Understanding the Relationship between Religiosity and Caregiver–Adolescent Communication About Sex within African-American Families

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Abstract Caregiver–adolescent communication about sex plays a critical role in the sexual socialization of youth. Many caregivers, however, do not engage their youth in such conversations, potentially placing them at risk for negative sexual health outcomes. Lack of caregiver–adolescent communication about sex may be particularly harmful for rural African American youth, as they often report early sex initiation and are disproportionately impacted by STIs. Moreover, sexual communication may be particularly challenging for families with strong religious backgrounds, potentially affecting the occurrence and breadth of topics covered during communication. Study aims were to: determine whether there was a relationship between caregiver religiosity and type of topics covered during communication about sex (e.g., general sexual health vs. positive aspects of sexuality) among 435 caregivers of early adolescent, African American youth; and if so, identify factors that might explain how religiosity affects communication about sex. Results indicated that caregiver religiosity was positively associated with communication about general, but not positive aspects of sexuality for caregivers of males. Attitudes towards communication about sex and open communication style mediated the relationship. There was no association between religiosity and communication about sex for caregivers of females. The findings from this study could provide a base to better understand and support the sexual socialization process within religious, African American families.

Keywords Parent-teen communication about sex · African American · Rural · Religiosity

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Introduction

Caregiver–adolescent communication about sex plays a critical role in the sexual socialization of youth, as parents are uniquely positioned to shape their early adolescents' sexual attitudes, beliefs, expectations, and values (Jerman and Constantine 2010). Researchers and practitioners have long recognized communication about sex as a desirable and practical approach to sex education given its links to delayed sex initiation and increased contraception and condom use

(Bradley et al. 2013; Guilamo-Ramos et al. 2012). Despite the known benefits of caregiver–adolescent communication about sex, many caregivers of early adolescents fail to engage their youth in such conversations (Jerman and Constantine 2010). Lack of such communication has been linked to low self-efficacy, unfavorable attitudes, and poor outcome expectations regarding communication about sex (Guilamo-Ramos et al. 2008; Lehr et al. 2005; Miller et al. 2009; Ritchwood et al. in press). For those who engage their youth in communication about sex, concerns have been raised about the limited range of topics typically covered during such discussions (Martin and Luke 2010; Ritchwood et al. in press; Wyckoff et al. 2008). Thus, identifying and understanding factors that influence the conditions under which caregiver–adolescent communication about sex occurs may be an important step in reducing sexual risk-taking among youth.

Within African American families, religiosity—a combination of faith-based attitudes, beliefs, and practices—may be an especially important determinant of communication about sex. African Americans, for example, report more investment and participation in religious activities than other ethnic groups and have been described as the most religiously-committed, ethnic group in the United States (Ahrold and Meston 2010; Sahgal and Smith 2009; Sinha et al. 2007). As such, religious beliefs (e.g., sanctions against premarital sex) may directly influence whether caregivers talk with their youth about sex and, if they do, what types of topics are covered during such conversations (Williams et al. 2015). African American youth report more frequent caregiver–adolescent communication about sex than their peers from other ethnic backgrounds (Widman et al. 2014). However, the bulk of the previous research on this topic focuses on communication about general sexual health information with much less attention given to communication about the positive aspects of sexuality (Donaldson et al. 2013; Robert and Sonenstein 2010).

Conversations about the positive aspects of sexuality would acknowledge sexuality as a natural, healthy, and pleasurable component of life; validate youth's developmentally appropriate sexual thoughts and feelings; and emphasize aspects of sexuality that are critical to sexual pleasure and functioning (Harden 2014; Robinson et al. 2002; Saliares et al. 2016). Given this definition, more religious caregivers may discuss the positive aspects of sexuality relatively infrequently when compared to communication about general sexual health topics, if at all, due to fears about encouraging premarital sex. Such assertions are largely speculative, as researchers have yet to examine the association between caregiver religiosity and the focus and frequency of caregiver–adolescent communication about sex. A greater understanding of whether and how caregiver religiosity differentially impacts communication about sex could provide insight with regards to how to support caregivers and their youth during communication about specific sexual topics, potentially leading to more open and effective communication, and less sexual risk.

Caregiver and youth gender may also be associated with caregiver–adolescent communication about sex. Previous research within African American families, for example, suggests that youth often rely upon their mothers for information about sex, with mothers having more frequent discussions with their female adolescents than with males (Kapungu et al. 2010; Moore et al. 2015; Williams et al. 2015). In addition to influences upon communication *frequency*, previous research has also suggested that the *focus* of caregiver–adolescent communication about sex may vary by youth gender. A recent meta-analysis, for example, suggested that mothers are more likely to emphasize the negative consequences of sex and sexuality when having conversations with daughters when compared to sons (Widman et al. 2016). Though this meta-analysis did not focus on caregivers of African American youth, it calls for a greater understanding of how youth gender might influence the type of information a caregiver chooses to focus on during communication about sex.

The integrated behavioral model is particularly useful for understanding and characterizing the relationship between caregiver religiosity and communication about sex (Fishbein 2000; Fishbein and Yzer 2003). According to this model, knowledge, attitudes, normative beliefs, and self-efficacy are key factors that could determine whether an individual intends to perform a behavior, and this behavioral intention is a primary determinant of actual behavior. However, behavioral intention requires motivation. As such, it is critical that we identify factors that motivate caregivers to engage their youth in communication about sex and sexuality, as this motivation could impact behavioral intention, thus increasing or decreasing the occurrence of caregiver–adolescent communication about sex and sexuality. Previous research on factors driving communication has shown support for the integrated behavioral model. Particularly, perceived knowledge of sexual health; normative beliefs or expectations that the outcomes of such conversations will be positive; high self-efficacy to have such conversations; and positive attitudes about sexual communication have been linked to caregivers' reasons for engaging their youth in communication about sex (Guilamo-Ramos et al. 2008; Jerman and Constantine 2010; Ritchwood et al. in press; Williams et al. 2015). The integrated behavioral model also asserts that the target behavior must be perceived as important and there must also be an absence of environmental factors that could discourage or prevent the target behavior from being performed.

While inadequate sexual education in many rural schools in the southern U.S. and high rates of sexually transmitted

infections among youth could serve to increase caregivers' motivation to engage their youth in communication about sex (Lloyd et al. 2012), caregivers' religiosity may also have a critical role. Caregivers' religiosity may, for example, impact their attitudes and self-efficacy regarding communication about sex, as well as their level of openness during conversations with their youth, thus influencing actual communication about sex. Namely, religious caregivers might feel less confident in their ability to talk with their youth about sex and may have less positive attitudes about sexual communication with youth due to fears of encouraging premarital sexual behavior. This could lead them to have fewer and more narrowly focused conversations with their youth in an effort to avoid uncomfortable conversations, particularly those related to the positive aspects of sexuality. Alternatively, religious caregivers might feel more confident in their ability to have discussions about sex with their youth that fall within the confines of their religious and spiritual beliefs, thereby leading them to have more positive attitudes about sexual communication. Religious caregivers, for example, may view caregiver–adolescent communication about sex as an opportunity to impart a sexual ideology that is consistent with their religious doctrine thereby advocating for some behaviors while prohibiting those that would be viewed as inconsistent with their beliefs (Regnerus 2005). In this way, a caregiver's level of religiosity could motivate them to engage their youth in communication about sex. Again, these assertions remain speculative and have yet to be tested.

A number of studies link caregiver religiosity to adolescent sexual activity (Landor et al. 2011; Manlove et al. 2008). However, little is known regarding how religiosity impacts communication about sex, especially among religious caregivers of early adolescents who have not yet initiated sex. Therefore, the current study seeks to determine whether and how caregiver religiosity impacts type of communication about sex. We expect greater religiosity to be associated with more frequent caregiver–adolescent communication about general sexual health, but less frequent communication about the positive aspects of sexuality regardless of youth gender. Moreover, we expect positive attitudes and higher self-efficacy regarding communication about sex, and a more open communication style to mediate the relationship between greater caregiver religiosity and more frequent communication about both general sexual health and the positive aspects of sexuality.

Method

Participants

This study utilized baseline data from Teach One Reach One, a risk-reduction intervention that used community-based participatory research methods to train African American early adolescents and their caregivers to disseminate information concerning caregiver–adolescent communication about sex, and adolescent sexual and relationship health and well-being within their social networks (Corbie-Smith et al. 2011, 2010; Ritchwood et al. 2015). We recruited participants between 2008 and 2009 who resided in one of five rural counties in eastern North Carolina that shared similar socio-demographic and socio-economic statuses. Eligible adolescents were between 10 and 14 years of age and self-identified as African American. Eligible caregivers were 18 years or older and either the biological parent, other relative, or legal guardian of the participating adolescent. In acknowledgement of the diversity of adult caregiving roles within African American communities, we use the term *caregiver* to refer to adult study participants who assumed primary or shared responsibility for the health and well-being of the minor participant. To be eligible, caregivers had to respond affirmatively to the following question: "Are you a parent or caregiver to the participating African American youth?" Data were collected from 435 caregivers at baseline.

Procedure

The current study was approved by the Institutional Review Board at a large public university in the southeast region of the United States. We recruited participants by distributing fliers and brochures at local organizations (e.g., churches, schools) and through radio and newspaper announcements. We obtained consent and assent for caregivers and youth, respectively. In cases where the caregiver was not the legal guardian, parental permission was obtained. Prior to administration, investigators piloted all measures for comprehension and adapted the language, where necessary, to ensure readability within our study population. Participants completed hour-long, baseline surveys using audio computer-assisted self-interview (ACASI) at various sites within the community (e.g., community centers, libraries, private conference rooms and offices), with trained facilitators being available to assist them as necessary. Participants were offered an incentive of $30 USD. Additional details about study procedures have been detailed elsewhere (Corbie-Smith et al. 2011, 2010; Dave et al. in press).

Measures

Socio-demographics

We collected information on caregiver age, gender, race, education, annual income, and relation to the participating adolescent (e.g., biological parent, legal guardian, other relative). We also assessed adolescents' age, gender, and

pubertal development. As in prior studies, we measured pubertal development using five items ($\alpha = .68$ for males; $\alpha = .69$ for females) focused on youth's report of the timing of voice deepening and facial hair for males and breast growth and menarche for females (Petersen et al. 1988). Other items asked whether the following developmental indicators had started: growth spurt, body hair growth, and skin changes (e.g., acne) for both males and females. It included sample items such as, "Have you noticed any skin changes, especially pimples?" Responses ranged from 1 (*has not started*) to 4 (*has completed*). Higher scores indicated more complete pubertal development.

For each of the scales listed below, items were summed to create composite scores.

Caregiver–adolescent communication about sex Items from the Parent–Adolescent Communication Scale, a measure of caregiver reports of communicating with their adolescent about sex and sexuality, were adapted for use within the current population (Sales et al. 2008). Exploratory factor analyses indicated that there were two independent factors. Each of which showed excellent reliability: caregiver–adolescent communication about general sexual health ($\alpha = .91$) and caregiver–adolescent communication about positive aspects of sexuality ($\alpha = .91$). The *general sexual health* scale consisted of 10 items that assessed the frequency with which caregivers reported discussion of sexual health-related topics with their youth, including topics such as menstruation, sexuality, pregnancy, contraception, and premarital sex. The *positive aspects of sexuality* scale was comprised of 7 items reflecting more positive aspects of sexual activity, including sexual satisfaction, types of sex (i.e., oral, vaginal, or anal sex), sexual desire, masturbation, and nocturnal emission. Responses range from 0 (*never*) to 3 (*very often*). Higher scores on each subscale indicated more frequent communication.

Caregiver religiosity We used a 4-item religiosity scale modified by Orathinkal and Vansteenwegen (2006) that assessed several dimensions of religiosity, including frequency of church attendance, participation in worship-related activities, the importance of religion to one's daily life, and a self-assessment on one's own religiosity (Rohrbaugh and Jessor 1975). Responses range from 0 (*never*) to 3 (*very often*), with lower cumulative scores indicating weaker religiosity ($\alpha = .77$).

Attitudes toward caregiver–adolescent communication about sex and dating This 6-item scale ($\alpha = .89$), developed de novo, measured caregivers' attitudes about talking with their early adolescents about sex and dating. Items such as, "Parents should talk to their child about sexual behaviors" and "I'd prefer to let the schools teach my child about sex" were included in this measure. Responses range from 0 (*strongly disagree)* to 3 (*strongly agree*) and higher scores suggested more positive attitudes towards caregiver–adolescent communication about sex and dating with the participating youth.

Attitudes toward sex initiation Adapted from Basen-Engquist et al. (1998), this 4-item scale ($\alpha = .74$) assessed caregiver attitudes toward their adolescent initiating sexual activity. It included items such as, "I believe 10 to 11 year olds should wait until they are older before they have sex." Possible responses ranged from 0 (*definitely yes*) to 3 (*definitely no*). Two items were reverse-coded, with higher scores indicating more permissive attitudes towards sex initiation.

Self-efficacy regarding caregiver–adolescent communication about sex This 16-item scale ($\alpha = .92$) measured caregivers' beliefs in their ability to talk with the participating youth about sexual topics (DiIorio et al. 2001). Items such as, "I can always explain to the child in the program with me… how to use birth control pills," and "what I think about adolescents his/her age having sex," were included. Responses ranged from 0 (*not sure at all*) to 3 (*completely sure*) and higher scores indicating greater self-efficacy.

Open communication style This 10-item subscale ($\alpha = .85$) from the Parent–Adolescent Communication Scale measured perceived openness and positive experiences during caregiver–adolescent communication about general topics (Barnes and Olson 1985). It included items such as, "I can discuss my beliefs with him/her without feeling restrained or embarrassed," and "There are topics I avoid discussing with him/her." Responses ranged from 0 (*strongly disagree*) to 3 (*strongly agree*) and higher scores indicating more open communication style.

Data Analyses

We analyzed data using SAS 9.4. Descriptive statistics (i.e., frequencies, means, and standard deviations) were used to characterize participants. Correlations were used to describe the relationships among variables, as well as to determine which variables were related to caregiver–adolescent communication about sex. Next, we ran a series of regression models to identify predictors of parent-teen communication about general sexual health (DV_1) and positive aspects of sexuality (DV_2) based upon key variables that were significantly correlated with caregiver–adolescent communication about sex. Independent variables (IVs) included: attitude towards sexual initiation, attitude toward parent-teen communication about sex and dating, open

communication style, and self-efficacy for caregiver–adolescent communication about sex. Youth age and pubertal development, as well as several caregiver factors (i.e., age, gender, relationship to youth, and education level), were entered as covariates in each model. Statistical significance for the multivariable analyses was defined as $p < .05$. Statistically significant IVs were included in individual mediation analyses.

We used Baron and Kenny (1986) criteria for mediation analyses, which suggests that mediation is indicated when (a) there is a significant relationship between the IV and the DV, (b) there is a significant relationship between the IV and the mediator (M), (c) there is a significant relationship between M and the DV controlling for the IV, and (d) the effect of the IV on the DV controlling for M is zero. We used bootstrapping methods to estimate the direct and indirect effects of the hypothesized associations. Bias-corrected accelerated bootstrapping with 5000 replications was used to obtain 95% confidence intervals (CIs) around the indirect effects. Confidence intervals excluding zero indicate a significant effect. Additionally, we estimated the indirect mediation effects by using the product of two coefficients in the model pathways (MacKinnon et al. 2002). Such estimation improves our ability to detect whether there are indirect effects.

Each model was stratified by adolescent gender, with adolescent age and caregiver factors (i.e., age, gender, relationship to youth, and education level), included as covariates.

Table 1 Demographic characteristics of participants and baseline measures

	Caregivers(mean [S.D])
Age	36.2 [11.5]
Race*	% [n]
African American	91.5 [398]
Non-Black	8.5 [37]
Gender	
Male	19.1 [83]
Female	80.9 [352]
Relation to adolescent	
Biological Parent	56.2 [242]
Relative	24.1 [104]
Other	19.7 [85]
Education*	
Some high school or less	22.6 [98]
High school Diploma	30.6 [133]
Some college/Technical school	27.2 [118]
College diploma or higher	19.6 [85]
Yearly income	
<$20,000	57.4 [227]
$20,000–39,999	24.5 [97]
$40,000–59,999	11.1 [44]
$60,000–79,999	4.0 [16]
$80,000 or more	3.0 [12]

Note: * Totals do not sum to the sample size because of missing data and rounding

Results

Most caregivers self-identified as African American, were on average 36.2 years of age, female, and the biological parent of a participating youth (Table 1). Most caregivers reported some college/technical school education, with annual earnings less than $20,000. Their adolescents were on average 12.5 years of age and just over half were female (58%). Caregivers reported strong religiosity, an open communication style, positive attitudes towards caregiver–adolescent communication about sex, less permissive attitudes towards sex initiation, and high self-efficacy regarding caregiver–adolescent communication about sex (Table 2). However, they also reported low levels of actual communication about general sexual health and the positive aspects of sexuality. There were no significant differences in caregiver–adolescent communication about general sexual health for male ($M = 17.6$, $SD = 8.6$) and female ($M = 17.4$; $SD = 8.5$) adolescents, $t\ (450) = .30$, $p = .76$, or communication about the positive aspects of sexuality for male ($M = 6.1$, $SD = 6.6$) or female ($M = 6.3$, $SD = 6.3$) adolescents, $t\ (438) = -.38$, $p = .70$. Ninety percent of caregivers provided complete data at baseline, with the range varying between 90 and 98% completeness for each scale included in the current study.

Table 3 presents the results of our correlation analyses by youth gender. For caregivers of male youth, we found that greater religiosity was associated with older caregiver age, less permissive attitudes towards sex initiation, more positive attitudes towards communication about sex, and higher self-efficacy for communication about sex. Communication about general sexual health was associated with more positive attitudes towards communication about sex, higher self-efficacy for communication about sex, open communication style, and greater religiosity. Communication about the positive aspects of sexuality was associated with higher self-efficacy for communication about sex and a more open communication style. Communication about general sexual health and communication about the positive aspects of sexuality were moderately correlated.

For caregivers of females, we found that greater religiosity was associated with less permissive attitudes towards sex initiation, higher self-efficacy for communication about sex, a more open communication style, and more advanced pubertal development. Communication about

Table 2 Mean scores of key variables

Measure	Item mean [SD]*	Mean sum [SD]	Mean range
Attitudes towards sex initiation	0.1 [0.5]	0.35 [1.2]	0–9
Attitudes towards caregiver–adolescent communication about sex	2.6 [0.7]	15.6 [3.0]	0–18
Self-efficacy for caregiver–adolescent communication about sex	2.4 [0.8]	39.3 [8.4]	0–48
Open communication style	2.7 [0.7]	21.8 [4.4]	0–30
CAC, general sexual health	1.7 [1.2]	17.6 [8.5]	0–30
CAC, positive aspects of sexuality	0.9 [1.1]	6.0 [6.3]	0–18

Note: * The response range for each item was 0–3

general sexual health was associated with more positive attitudes towards communication about sex, higher self-efficacy for communication about sex, a more open communication style and greater religiosity. Communication about the positive aspects of sexuality was associated with more permissive attitudes towards sex initiation, higher self-efficacy for communication about sex and a more open communication style. As with caregivers of males, communication about general sexual health and the positive aspects of sexuality were moderately correlated.

The results of our regression analyses are shown in Table 4. After controlling for demographic factors, including adolescents' age and several caregiver factors (i.e., age, gender, relationship to youth, and education level), caregiver religiosity was positively associated with caregiver–adolescent communication about general sexual health for caregivers of males, but not females. Among caregivers of both males and females, positive attitudes towards caregiver–adolescent communication about sex, higher self-efficacy regarding caregiver–adolescent communication about sex and more open communication styles predicted more frequent caregiver–adolescent communication about general sexual health.

Caregiver religiosity was not significantly related to caregiver–adolescent communication about the positive aspects of sexuality for neither males nor females. However, among caregivers of both males and females, higher self-efficacy regarding caregiver–adolescent communication about sex and more open communication styles predicted more frequent communication about positive aspects of sexuality with their youth.

Stronger religiosity was directly associated with greater caregiver–adolescent communication about general sexual health ($\beta = 1.13$, $p = 0.002$) for caregivers of males. Positive attitudes towards caregiver–adolescent communication about sex ($\beta = 0.66$, $p = 0.01$; indirect effect = 0.21, 95% CI [0.03, 0.47]) and open communication style ($\beta = 0.53$, $p < .001$) mediated this relationship (indirect effect = 0.32, 95% CI [0.10, 0.61]). The relationship between religiosity and caregiver–adolescent communication about the positive aspects of sexuality approached significance ($\beta = 0.47$, $p = 0.09$) (Table 4). There was a significant indirect effect between religiosity and caregiver–adolescent communication about the positive aspects of sexuality when open communication style ($\beta = 0.33$, $p = .004$) was entered as the mediator (indirect effect = 0.19, 95% CI [0.04, 0.40]). Thus, open communication style partially explains the relationship between communication about the positive aspects of sexuality and religiosity, though this finding should be interpreted with caution.

There was no association between religiosity and neither caregiver–adolescent communication about general sexual health ($\beta = 0.22$, $p = 0.31$) nor communication about the positive aspects of sexuality ($\beta = 0.003$, $p = 0.99$) for caregivers of females. However, greater religiosity was associated with a more open communication style.

Discussion

This study examined the impact of caregiver religiosity on communication about both general sexual health and the positive aspects of sexuality within African American families residing in the rural American South. Our results indicated that, for caregivers of early adolescent males, religiosity was positively associated with caregiver–adolescent communication about general sexual health. This association was mediated by reports of having both positive attitudes towards communication about sex and a more open communication style. The relationship between religiosity and communication about the positive aspects of sexuality approached significance, with open communication style acting as a mediator. For caregivers of early adolescent females, religiosity had no impact on communication about sex. Taken together, our results bring us closer to understanding the mechanisms and processes that connect caregiver religiosity to communication about sex, demonstrating the importance of caregiver attitudes and communication style in providing male youth with information about general sexual health.

Table 3 Correlations among study variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Caregiver age		0.04	**0.17**	**−0.17**	0.02	−0.02	**0.25**	0.01	0.11	−0.00
2. Youth age	0.01		0.04	−0.05	−0.11	−0.13	−0.07	**0.37**	−0.10	−0.02
3. Attitude towards sex initiation	−0.03	−0.01		**−0.26**	**−0.25**	**−0.15**	**−0.25**	−0.01	−0.10	0.05
4. Attitude towards caregiver adolescent communication about sex	−0.01	0.10	**−0.28**		**0.27**	**0.31**	**0.20**	**0.18**	**0.24**	0.10
5. Self-efficacy for caregiver adolescent communication about sex	0.08	−0.08	**−0.15**	**0.15**		**0.57**	**0.18**	−0.04	**0.42**	**0.27**
6. Open communication style	−0.02	0.03	−0.12	**0.42**	**0.22**		0.14	0.04	**0.32**	**0.18**
7. Religiosity	0.37	0.06	**−0.27**	**0.14**	**0.13**	**0.23**		0.08	**0.18**	0.03
8. Pubertal development	0.06	**0.40**	0.07	0.05	−0.05	−0.02	0.07		0.08	0.06
9. Communication about general sexual health	0.07	0.10	0.03	**0.26**	**0.39**	**0.32**	0.11	**0.15**		**0.60**
10. Communication about the positive aspects of sexuality	−0.05	0.0	**0.23**	0.05	**0.17**	**0.19**	−0.10	0.08	**0.62**	

Note: Bolded numbers indicated that p is less than 0.05. Correlations are separated by youth's gender, such that males are presented above the gray divider and females are presented below

The findings from the current study only partially support our initial hypotheses. Contrary to what we expected, greater caregiver religiosity was associated with more frequent communication about general sexual health for caregivers of males only. It is possible that religious caregivers use their faith as motivation to impart sexual health knowledge that focuses on behaviors that are acceptable and unacceptable, which would be consistent with a focus on general sexual health (Regnerus 2005; Vasilenko et al. 2013). Because the consequences of early sexual activity are often viewed as less significant for males, caregivers may hope that imparting their religiosity to their sons might serve as a motivating factor to refrain from sexual risk. This would be consistent with the results of previous studies that have linked greater religiosity to decreased sexual risk among adolescents (Landor et al. 2011; Manlove et al. 2008). An alternative explanation might explain why religiosity did not impact communication about general sexual health for the caregivers of females. Caregivers may show a clear bias towards more frequent discussions with adolescents girls about sex than boys due to concerns about girls getting pregnant and perceiving the consequences of early childrearing to be more burdensome and detrimental to young women's future successes and achievements than for young men (Landor et al. 2011; Widman et al. 2016). In other words, if fear of consequences motivates caregivers to engage their daughters in sexual communication, then we could reasonably expect that caregivers would have such conversations with girls regardless of their religiosity; however, their religiosity could shape the way in which sex is discussed.

Positive attitudes about sexual communication and open communication style proved to be significant mediators of the relationship between caregiver religiosity and communication about general sexual health among caregivers of early adolescent males. Our findings support previous research suggesting caregiver attitudes about sexual communication are critical to actual communication about sex (e.g., Ritchwood et al. in press). Additionally, results support studies suggesting that the quality of caregiver–adolescent communication about sex (e.g., open communication) is critical to reducing risky sexual behavior and often considered to be a good indicator of positive and proactive parenting (DeVore and Ginsburg 2005; Wilson and Donenberg 2004). An open communication style is also an indicator of relationship closeness, which has been associated with decreased sexual risk-taking among adolescents (Markham et al. 2010; Pluhar et al. 2008). Although open communication about sexual health is highly valued within ethnic minority families, it can be difficult to achieve, particularly when sexual communication appears to conflict with religious beliefs and attitudes

Table 4 Factors associated with parent-teen communication about general sexual health and positive aspects of sexuality topics

	Caregivers of male youth				Caregivers of female youth			
	General sexual health topics		Positive aspects of sexuality topics		General sexual health topics		Positive aspects of sexuality topics	
Variable	β	*p*-value	β	*p*-value	β	*p*-value	β	*p*-value
Attitudes toward sex initiation	–	–	0.26	0.10	–	–	0.17	0.41
Attitude toward caregiver–adolescent communication about sex	0.66	0.001	–	–	0.83	<0.001	–	–
Self-efficacy for caregiver–adolescent communication about sex	0.33	<0.001	0.15	<0.02	0.35	<0.001	0.19	<0.001
Open communication style	0.53	<0.001	0.33	0.004	0.56	<0.001	0.28	0.02
Caregiver religiosity	1.13	0.002	0.47	0.09	0.003	0.99	0.10	0.48

Note: Models control for both adolescent (age and pubertal development) and caregiver factors (i.e., age, gender, relationship to youth, and education level)

concerning communication about sex (McKee and Karasz 2006). Interventions designed to assist caregivers in developing a pattern of open communication early in a child's life around general sexual health, for example, may be helpful in preparing caregivers to have discussions about the positive aspects of sexuality throughout adolescence and emerging adulthood.

Contrary to our hypotheses, the relationship between caregiver religiosity and communication about the positive aspects of sexuality was not statistically significant among caregivers of males or females. Our topic-oriented approach may have limited our ability to fully assess this relationship and it may be best captured using a combination of both message-oriented and topic-oriented approaches (Epstein and Ward 2008). Message-oriented approaches focus on specific ideas or values conveyed at the time of sexual communication (e.g., a woman should not have sex with a man outside of marriage) while topic-oriented approaches ask participants whether a specific topic was discussed during sexual communication (e.g., I have discussed sex before marriage with my youth). Another potential contributing factor was the overall low rate of caregiver–adolescent communication about sex, which is consistent with previous research documenting a decline in sexual communication nationally, but especially in rural communities (Lindberg et al. 2016). In this study, caregivers were significantly less likely to discuss the positive aspects of sexuality than general sexual health topics. This may be due to a fear of encouraging sexual activity or potential discomfort with discussing sensitive topics. A low rate of caregiver–adolescent communication about sex is concerning given that repetition provides caregivers with an opportunity to reinforce and build upon previous conversations and enables youth to ask clarifying questions as they consider or begin sexual relationships (Martino et al. 2008). Mediating relationships indicated in the current study suggest that some caregivers may lack the efficacy, comfort and confidence to adequately address these topics with their youth (Elliott 2010). Although increasing caregiver self-efficacy is an important strategy, identifying and examining other mechanisms that could support caregivers, communication about sex are also needed.

Limitations

As in all research, our findings should be considered in the context of its limitations. First, youth sexual behavior data were not included in these analyses, as youth had yet to initiate sexual intercourse. Therefore, we were unable to determine whether caregiver–adolescent communication about sex mediated the relationship between caregiver religiosity and sexual risk. Future research with sexually active youth could further elucidate the relationship between caregiver religiosity and caregiver–adolescent communication about sex. Second, our ability to make causal inferences between the variables of interest was limited due to the cross-sectional nature of the data. Third, it is notable that data from the scale assessing caregivers' attitudes toward sex initiation was heavily skewed, with the overwhelming majority of caregivers expressing less permissive attitudes towards sex initiation among youth. While this is expected given the youth's age, it is possible that the design and scoring of the scale may have restricted participants' responses. Future research is needed to improve upon this scale, enabling caregivers to provide more diverse and detailed responses. Next, we are unable to report the exact number of caregivers that were recruited and consented for participation in this study due to inconsistency across community sites in tracking this information. For example, while most sites reported that upwards of 85% of recruited caregivers subsequently completed the baseline survey, a number of sites did not track this information for

the duration of baseline data collection thus precluding us from making comparisons across community sites. Additionally, the data were based on self-reports, which may suffer from social desirability bias. However, we attempted to overcome this limitation with the use of ACASI, which enabled caregivers to answer survey questions privately. Next, our results may not be generalizable beyond African American female caregivers residing in rural areas. However, our sample composition is reflective of the larger population of African American primary caregivers due to the prevalence of single parent, female-headed households. Moreover, research has demonstrated that African American mothers are the primary communicators about sex topics (DiIorio et al. 1999; Miller et al. 1998). In fact, one study suggested that, within two-parent families, only caregiver–adolescent communication about sex between mothers and adolescents influenced their subsequent engagement in sexual risk-taking (Dutra et al. 1999). Lastly, the current study was self-report and did not capture actual verbal and non-verbal communication between caregivers and their youth. Thus, future researchers might consider expanding the ways in which caregiver–adolescent communication is measured and reported (e.g., direct observation) to more accurately evaluate the nature and delivery of caregiver–adolescent communication about sex. Future investigations should also explore the currently studied variables longitudinally, including data from both caregivers and youth.

Despite these limitations, this study makes two important contributions to the literature. First, this study focused on caregiver–adolescent communication about sex among rural southern African American families with youth who are in early adolescence. Many previous studies of caregiver–adolescent communication about sex among African American families have focused on older youth and often within urban contexts (DiClemente et al. 2001). Findings from the current study could be used to further advance the science and research aimed at caregiver communication and delivery of age-appropriate messages about sexual health. Second, this is one of few studies to examine the role caregiver religiosity on caregiver–adolescent communication about positive aspects of sexuality. Previous studies examining the role of caregiver religiosity on caregiver–adolescent communication about sex topics have generally been limited general sexual health topics such as sexual initiation and contraception use (Regnerus 2005). Although caregiver religiosity was not related to caregiver–adolescent communication about positive aspects of sexuality, our results provided important data on other factors that related to such conversations: attitudes towards caregiver–adolescent communication about sex, self-efficacy regarding caregiver–adolescent communication about sex, and communication style. These findings provide a base from which other researchers can better understand the sexual socialization process within families.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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