding teen pregnancy, and because teen pregnancy is associated with negative outcomes and consequences (Borkowski, Whitman, & Farris, 2007), perhaps under conditions of low maternal acceptance, mothers provided extremely limited autonomy and instead promoted controlled motivation for daughters to adopt similar values. An example of this controlled motivation is daughters accepting their mothers' teen pregnancy attitudes out of fear of the potential consequences. Contrastingly, under conditions of high maternal acceptance, perhaps mothers allow for more autonomy. The lack of a significant association between mothers' and daughters' teen pregnancy attitudes may be because daughters feel more supported in exploring their own attitudes, rather than feeling pressured to accept their mothers' attitudes.

Limitations and Future Directions

While this study adds to the existing literature in several ways, it is not without limitations. First, it is important to consider that our sample size was fairly small, and we may have found more significant findings with a larger sample. Similarly, our three-way interaction model was trending towards significance, but not significant at the $p = .05$ level, which is likely due to our small sample size. Given that the follow-up tests were significant, however, that leads to greater confidence in the findings. Second, our sample

was predominately white and highly educated, which means that these findings may not be generalizable to other populations and future studies should utilize larger and more diverse samples. Third, only mothers were included in the study and fathers may also have a significant role in the socialization of their daughters' attitudes toward teen pregnancy. Future studies should include fathers in the sample to recognize their unique influence on daughters' teen pregnancy attitudes. Fourth, no variables about sister-sister value transmission were included in this study. Future research should also analyze the associations between sisters' teen pregnancy attitudes. Fifth, this study only considers attitudes towards teen pregnancy and not engagement in risky sexual behaviors, which is more directly related to experiencing a teen pregnancy. While we did not directly include engagement in behaviors in this study, the Health Belief Model (Skinner, Tiro, & Champion, 2015) suggests that attitudes predict engagement in behaviors. It is important for future studies to test aspects of the Health Belief Model and examine how mothers' attitudes toward teen pregnancy are associated with their daughters' attitudes toward teen pregnancy, and later pregnancy intentions and sexual behaviors.

Teenage pregnancy remains a salient public health issue within the United States, and it is important to examine factors predicting teen pregnancy, such as adolescents' attitudes toward teen pregnancy. Consistent with the Health Belief Model, if adolescents have a positive view of teen pregnancy, they are less likely to engage in health behaviors (e.g. using a condom or other birth control method) that limit their risk for experiencing a pregnancy (Skinner, Tiro, & Champion, 2015). In the current study, I found that mothers' teen pregnancy attitudes were particularly important for their older daughters' attitudes (compared to their younger daughters' attitudes); however, the findings were not in the

expected direction. Unlike other studies examining the transmission of sexual attitudes from parent to child (Kincaid et al., 2012; Dittus & Jaccard, 2000) and the hypotheses based on Christopher's (2001) theory of adolescent sexuality development, in my sample, the transmission of teen pregnancy attitudes from mothers to daughters did not occur in the context of high levels of acceptance from mothers, but rather in the context of low levels of acceptance from mothers. Potentially, the transmission of attitudes toward teen pregnancy from mother to daughter may work differently than attitudes toward other aspects of adolescents' sexuality and the findings need to be replicated and expanded in future studies.

APPENDIX

Table 1
Descriptive Statistics and Correlations for All Study Variables

	1	2	3	4	5
1. Birth Order	---				
2. Mothers' Attitudes T1	0	---			
3. Daughters' Attitudes T1	.07	.16	---		
4. Daughters' Attitudes T2	.08	.29*	.70**	---	
5. Mothers' Acceptance	-.07	.06	.09	.02	---
<i>M</i>		1.44	1.86	1.85	4.01
<i>SD</i>		.64	.72	.94	0.56

Note. * $p < .05$. ** $p < .01$.

Table 2

Descriptive Statistics and Correlations for All Study Variables with Older Daughters Above the Diagonal (n = 35) and Younger Daughters Below the Diagonal (n = 35)

	1	2	3	4
1. Mothers' Attitudes T1	---	.02	.25	-.03
2. Daughters' Attitudes T1	.30	---	.72**	.13
3. Daughters' Attitudes T2	.35*	.69**	---	.06
4. Mothers' Acceptance	.18	.05	0	---
Older Daughters' <i>M</i>	1.44	1.96	1.98	3.92
Older Daughters' <i>SD</i>	.64	.76	.74	0.70
Younger Daughters' <i>M</i>	1.44	1.86	1.85	4.01
Younger Daughters' <i>SD</i>	0.64	0.72	0.93	0.56

Note. * $p < .05$. ** $p < .01$.

Table 3

Standardized Parameter Estimates (Standard Errors) for Final Multilevel Models examining Associations between Time 1 Mothers' Teen Pregnancy Attitudes and Time 2 Adolescents' Teen Pregnancy Attitudes, with Moderators

	Adolescents' Attitudes (T2)
Intercept	1.82 (.11)**
Birth Order	.08 (.14)
T1 Mothers' Attitudes	.32 (.17)†
T1 Daughters' Attitudes	.66 (.09)**
T1 Acceptance	-.17 (.22)
T1 Acceptance X Birth Order	.06 (.25)
T1 Acceptance X Mothers' Attitudes	-.05 (.26)
Mothers' Attitudes X Birth Order	-.11 (.21)
Mothers' Acceptance X Mothers' Attitudes X Birth Order	-.65 (.35)†

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

Table 4

Standardized Parameter Estimates (Standard Errors) for Final Regression Analyses examining Associations between Time 1 Mothers' Teen Pregnancy Attitudes and Time 2 Adolescents' Teen Pregnancy Attitudes

	Younger Sisters	Older Sisters
Step One		
Mothers' Attitudes	.3 (.18)	.25 (.14)
Daughters' Attitudes	.74 (.16)**	.67 (.11)**
Mothers' Acceptance	-.18 (.2)	-.02 (.13)
Step Two		
Mothers' Attitudes	.3 (.18)	.21 (.12)
Daughters' Attitudes	.74 (.17)**	.64 (.1)**
Mothers' Acceptance	-.17 (.22)	-.1 (.12)
Mothers' Acceptance X Mothers' Attitudes	-.03 (.27)	-.71 (.24)**

Note. * $p < .05$. ** $p < .01$.

Table 5

Standardized Parameter Estimates (Standard Errors) for Final Regression Analyses examining Associations between Time 1 Mothers' Teen Pregnancy Attitudes and Time 2 Adolescents' Teen Pregnancy Attitudes, with Maternal Acceptance and Birth Order Moderators

	Adolescents' Attitudes (T2)
Intercept	1.85 (.11)**
T1 Mothers' Attitudes	.26 (.10)
T1 Acceptance	-.07 (.11)
T1 Acceptance X T1 Mothers' Attitudes	-.31 (.17) [†]
Birth Order	.11 (.14)
Birth Order X T1 Mothers' Attitudes	-.04 (.23)

[†] $p < .10$. * $p < .05$. ** $p < .01$

Figure 1. Interaction between mothers' attitudes toward pregnancy and older daughters' attitudes toward teen pregnancy moderated by maternal acceptance.

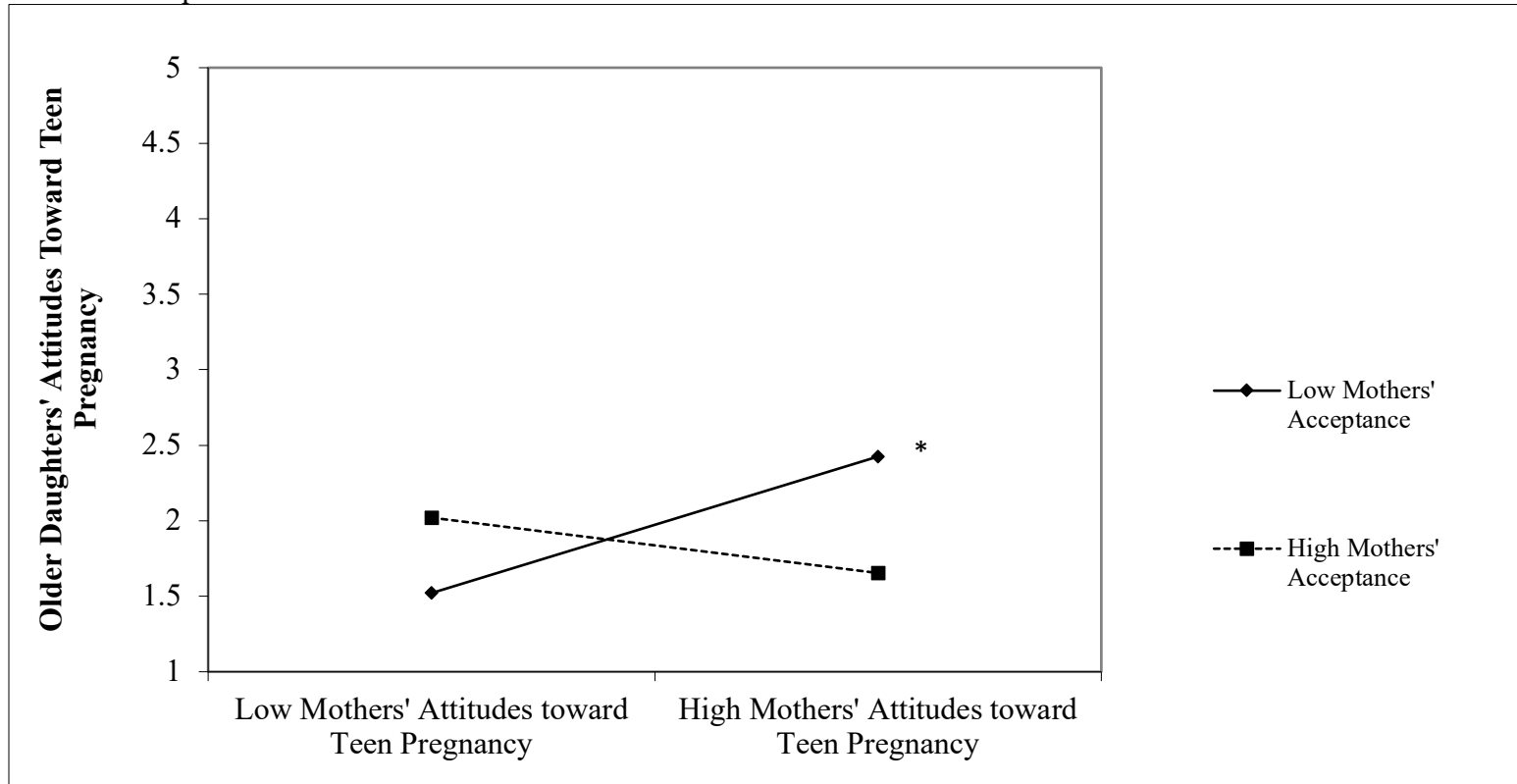


Figure 2. Interaction between mothers' attitudes toward pregnancy and younger daughters' attitudes toward teen pregnancy moderated by mothers' acceptance.

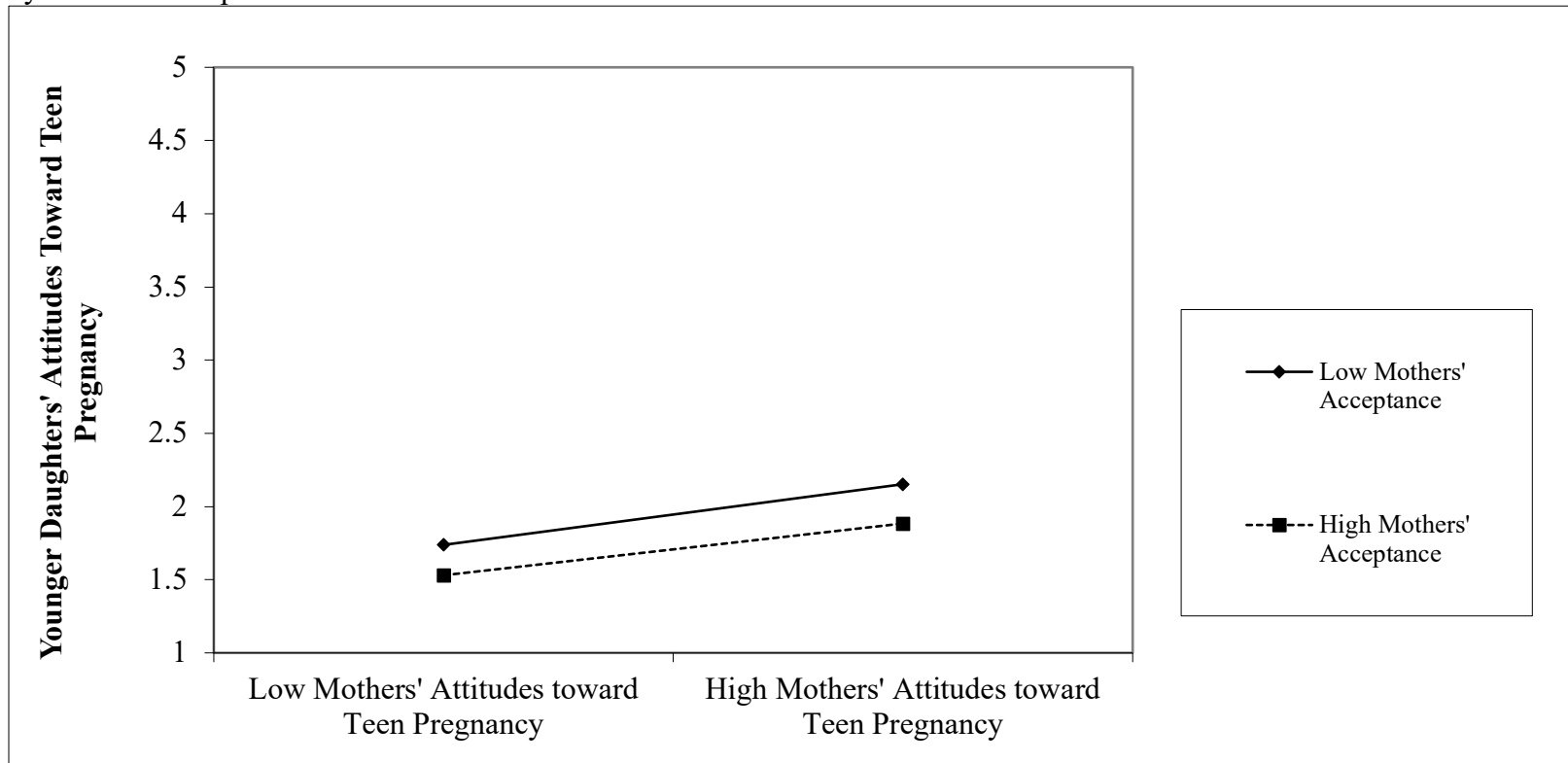
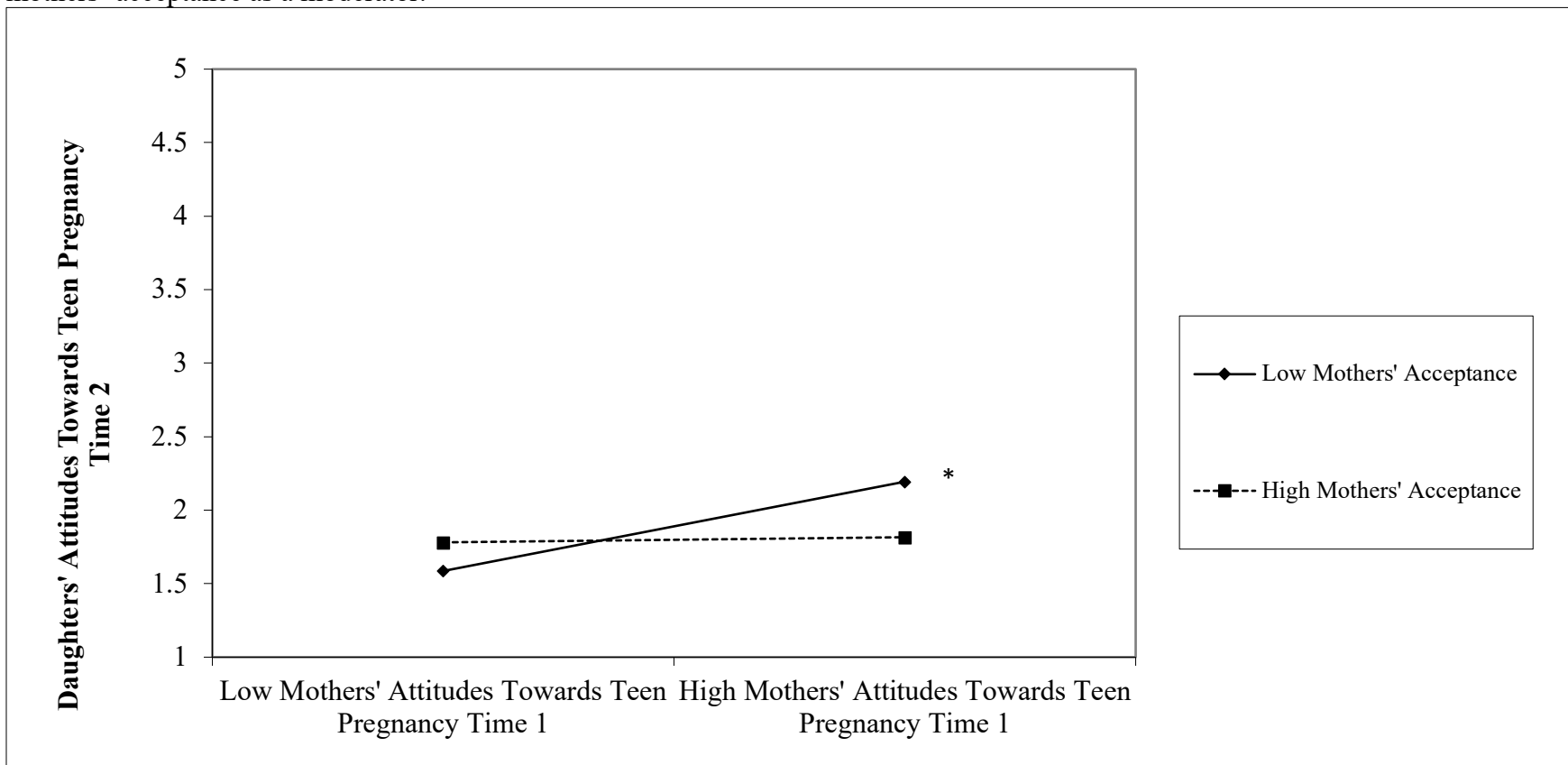


Figure 3. Two-way Interaction between mothers' attitudes toward teen pregnancy and daughters' attitudes toward teen pregnancy with mothers' acceptance as a moderator.



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