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*Behav Modif* 2007; 31; 435
DOI: 10.1177/0145445506298411

The online version of this article can be found at:
http://bmo.sagepub.com/cgi/content/abstract/31/4/435
Are Parental Gender Role Beliefs a Predictor of Change in Sexual Communication in a Prevention Program?

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This study examined if pre-intervention maternal gender role beliefs predict change in sexual communication in a sexual risk behavior prevention program designed to increase parent–pre-adolescent communication about sex. A sample of 281 African American fourth and fifth graders and their mothers participated in the five-session program and completed computerized questionnaires at baseline, postintervention, and 6-month follow-up. Based on mother report, more egalitarian maternal gender role beliefs predicted greater increases in parent–pre-adolescent communication about sex at postintervention. Based on pre-adolescent report, similar findings emerged at the 6-month follow-up, but only for boys. The relationship of maternal gender role beliefs to changes in sexual communication was not accounted for by maternal comfort with sexual communication with their pre-adolescents. The implications of maternal gender role beliefs in a prevention program designed to increase communication about sexual topics are considered.

**Keywords:** gender role; sexual communication

Sexual risk behavior among adolescents is prevalent in the United States. According to the Youth Risk Behavior Survey, 46.7% of high school students have engaged in sexual intercourse, with rates higher for males and
minorities. Of those sexually active teens, 37% had not used a condom in their most recent encounter, and few report consistent condom use (Grunbaum et al., 2004). Females in the 15-to-19-year-old age range in the United States account for the highest rates of gonorrhea and chlamydia when compared to females of all other ages (Centers for Disease Control and Prevention [CDC], 2004b). Thirty-four percent of young women become pregnant at least once before they reach the age of 20; 8 in 10 of these pregnancies are unintended, and approximately 82% are to unmarried teens (Hamilton, Martin, Ventura, Sutton, & Menacker, 2005; National Campaign to Prevent Teen Pregnancy, 2005). Furthermore, 39,100 cases of AIDS have been documented for men and women in the 15-to-24-year-old age bracket (CDC, 2004a). Also, many of the 310,046 cases of AIDS reported for men and women in their late 20s and early 30s are likely the result of HIV infection from sexual contact during adolescence and young adulthood, given that it often takes 10 years for HIV infection to progress to AIDS.

The consequences of adolescent sexual risk behavior are cause for national concern. In addition to the sizable fiscal strain that teen pregnancy and sexually transmitted diseases, including HIV and AIDS, place on the U.S. economy, the personal and societal costs of unintended pregnancies and preventable illness are staggering. The United States spends approximately $7 billion annually as a result of teen pregnancies, and teenage mothers are less likely to finish high school and more likely to rely on welfare (National Campaign to Prevent Teen Pregnancy, 2005).

Attention in recent years has focused on development and implementation of prevention programs. Many of these programs have been directed at adolescents, typically in the school setting (Armistead, Kotchick, & Forehand, 2004). These programs have targeted factors such as adolescent knowledge and perception of risk, self-efficacy, and attitudes about sex, but unfortunately, research has largely failed to yield long-term support for the efficacy of the programs (Armistead et al., 2004).

Considering that parents are an important source of influence on pre-adolescent and adolescent sexual behaviors, surprisingly few efforts have focused on the family (see Armistead et al., 2004, for a review). According to the Kaiser Family Foundation (1999), pre-adolescents prefer to receive sexual information from their parents rather than peers or the media.

Authors’ Note: This research was supported by the Centers for Disease Control and Prevention cooperative agreement UG4/CCU417720. The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.
Furthermore, communication about sex between parents and preteens fosters responsible decision making by adolescents (e.g., Dittus, Jaccard, & Gordon, 1999; Karofsky, Zeng, & Kosorok, 2000; Miller, Levin, Whitaker, & Xu, 1998) and is associated with reduced levels of sex risk behavior in adolescence (see Dittus, Miller, Kotchick, & Forehand, 2004, for a review). Based on the premise that interventions need to occur before the adolescent years for prevention of risky sexual behavior to be most successful (Miller, Levin, et al., 1998) and that parents are in a unique position to influence child behavior, the Parents Matter! Program (PMP) was developed and is being evaluated (see Forehand, Miller, Armistead, Kotchick, & Long, 2004). The evaluation component consists of comparing three conditions: a five-session intervention composed of teaching skills, primarily sexual communication, to parents through didactic presentations, videotapes, role-plays, and discussions; a one-session intervention in which the same material is covered in a didactic format; and a one-session control intervention in which general health (e.g., importance of exercise and good nutrition) is discussed. Only the five-session intervention has been associated with an increase in communication about sex education and risk reduction at post-intervention and follow-up assessments. Long, Miller, and their colleagues (2004) found that based on both parent and child report, more sexual communication occurred at postintervention and the 6-month follow-up than at baseline.

Even when effective interventions, such as the PMP, have been developed, the delivery of the programs often faces significant challenges (Hoza, Johnston, Pillow, & Ascough, in press). One way to address the obstacles facing interventions is to identify variables at baseline that predict change and maintenance of change; interventions can then be modified to target deficits or excesses in these predictors, potentially improving intervention outcome. A number of such variables have been identified in parenting programs designed to change general child problem behavior, including severity of child problems, family socioeconomic status, and parental distress (see Hoza et al., in press, for a review). Hoza and her colleagues (in press) noted that parental cognitions and beliefs may play a critical role in predicting change in parenting interventions; however, they emphasize that such variables, for the most part, have been ignored in the literature.

Examining select cognitive or belief variables that may serve as predictors of change requires consideration of both the content of the prevention program and the predictor variable. When the content of a program focuses on parental communication about sexual behavior, a potentially important
predictor is the gender role beliefs of the parent. Gender role beliefs can be conceptualized as an individual’s internalization of historical, community, and societal values, practices, and expectations regarding one’s gender (Tenebaum & Leaper, 2002). In the only study directly addressing the association between such beliefs and sexual communication, Ketchen and her colleagues (2005) found that mothers with more traditional gender role beliefs were less likely to discuss sexual risk reduction topics (e.g., HIV/AIDS), but equally likely to discuss sexual education topics (e.g., dating) with their pre-adolescents. Although there are no data on the role of parental gender role beliefs in forecasting whether a parent increases sexual communication in response to an intervention effort, some research, delineated below, suggests this is an important belief variable to consider, particularly for mothers who are the primary communicators about sex with their offspring (DiIorio, Kelley, & Hockenberry-Eaton, 1999; Miller, Kotchick, Dorsey, Forehand & Ham, 1998; Wyckoff et al., 2006). Because traditional gender role beliefs include the expectation that men will initiate sexual activity (Morokoff, 1990; Muehlenhard & McCoy, 1991), mothers with traditional beliefs may be less open and responsive to information about sexual communication in an intervention. These women may not feel comfortable in communicating about sexual topics with their pre-adolescents, and lack of comfort (e.g., fear of embarrassment) has been associated with lower levels of sexual communication (Jaccard, Dittus, & Gordon, 2000).

This study focused on African American mothers and their 9-to-12-year-old pre-adolescent offspring who participated in the five-session intervention of the PMP. Prevention efforts with these families and children of this age are important, as 19% of African American youth engage in sexual intercourse before age 13 (CDC, 2004a). As substantial research indicates that mothers communicate more about sex with their pre-adolescents and adolescents than fathers (e.g. Miller, Levin, et al., 1998; Wyckoff et al., 2006), it is important not to ignore gender of parent. Because mothers primarily participated in the PMP intervention program, and, as just noted, primarily communicate about sex with their children, they are examined in the study.

We build on the findings by Long, Miller, et al. (2004) indicating increased sexual communication between parents and children in the five-session intervention by examining maternal gender role beliefs. We hypothesize that maternal gender role beliefs will serve as a predictor of change in parent–child communication about sex in a prevention program designed to increase sexual communication. Specifically, we expect more traditional maternal sex role beliefs (i.e., the belief in male-dominated power and decision making) will be associated with smaller increases in parent–child
sexual communication than more egalitarian beliefs from baseline to postintervention and from postintervention to the 6-month follow-up. We were interested in change from postintervention to follow-up to ascertain if change continued to occur after intervention and to detect any delayed changes in pre-adolescents’ detection of increased sexual communication (DeGarmo, Patterson, & Forgatch, 2004). We also consider the potential role of child gender in moderating the relationship between gender role beliefs and change in sexual communication. However, as there are no theoretical models or data to support proposing a hypothesis, we view our examination of child gender as a moderator as exploratory. Finally, based on the potential role of maternal comfort (i.e., parents with traditional gender role beliefs may feel less comfortable in communicating with their pre-adolescents about sexual topics), we examined whether maternal gender role beliefs would continue to be a significant predictor of change in sexual communication after maternal comfort with sexual communication was taken into account. We viewed this as a secondary question and hypothesized that gender role beliefs would no longer be a significant predictor of change in sexual communication when considered in the context of maternal comfort.

Method

Overview

This study presents data from the PMP, a longitudinal study funded by the CDC. The purpose of PMP is to assess the efficacy of several different family interventions designed to prevent adolescent risk-taking sexual behavior by increasing parent–pre-adolescent communication about sexual topics (see Forehand et al., 2004). African American mother–pre-adolescent dyads are being followed for 3 years in order to assess change in parent and pre-adolescent sexual attitudes and beliefs, communication, and risk behaviors; these variables are measured both prior to and immediately following the intervention, as well as at 6, 12, 24, and 36 months after intervention (see Ball, Pelton, Forehand, Long, & Wallace, 2004). The intervention is multisite, spanning both urban and rural areas, including Atlanta, Georgia; Athens, Georgia; and Little Rock, Arkansas. Results reported in this study are based on baseline, posttreatment, and 6-month follow-up data collected in the PMP with families randomly assigned to the five-session sexual communication program shown by Long, Miller, et al. (2004) to be effective in changing sexual communication.
Participants

The initial sample consisted of 1,128 African American mother–pre-adolescent dyads. To be eligible, the following criteria had to be met: (a) the target pre-adolescent was enrolled in the fourth or fifth grade and was between the ages of 9 and 12 years at the time of baseline assessment; (b) the parent was the biological parent or legal guardian of the target pre-adolescent and had lived with him or her continuously for at least 3 years; (c) the parent self-identified as African American; and (d) both the parent and pre-adolescent were fluent in English. Of the 1,128 dyads enrolled, 13 did not meet the eligibility requirements and were thus excluded from the study.

Of the remaining 1,115 dyads, families were randomized to one of the following interventions in each of three sites: (a) the five-session sex communication program; (b) a one-session sex communication program; or (c) a one-session general health (control) program. Of 378 families randomly assigned to the five-session program, 46 of these families were excluded from the current analyses because the participating parent was not the biological or adoptive parent or the stepmother; 281 of the remaining 332 attended at least one session and completed the postintervention assessment, and 262 completed the 6-month follow-up assessment. The demographic characteristics of the 281 families who attended at least one assessment and completed the postassessment are shown in Table 1.

Measures

To ensure that all measures utilized in data collection were appropriate for the participant sample, focus groups in the African American community were conducted. In addition, fourth- and fifth-grade teachers were consulted, and pilot participants were seen.

Demographic information. Each dyad was asked to provide standard demographic information. Mothers provided information about gender, ethnicity, marital status, family income per month, and education level. Pre-adolescents provided information regarding their gender, age, and grade level.

Communication about sex. To assess how often parents communicated about sex with their pre-adolescents, both members of the dyad were asked nine questions used by Forehand et al. (2006) in research with this sample. Mothers and pre-adolescents were asked to respond to each question by selecting never, once or twice, or lots of times. Sample questions were “How many
Table 1

Demographic Characteristics of the African American Sample Participating in the Five-Session Intervention Study of Parent–Pre-Adolescent Sexual Communication Recruited From 2001-2003 in Atlanta, Georgia; Athens, Georgia; and Little Rock, Arkansas (n = 281)

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-adolescent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 5</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>10.51</td>
<td>0.80</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>35.86</td>
<td>7.96</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended high school</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed high school</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended college</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-year degree</td>
<td>13</td>
<td></td>
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</tr>
<tr>
<td>4-year degree</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Family</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>$0 to $199</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$200 to $499</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$500 to $999</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1,000 to $1,999</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2,000 to $2,999</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$3,000 to $3,999</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$4,000 or more</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

times [have you, has your mother] ever talked to [your pre-adolescent, you] about dating or going out with a boy/girl?” “How many times [have you, has your mother] ever talked to [your pre-adolescent, you] about abstinence or waiting to have sex?” and “How many times [have you, has your mother]
ever talked to [your child, you] about HIV/AIDS?” As the responses were highly skewed, responses to each item were converted to a Never and Ever scale. The items then were summed for each member of the dyad to form a scale score, with higher scores indicating more communication. The alpha coefficients ranged from .77 to .84 at the three assessment time points based on mother report and ranged from .81 to .83 based on pre-adolescent report.

**Gender role beliefs.** Mothers were asked to respond to 13 statements regarding gender roles by selecting not at all true, a little true, or very true. Six of the 13 statements are from Hoffman and Kloska’s (1995) measure of parents’ gender-based attitudes toward marital roles and child rearing, 3 of the items are from the Attitudes Toward Women Scale for Adolescents (Galambos, Petersen, Richards, & Gitelson, 1985), and the remaining 3 items were written and included specifically for this preventive intervention. Questions included, “A man should help in the house, but housework and childcare should mainly be a woman’s job” and “If a boy and girl are going out, the girl should have sex with the boy even if she doesn’t really want to.” Items were summed to form a scale score, with higher scores indicating more traditional (less egalitarian) gender role beliefs. The alpha coefficient was .71.

**Parental comfort with sexual communication.** The parent’s comfort and confidence in communicating with her or his pre-adolescent about sex was assessed at baseline by five items reported by the parent (e.g., “I feel comfortable talking to my son/daughter about sexual topics”). Each item was completed by selecting not at all true, a little true, or very true. The alpha coefficient was .79.

**Participant dropout.** To determine if maternal gender role beliefs were related to participant retention in the study, intervention dropout and follow-up dropout were defined as follows: (a) dropout from baseline to postintervention was defined as failure to attend any of the five intervention sessions or attendance of at least one session but not the postassessment and (b) follow-up dropout was defined as failure to attend the 6-month assessment.

**Procedures**

Community liaisons, employed as project staff, collaborated with key personnel in the community (e.g., school principals, housing authority staff,
ministers) who aided recruitment efforts in schools, churches, recreation centers, and other community agencies. In addition, participants were recruited through advertising, referrals, local health fairs, and parent-teacher association meetings (see Ball et al., 2004, for more detail).

Potential participants were screened for eligibility with a standardized form that described the nature of the research followed by questions about demographics, study criteria, and contact information. Families who met the initial eligibility requirements and who agreed to participate made appointments to provide informed consent and assent and complete the baseline assessment.

At the baseline assessment, an African American research assistant obtained consent from the parent, obtained assent from the pre-adolescent, and explained the assessment procedure. The mother and pre-adolescent were seated at computer terminals spaced adequately apart to ensure confidentiality of responses and then asked to answer questions that were delivered both visually on the computer screen and audibly by a computerized voice over headphones. Pre-adolescent assessments were designed to be approximately 30 min in length, and mother assessments were designed to be approximately 45 min in length.

The intervention involved five weekly 2 ½-hour sessions, each led by two African American facilitators. There were two preliminary components (risk awareness and parenting practices) delivered in the first two sessions and a primary component on sexual communication delivered in Sessions 3 to 5. Sexual communication focused on increasing parents’ communication about sexual topics and their confidence and comfort with communicating with their pre-adolescents regarding sexual behavior. This intervention was delivered using multiple teaching strategies including structured learning experiences, discussion, videotapes, overheads, role-plays, group exercises, and homework assignments. The focus was on parents, but pre-adolescents did attend part of the fifth session in order for parents to practice communication skills (see Long, Austin, et al., 2004).

A postintervention assessment occurred within 1 to 2 weeks of Session 5. A follow-up assessment occurred 6 months after the postintervention assessment.

After completion of the assessment battery at the baseline, postintervention, and follow-up time points, each participant was debriefed and compensated. Families were given $25 for each assessment and each intervention session for any expenses incurred (e.g., child care, transportation).


Results

Preliminary Analyses

As PMP is being implemented and evaluated at three different sites across the United States (Athens, GA; Little Rock, AR; Atlanta, GA), site differences on the variables of interest were tested. Those variables included maternal gender role beliefs, maternal report of communication about sexual topics, and pre-adolescent report of communication about sexual topics. There were no significant differences across sites during preliminary analyses; therefore, the sample was collapsed across sites for all subsequent analyses.

We next examined if maternal gender role beliefs were related to intervention participation. Participants who were retained versus those who dropped out from the baseline to postintervention assessment were compared by way of a one-way ANOVA. The two groups did not differ, $F(1, 330) = .14$; means for maternal gender role beliefs for retained participants and those who dropped out were 17.46 and 17.68, respectively. Participants who were retained versus those who dropped out from the postintervention to the 6-month assessment, however, did differ significantly, $F(1, 279) = 4.34$, $p < .05$; means for dropouts and retained were 18.87 and 17.36, respectively. Mothers who were retained had less traditional (i.e., more egalitarian) gender role beliefs.

We examined if those retained versus those who dropped out differed on demographic variables and sexual communication. ANOVAs for pre-adolescent age, parent age, and sexual communication did not reveal any significant differences. Chi-square analyses for pre-adolescent grade and gender, parent education and marital status, and family income also revealed no significant differences.

The mean of the predictor variable, maternal gender role beliefs at baseline, was 17.5. The means for the parent report of sexual communication at baseline, postintervention, and 6-month follow-up were 6.08, 7.52, and 7.72, respectively. The means for pre-adolescent report of sexual communication at the same three assessments were 5.00, 6.55, and 6.40. The mean for comfort with sexual communication was 11.39.

Next, each of the six demographic variables in Table 1 were entered into a separate regression equation to determine if it was related to each of the outcome variables ($p < .05$) and would, therefore, need to be controlled. Both higher maternal education ($\beta = .11$, $p < .05$) and higher monthly family income ($\beta = .11$, $p < .05$) were related to pre-adolescent report of
more communication about sex at postintervention. Demographic variables were not significantly related to mother report of communication about sex at postintervention. At follow-up, pre-adolescent gender ($\beta = .23, p < .01$) and maternal age ($\beta = -.14, p < .01$) were related to maternal report of communication about sex. Girls, relative to boys, reported more sexual communication, and older mothers reported less communication about sex. Finally, higher maternal age was related to pre-adolescent report of more communication about sex at follow-up ($\beta = .14, p < .01$). These demographic variables were included in the appropriate regression analyses subsequently conducted.

**Primary Analyses**

The main objective of this study was to examine if maternal gender role beliefs at baseline would predict change in sexual communication from baseline to postintervention and from the postintervention assessment to the 6-month assessment. Pre-adolescent gender was also explored to examine if it qualified the relationship between maternal gender role beliefs and communication. To control for multicollinearity, all continuous variables were centered prior to conducting the analyses. The findings are summarized below; tables detailing the analyses are available from the corresponding author.

**Predicting changes in communication about sex at postintervention.** To determine the role of maternal gender role beliefs in change from baseline to postintervention communication about sexual education topics, two hierarchical regressions were conducted, one assessing mother report of communication and a second assessing pre-adolescent report of communication. In the mother-reported sexual communication regression, Block 1 consisted of the baseline score for mother report of sexual communication and pre-adolescent gender. In Block 2, baseline maternal gender role beliefs were entered, and in Block 3, the interaction term, pre-adolescent gender by maternal gender role beliefs, was entered.

A main effect of maternal gender role beliefs on communication about sex education topics emerged ($\beta = -.14, p < .01$), indicating that as maternal gender role beliefs were more egalitarian, there was a greater increase in parent–pre-adolescent communication about sex from baseline to postintervention. The interaction between gender role beliefs and pre-adolescent gender was not significant ($\beta = -.37$).
In the pre-adolescent-reported communication regression, Block 1 consisted of the baseline pre-adolescent’s report of sexual communication, pre-adolescent gender, and the demographics variables, maternal education and monthly family income, that were associated with this outcome variable. In Block 2, baseline maternal gender role beliefs were entered, and in Block 3, the interaction term, pre-adolescent gender by maternal gender role beliefs, was entered. Neither maternal gender role beliefs (β = –.04) nor the interaction between pre-adolescent gender and maternal gender role beliefs (β = .24) was significant.

**Predicting changes in communication about sex at follow-up.** Two hierarchical regressions, one based on mother report and one based on pre-adolescent report, were conducted to assess if maternal gender role beliefs predicted change in communication about sexual education from postintervention to the 6-month follow-up and if pre-adolescent gender qualified this association. The first regression examined maternal report: Block 1 consisted of the postintervention maternal report sexual communication score, pre-adolescent gender, and maternal age; Block 2 consisted of maternal gender role beliefs; and Block 3 consisted of the pre-adolescent gender by maternal gender role beliefs interaction term. Neither the main effect for maternal report of gender role beliefs (β = –.05) nor the maternal gender role beliefs by child gender interaction (β = .23) was significant.

The second regression examined pre-adolescent reported communication about sexual education topics: Block 1 consisted of the postintervention pre-adolescent report sexual communication score, maternal age, and child gender; Block 2 consisted of maternal gender role beliefs; and Block 3 consisted of the pre-adolescent gender by maternal gender role beliefs interaction term. The main effect for maternal gender role beliefs was significant (β = –.11, p < .05); however, this main effect was qualified by a maternal gender role beliefs by pre-adolescent gender interaction (β = .68, p < .05). To explicate the interaction, separate regression analyses were conducted with boys and girls. Maternal gender role beliefs predicted change from postintervention to the 6-month follow-up for boys (β = –.21, p < .01), but not for girls (β = –.03). The main effect for boys indicates that as maternal gender role beliefs became more egalitarian, communication about sexual education topics increased from postintervention to the follow-up.
Secondary Analyses

To examine whether maternal gender role beliefs would continue to be a significant predictor when maternal comfort with sexual communication was entered into the regression equation, the analyses were repeated entering both maternal comfort and gender role beliefs in Block 2. The major findings are summarized in Table 2. The entry of maternal comfort with sexual communication did not reduce the standardized beta weight for maternal gender role beliefs. Furthermore, the standardized beta weight for comfort with sexual communication was significant in the two regression analyses where the standardized beta weight for maternal gender role beliefs was not significant (i.e., pre-adolescent report at postintervention and maternal report at follow-up). In addition to the findings displayed in Table 2, the interaction term for child gender by maternal gender role beliefs at follow-up based on pre-adolescent report remained significant.

Table 2

Standardized Beta Weights for Maternal Gender Role Beliefs Before and After Entry of Maternal Comfort With Sexual Communication Predicting Change in Sexual Communication at Postintervention and Follow-Up for Sample Recruited From 2001-2003 in Atlanta, Georgia; Athens, Georgia; and Little Rock, Arkansas

<table>
<thead>
<tr>
<th>Maternal Gender Role Beliefs</th>
<th>Regression Analysis Before</th>
<th>After</th>
<th>Maternal Comfort b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Change in sexual communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At postintervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother report</td>
<td>-.14**</td>
<td>-.14**</td>
<td>.06</td>
</tr>
<tr>
<td>Pre-adolescent report</td>
<td>-.04</td>
<td>-.04</td>
<td>.13**</td>
</tr>
<tr>
<td>At follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother report</td>
<td>-.05</td>
<td>-.06</td>
<td>.18**</td>
</tr>
<tr>
<td>Pre-adolescent report</td>
<td>-.11*</td>
<td>-.11*</td>
<td>.07</td>
</tr>
</tbody>
</table>

a. A significant negative beta weight means that as maternal gender role beliefs were more egalitarian, a greater increase in sexual communication occurred. Beta weights are reported before and after entry of maternal comfort with sexual communication.
b. A significant positive beta weight indicates that as maternal comfort with sexual communication increased, a greater increase in sexual communication occurred.

*p < .05. **p < .01.
Discussion

This study examined whether maternal gender role beliefs predict change in sexual communication between mothers and pre-adolescents from baseline to postintervention and from postintervention to a 6-month follow-up. Although significant associations were found in only some analyses, the findings do provide some support for the hypotheses, as more egalitarian gender role beliefs were associated with more sexual communication at postintervention (based on mother report) and at the 6-month follow-up for boys (based on pre-adolescent report). In addition, secondary analyses suggested that maternal gender role beliefs and maternal comfort with sexual communication make independent contributions to changes in sexual communication. Finally, preliminary bivariate analyses also suggested that maternal gender role beliefs were associated with which participants were retained at follow-up.

In line with the study hypotheses, maternal gender role beliefs were a significant predictor of change in communication about sexual topics at the conclusion of the prevention program based on mother report. In particular, mothers holding more egalitarian perspectives had greater increases in sexual communication, regardless of the gender of the pre-adolescent. Based on Jaccard et al. (2000), we examined whether maternal comfort with sexual communication would account for the relationship between maternal gender role beliefs and changes in sexual communication. Our findings failed to provide any support for this hypothesis. An alternative explanation, which could be examined in future research, is that mothers with egalitarian sex role beliefs at baseline may have been more responsive to a sexual communication intervention because of feeling equally responsible with adult males for having conversations about sex with their offspring. The corollary is that mothers with less egalitarian sex role beliefs, who expect adult males to initiate sexual activity (Morokoff, 1990; Muehlenhard & McCoy, 1991), may feel that the responsibility to discuss sexual education topics falls to a male figure (e.g., father, boyfriend) or an institution (e.g., school, religious organization). As a consequence, these mothers may be less responsive to a sexual communication intervention. Thus, rather than comfort with sexual communication accounting for the relationship between gender role beliefs and changes in sexual communication, it may be that responsibility to educate accounts for the relationship.
As expected, maternal gender role beliefs related to change in communication at follow-up; however, this relationship was significant only for boys (according to child report). The available literature suggests that whereas parents report having discussed sexual topics with their adolescents, the adolescents do not always confirm parental reports (e.g., DiLorio et al., 1999; Jaccard, Dittus, & Gordon, 1998; Miller, Kotchick, et al., 1998). As a consequence, mothers with more egalitarian gender role beliefs may have made more of an effort to increase sexual communication during intervention and reported that increase in communication at the postassessment; however, consistent with the literature (e.g., Miller, Kotchick, et al., 1998), their efforts may have been largely unnoticed during and immediately after intervention by their pre-adolescents. This explanation is consistent with DeGarmo et al.’s (2004) conclusion that primary targets of intervention (e.g., maternal sexual communication) change during and immediately after treatment, whereas secondary targets (e.g., pre-adolescent perception of maternal sexual communication) change more slowly. By the 6-month follow-up, boys in the current study appear to have noted this increased communication by mothers with more egalitarian gender role beliefs and reported the change.

Why would egalitarian maternal gender role beliefs predict change in sexual communication at follow-up for boys but not girls? One potential explanation is that mothers and their sons are less likely to communicate about sex than mothers and their daughters (e.g., Miller, Kotchick, et al., 1998; Raffaelli, Bogenschneider, & Flood, 1998; Wyckoff et al., 2006). Pre-intervention variables, such as maternal gender role beliefs, may have more of an impact in increasing low-rate behavior that may not normally occur without intervention. As a consequence, maternal gender role beliefs at pre-intervention only predicted change in sexual communication during follow-up for boys.

Gender role beliefs not only predicted change in sexual communication but, in bivariate analyses, differentiated participants retained versus not retained during follow-up; namely, mothers with more conservative gender role beliefs were more likely to drop out of the follow-up assessment. Prior research has identified a number of predictor variables of retention versus dropout in parenting programs (e.g., ethnic minority status, low socioeconomic status; see Herschell, McNeil, & McNeil, 2004, for a review). Our findings suggest that parent gender role beliefs are an additional variable to consider during follow-up when such programs focus on sexual communication.

As already noted, we examined whether maternal gender role beliefs would remain a significant predictor of changes in sexual communication after maternal comfort with sexual communication was included in the
regression analyses. Gender role beliefs did remain a significant predictor, suggesting that maternal comfort does not explain the relationship of gender role beliefs and change in sexual communication. Instead, our findings suggest that gender role beliefs and comfort with sexual communication are independent predictors: Each predicted change but, in all cases, in separate analyses. Therefore, maternal comfort with sexual communication appears, like gender role beliefs, to be an important baseline variable in forecasting change during intervention.

This study had several limitations that should be noted. Although the data were collected at multiple sites, the sample is not nationally representative and is only from southeastern states. This geographic location may have affected gender role beliefs, which would limit the generalization of the findings. Second, the age range and ethnicity of the sample (9-to-12-year-old African Americans) further limits the generalization of findings. Third, because the participant responses on the measure of communication about sex were highly skewed, responses to each item were converted from a 3-point Likert-type scale to a binary scale. This conversion, which was necessary based on the response distribution on the measure, may have restricted the sensitivity of the measure, especially from the postintervention to follow-up time point: If a participant indicated ever discussing a topic at postintervention, the scale would not capture any improvement at follow-up. Fourth, although the measure intended to assess gender role beliefs is based in part on two well-established inventories (Galambos et al., 1985; Hoffman & Kloska, 1995), some of the questions were designed explicitly for this preventive intervention; thus, the psychometrics of this measure are not yet well established. Future research may be improved by the addition of other measures of gender role beliefs. Finally, although this study found some support for gender role beliefs as a predictor of change in sexual communication, this does not preclude there being other variables that also predict change. As we demonstrated, maternal comfort with sexual communication made an independent contribution. Future research can compare gender role beliefs to other potential predictors of change in programs designated to promote sexual communication.

This investigation also had a number of strengths. First, attention was focused on an ethnic minority group that has been identified as at risk for early onset of sexual behavior and the associated risks. Second, multiple informants (both mothers and pre-adolescents) were utilized as sources of data and analyzed separately, which is especially salient given the well-documented discrepancy between child and parent report (Achenbach, McConaughy, & Howell, 1987). Third, the measures used and the interviewers
chosen were sensitive to the cultural issues of the sample. And finally, follow-up data were included in the analyses.

Because maternal gender role beliefs were predictive of both change in communication about sex and retention at follow-up, there are several implications for future preventions and interventions designed to reduce risky sexual behavior. First, prevention programs designed to increase parent–pre-adolescent sexual communication could assess parent gender role beliefs. The information obtained from such an assessment can inform group leaders about which parents may have more difficulty implementing communication about sex. Those parents with less egalitarian beliefs can receive a more intense intervention within the context of the group (e.g., reviewing their homework, eliciting other concerns about the intervention), individual assistance outside of the group (e.g., telephone calls between sessions about use of skills), or, if necessary, different prevention programs tailored to their gender role beliefs. Second, rather than directly focusing on gender role beliefs, the importance of sexual communication and the skills taught to increase such communication could be further emphasized by expanding the number of sessions. Individual gender role beliefs may be rendered less influential on prevention outcome when parents more fully understand the importance of sexual communication and have the skills to more effectively implement such communication. Finally, maternal comfort with sexual communication also could be assessed at pre-intervention and this information utilized during intervention by group leaders in the same ways (e.g., more intensive intervention) suggested for gender role beliefs.

References


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