

8-3-2015

Mother-Daughter Sexual Communication and Adolescent Sexual Risk Behaviors: Investigating Racial/Ethnic Differences and Family Factors

Viana Turcios-Cotto

University of Connecticut - Storrs, viana.turcios@uconn.edu

Follow this and additional works at: <https://opencommons.uconn.edu/dissertations>

Recommended Citation

Turcios-Cotto, Viana, "Mother-Daughter Sexual Communication and Adolescent Sexual Risk Behaviors: Investigating Racial/Ethnic Differences and Family Factors" (2015). *Doctoral Dissertations*. 837.
<https://opencommons.uconn.edu/dissertations/837>

Mother-Daughter Sexual Communication and Adolescent Sexual Risk Behaviors:
Investigating Racial/Ethnic Differences and Family Factors

Viana Turcios-Cotto, Ph.D.

University of Connecticut, 2015

Sexually transmitted infections and adolescent childbearing disproportionately affect adolescents of color. Research suggests these negative health outcomes may be due in part to potential cultural differences in how families approach adolescent sexual behavior. Using a diverse urban sample of 13- to 17-year-old girls (N=194), this study explored potentially important aspects of mother-adolescent sexual communication by asking: 1) How does mother-daughter sexual communication (i.e., frequency, tone, embarrassment) relate to adolescent sexual risk when communication is considered dyadically? 2) What are the racial/ethnic differences, if any, in mother-daughter sexual communication and concordance in reports of communication? Is the relation between communication and sexual activity the same across dyads? 3) How do family factors (i.e., values/attitudes, parenting practices, mental health risk) relate to communication?

Across racial/ethnic groups, mothers and daughters differed significantly in their perceptions of sexual communication with mothers reporting more frequent and positive communication and less embarrassment than their daughters. Mother and daughter reports were modestly related. There were few racial/ethnic differences in communication, including Black mothers reporting less frequent sexual communication than Latina or White mothers. Using polynomial regression approaches recommended for testing parent-adolescent reporting discrepancies results indicated that the interaction between mother and daughter perceived

Viana Turcios-Cotto – University of Connecticut, 2015

frequency of communication was predictive of adolescent sexual risk behavior. Adolescents reported engaging in the most risky sexual behavior when they were in dyads in which the mother reported high frequency but the daughter reported limited frequency. Due to these findings, four dyadic groups were created based on different patterns of perceived communication frequency (high/high, low/low, high mother/low daughter, low mother/high daughter).

MANCOVAs demonstrated that groups differed on several other characteristics, including tone, embarrassment, sex norms, religious practices, parental monitoring, maternal warmth, and maternal history of sexual abuse. In particular, the discordant group associated with highest sexual risk behavior (high mother/low daughter) differed in mothers' attendance of spiritual services and mothers' report of parental monitoring. Findings highlight the importance of measuring both mothers' and daughters' perceptions of communication in research on adolescent sexual behavior and provide some insight into family characteristics that may be important targets for sexual health promotion programs for adolescent girls.

Mother-Daughter Sexual Communication and Adolescent Sexual Risk Behaviors:
Investigating Racial/Ethnic Differences and Family Factors

Viana Turcios-Cotto

A.B., Dartmouth College, 2005

Ed.M., Harvard Graduate School of Education, 2006

M.A., University of Connecticut, 2011

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at the

University of Connecticut

2015

Copyright by

Viana Turcios-Cotto

2015

APPROVAL PAGE

Doctor of Philosophy Dissertation

Mother-Daughter Sexual Communication and Adolescent Sexual Risk Behaviors:
Investigating Racial/Ethnic Differences and Family Factors

Presented by

Viana Turcios-Cotto, A.B., Ed.M., M.A.

Major Advisor _____

Stephanie Milan, Ph.D.

Associate Advisor _____

Michelle Williams, Ph.D.

Associate Advisor _____

Preston Britner, Ph.D.

University of Connecticut

2015

Acknowledgments

I would like to thank my advisor, Dr. Stephanie Milan, for her expertise, support, and guidance, not only in completing this particular milestone but over the past six years of graduate school. I greatly appreciate all that you have done for me, Dr. Milan. I would also like to thank my dissertation committee (Dr. Michelle Williams, Dr. Preston Britner, Dr. Seth Kalichman, and Dr. Linda Halgunseth) for their time on this project and the Social Processes of HIV/AIDS Institutional Training Grant provided by the National Institute of Health's National Research Service Award (T32 MH074387-07), which helped to fund some of my work on this study and much of my time at the University of Connecticut. I gratefully acknowledge the mothers and daughters of New Britain, CT who participated in this study, as well as New Britain High School, the Community Health Center of New Britain, The Spanish Speaking Center, and the YWCA of New Britain for their collaborative efforts on this study.

Thank you to my fellow graduate students, Kate Zona, Jenna Acker, Anna Schierberl Scherr, Megan Clarke, and Dominica Hernandez, who helped to conduct participant interviews, and to the many undergraduates who assisted with the study implementation and administrative tasks. On a personal note, I express immense gratitude to my many family members and friends who have encouraged me throughout this process, especially to my husband, Robert Cotto, Jr. Thank you, Robert, for your unwavering support, encouragement, patience, and belief that I could accomplish this goal. You helped make this possible. Lastly, the data used in this study is part of a larger project, titled The Cultural Context of Health Disparities in Adolescent Girls, which was led by Dr. Milan and supported by the National Institute of Child Health and Human Development.

Table of Contents

Chapter One: Introduction	1
Background.....	2
Mother-Daughter Sexual Communication.....	6
Racial/Ethnic Differences in Mother-Daughter Sexual Communication.....	7
Race/Ethnicity as a Moderator of the Relation Between Parent Communication and Adolescent Sexual Behavior.....	12
Factors Accounting for Racial/Ethnic Differences in Mother-Daughter Communication.....	13
The Present Study.....	16
Chapter Two: Method	17
Participants and Procedures.....	17
Measures.....	17
Adolescent risky sexual behavior.....	17
Sexual communication.....	18
Mediating Factors.....	18
Values and attitudes that may account for differences in communication.....	18
Parenting practices.....	19
Mental health risk.....	20
Demographic Information.....	22
Covariates.....	23
Data Analytic Plan.....	23

Research question 1: Mother-daughter sexual communication considered dyadically and its relation to adolescent sexual risk.....	23
Research question 2: Race/ethnicity as a moderator of the relations between mother-daughter sexual communication and adolescent sexual behavior.....	24
Research question 3: Family factors contributing to communication differences.....	25
Power Analysis.....	25
Chapter Three: Results.....	25
Racial/Ethnic Differences in Demographic Characteristics.....	25
Research Question 1: Mother-Daughter Sexual Communication Considered Dyadically and its Relation to Adolescent Sexual Risk Behaviors.....	28
Research Question 2: Racial/Ethnic Differences in Communication and Race/Ethnicity as a Moderator of the Relations Between Mother-Daughter Sexual Communication and Adolescent Sexual Behavior.....	33
Research Question 3: Family Factors Contributing To Communication Differences.....	35
Communication frequency.....	35
Communication tone.....	36
Communication embarrassment.....	37
Differences in communication variables and family factors by communication group patterns.....	41
Communication variables.....	41
Family values.....	43

Parenting practices.....	44
Mental health risk.....	45
Chapter 4: Discussion.....	45
Mother-Daughter Sexual Communication Considered Dyadically and its Relation to	
Adolescent Sexual Risk Behaviors.....	46
Racial/Ethnic Differences in Communication and Race/Ethnicity as a Moderator of the	
Relations Between Mother-Daughter Sexual Communication and Adolescent	
Sexual Behavior.....	50
Family Factors Contributing to Communication Differences and their Relations to	
Adolescent Sexual Risk.....	52
Clinical Implications.....	57
Study Limitations.....	60
Conclusions.....	62
Chapter Five: References.....	63
Chapter Six: Appendices.....	70
Tables.....	70
Figures.....	91

Introduction

Adolescent risky sexual behaviors are not only harmful to individuals, but they also have great implications for public health. Acquiring a sexually transmitted infection (STI) increases the risk for other serious health complications such as infertility, cervical cancer, and HIV/AIDS (World Health Organization; WHO, 2013). Childbirth during adolescence increases the risk for birth complications, maternal health problems, and ongoing family poverty (WHO, 2012). It is estimated that treating STIs costs 2 billion dollars per year (American Social Health Association, 2008) and adolescent childbearing costs the U.S. federal government about 9.4 billion dollars per year (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2013).

STIs and adolescent childbearing disproportionately occur among adolescents of color. Although sexual health disparities are driven in part by differences in socioeconomic resources, there is reason to believe that these negative health outcomes may be due in part to potential cultural differences in how families approach adolescent sexual behavior. One aspect of family context that may influence adolescent sexual behavior is parent-adolescent communication. Parent-adolescent communication has been regarded as beneficial for reducing adolescent sexual risk (Hadley et al., 2009; Jerman & Constantine, 2010; for a review see DiIorio, Pluhar, & Belcher, 2003). Because culture influences communication patterns (Gudykunst & Lee, 2001; Shearman & Dumlao, 2008), parent-child roles (Juang & Nguyen, 2009; Kiang & Fuligni, 2009), and sexual values (Villaruel, 1998; Yu, 2007), parent-adolescent communication about sex may depend on the cultural background of the family.

Consistent with this possibility, there is some evidence of racial/ethnic differences in mother-daughter sexual communication (Buzi, Smith, & Weinman, 2009; Meneses, Orrell-Valente, Guendelman, Oman, & Irwin, 2006); however, several important questions have not

been adequately addressed. First, mothers and daughters differ in how they interpret sexual communication (Guilamo-Ramos et al., 2007b; Hadley et al., 2009; O'Sullivan, Jaramillo, Moreau, & Meyer-Bahlburg, 1999), yet most studies have not incorporated data from a dyadic perspective. Including the view of only one member of a dyad may give biased results. Second, few studies have examined whether the link between dyadic sexual communication and sexual activity differs by race/ethnicity. Finally, most studies of racial/ethnic differences in families focus only on the broad demographic group label (e.g., African-American vs. White), without attempting to identify the actual family characteristics that may underlie observed racial/ethnic group differences. It is specific family processes, practices, and beliefs, however, that are potentially important for developing culturally relevant interventions.

In light of these shortcomings, this exploratory study will examine mother-daughter sexual communication in a diverse sample of mothers and their adolescent girls in order to a) better understand how sexual communication, as measured at the dyadic level, relates to adolescent sexual activity, b) test whether sexual communication and the relation between sexual communication and sexual activity differs by race/ethnicity, and c) identify family characteristics that account for differences in sexual communication.

Background

The rate of teen births in the United States has declined considerably over the past two decades, from 6.2% of adolescent girls giving birth in 1991 down to 2.7% in 2013; however, the United States continues to have greater teen birth rates than other developed countries in the world (Office of Adolescent Health, 2014; United Nations Statistics Division, 2011). The Centers for Disease Control and Prevention's self-report measure, High School Youth Risk Behavior Survey (YRBS), demonstrates that adolescent girls across the nation indeed engage in

sexual behavior that puts them at risk for pregnancy and Sexually Transmitted Infections (STIs). Results from 2013 show that 46% of all adolescent girls reported having sexual intercourse in their lifetime, with 35.2% of girls endorsing being sexually active in the past three months. Of the currently sexually active adolescent girls, 46.9% reported not using a condom at their last sexual experience, 70.2% reported not using any medication or medical device (e.g., pill, IUD, shot, ring, etc.) for birth control, and 15.7% did not use any form of protection against STIs or pregnancy in their last time of intercourse (CDC, 2014b). These behaviors clearly put a vast number of adolescent girls at risk for teenage motherhood and STIs.

Moreover, national statistics consistently demonstrate health disparities between adolescent girls of color and White adolescent girls, particularly in sexual risk behaviors and outcomes. Female adolescents of color are at greatest risks for acquiring STIs and for bearing a child in their teenage years. In the 2013 YRBS, a significantly greater proportion of girls of color reported becoming sexually active before the age of 13 (4.9% Black & 3.8% Latina vs. 2.1% White; CDC, 2014b). Though condom use in their last sexual experience was fairly equivalent across groups (55.3% Black, 53.2% White, & 50.7% Latina), White females reported the use of some form of birth control (i.e., medication or medical device) at almost twice the rates of Black and almost triple the rates of Latina females at 37.5%, 19.2%, and 13.9%, respectively (CDC, 2014b). White females were also less likely to report not using any method to prevent pregnancy as compared to Black and Latina females (11.9%, 21.2%, and 23.7%, respectively). Birthrates from 2012 show that Black and Latina youth, at 4.4% and 4.6% respectively, also gave birth at more than twice the rate of White youth, at 2.1% (Office of Adolescent Health, 2014).

There are also potentially important differences between Black and Latina adolescent females. For example, on the YRBS Black females were more likely than Latina females but just as likely as White females to endorse having 4 or more sexual partners (15.8% Black vs. 10.5% Latina & 14.0% White; CDC, 2014b). Moreover, in 2012, 2.03% of Black females aged 15 to 19 were diagnosed with chlamydia, compared to 0.18% of Latina and 0.13% of White females of the same age (CDC, 2013). Overall, teen pregnancies have declined over the past two decades (CDC, 2011; Wingo, Smith, Tevendale, & Ferré, 2011); however, from 1981 to 2006 birth rates indeed increased among Latina teens (Wingo et al., 2011). More recent information indicates that Latina teen birth rates have declined sharply, though there continues to be a disparity in teen births between adolescents of color and their White counterparts (Hamilton, Martin, & Ventura, 2013; CDC, 2014a). Other studies (e.g., Milan et al., 2006) have shown that Black and Latina adolescents from the same community report different sexually related beliefs (e.g., attitudes towards condoms, feelings associated with pregnancy) and behaviors (e.g. importance placed on parents' and partners' opinions). Together, these findings suggest potential cultural differences in how families approach adolescent sexual behavior.

Adolescent sexual behavior has historically been studied at the individual level. Thus, teen pregnancy and STI prevention and intervention programs have been guided by theories that focus on individual level factors that impact sexual behaviors. More specifically the information-motivation-behavioral skills model, the health belief model, and the theory of planned behavior/reasoned action focus on the importance of knowledge, motivation, and skills (Fisher, Fisher, & Harman, 2003), the perceived risks, benefits, and barriers of a behavior (Becker & Rosenstock, 1984), and attitudes and the subjective norms regarding a behavior, as well as one's perceived behavioral control (Ajzen, 1985). Social cognitive theory (Bandura,

1986) incorporates environmental factors with individual level elements, but emphasizes self-efficacy. Yet, there is evidence that addressing social and contextual factors of female sexual behavior is important for creating effective HIV and sexual risk behavior interventions for women (Logan, Cole, & Leukefeld, 2002). Ecological models, such as Bronfenbrenner's social ecological theory (1977), integrate individual level factors with social and environmental factors, like family, community, and local health policies. However, these models are so broad as to not indicate clear constructs for intervention, though they highlight the need to focus beyond the individual.

Based on developmental-contextual models of adolescent health development (Holmbeck, 2002b), families are a primary context shaping individual risk factors and child health outcomes (Davies, Crosby, & DiClemente, 2009; Fergus & Zimmerman, 2005; Harkness & Super, 1994; Steinberg, 2001). Davies et al. (2009) state that, "Adolescents internalize the family's conception of health – and the beliefs and behaviors that support it." (p. 392) One of the primary ways that families are likely to influence adolescent individual health risk factors (e.g., perceived risks for STI, motivation to avoid pregnancy) is what parents say to their children about these topics. Evidence already suggests that sexual communication between adolescents and parents influences adolescent sexual health (DiClemente et al., 2001; DiIorio, Kelley, & Hockenberry-Eaton, 1999; Hadley et al., 2009). This type of communication allows parents to share their culturally rooted beliefs about sexual values and expected sexual behaviors.

Though it is clear that there are racial/ethnic differences in female adolescent sexual health outcomes, the cultural underpinnings and family factors of these differences are not well known or understood. Examining sexual communication further by investigating family characteristics, such as the way this communication occurs and the messages that are conveyed

to adolescent girls, may provide further information for culturally tailoring sexual health interventions for adolescent girls.

Mother-Daughter Sexual Communication

Sexual communication happens most frequently between mothers and daughters (DiIorio, McCarty, Denzmore, & Landis, 2007; DiIorio et al., 1999; Hutchinson & Montgomery, 2007). This may be particularly true in low-income families, which have disproportionately higher rates of single-parent households. Although more research on the role of fathers in sexual health promotion is needed, the current study and review of literature will focus primarily on the role of mothers or maternal figures.

Studies of mother-daughter sexual communication have focused on the content of talk (Hutchinson & Montgomery, 2007; Jerman & Constantine, 2010), frequency of communication (Deptula, Henry, & Schoeny, 2010; Hadley et al., 2009), and emotional valence of conversations (O'Sullivan, Meyer-Bahlburg, & Watkins, 2001). The content of parent-adolescent sexual conversations has been one of the most studied aspects of this type of communication. The measured content has varied greatly across studies with researchers asking about communication of several topics ranging from kissing, menstruation, puberty, masturbation, and birth control to becoming sexually active, using condoms, pregnancy, and sexually transmitted infections and AIDS (Atienzo et al., 2009; Beckett et al., 2010; Buzi et al., 2009; Zambrana, Cornelius, Boykin, & Lopez, 2004). Items about discussions on general sexual activity, STIs/AIDS, pregnancy, and condoms have been most common.

One major issue in the study of sexual communication is whose perspective is assessed. In general, there are discrepancies between mother and daughter reports regarding the frequency or amount of sexual communication that occurs in the dyad. For example, in an earlier study by

Newcomer and Udry (1985), Cohen kappa scores ranged from .34 for conversations about sex before marriage to .44 for conversations about using birth control. By conventional standards, this would be considered very low agreement. More girls than mothers reported having conversations about having sex before marriage, whereas the reverse was true for discussions about birth control. In a more recent study by Hadley et al. (2009), adolescent girls of various ethnic/racial backgrounds consistently reported having fewer conversations than did their mothers about various sexually related topics, with kappa scores ranging from .12 for choosing sexual partners and HIV/AIDS to .28 for condoms. Studies have typically demonstrated some amount of sexual communication as endorsed by mothers and/or their teenage daughters, though the low rates of concordance demonstrate the importance of gathering and examining data at the dyadic level. Thus, it is important for studies of mother-daughter sexual communication to include the perspective of both partners.

Racial/Ethnic Differences in Mother-Daughter Sexual Communication

Research on the benefit of parent-adolescent sexual communication is somewhat inconsistent; however, the majority of studies have claimed health-promoting effects on sexual outcomes (DiClemente et al., 2001; DiIorio et al., 1999; Miller, Kotchick, Dorsey, Forehand, & Ham, 1998; Whitaker, Miller, May, & Levin, 1999). In particular, parent-adolescent communication has been regarded as beneficial in curbing adolescent sexual risks as it is a way for parents to transmit sexual values, beliefs, and knowledge to their children (DiIorio et al., 2003; Jerman & Constatine, 2010).

Studies with racially/ethnically diverse samples, including White adolescents, have shown that more sexual communication is associated with various health-promoting behaviors such as adolescents having more conservative attitudes about sex, waiting to initiate sex, using

condoms more consistently, and communicating with sex partners more readily (DiIorio et al., 1999; Hadley et al., 2009; Hutchinson, 2002; Hutchinson & Cooney, 1998). For example, in a sample of Black, White, and Latina women, those who spoke with their mothers about sex before their first sexual encounter were more likely to delay sex initiation to a later age than those who did not discuss sex with their parents (Hutchinson, 2002). This study also found that general communication, discussions specifically about condoms, and early sexual communication prior to sexual debut were all predictors of consistent condom use during adolescence (Hutchinson, 2002). Health-promoting outcomes have also been reported in studies focusing exclusively on adolescents of color (Atienzo et al., 2009).

If parent-adolescent communication reduces sexual risk, it follows that there may be racial/ethnic differences in sexual communication given the greater prevalence of sexual risk among adolescents of color. Although recent research includes more mothers and adolescents of color, there continues to be very little comparison across the three major ethnic/racial groups in the United States: White, Black, and Latino. One contributor to this dearth is that many studies tend to focus on one or two ethnic/racial groups, primarily Black and/or Latino, and often do not include other groups such as White participants (Atienzo et al., 2009; Buzi et al., 2009; Zambrana et al., 2004). Furthermore, results are not always reported by race/ethnicity for studies in which a diverse sample is present (Beckett et al., 2010; DiIorio et al., 1999). Still, similarities and differences have been found in mother-daughter sexual communication across ethnicities/races.

Consistently, mothers are endorsed as being the primary parent to discuss sexual matters with adolescents, regardless of race (Atienzo et al., 2009; Miller et al., 1998). Thus, in all types of families, adolescents speak much more with their mothers than fathers. However, several

studies have found clear distinctions in sexual communication among White, Black, and Latina mothers.

Although Latina mothers assert that they believe it is important to speak with their children about sexual matters and express the desire to do so (Guilamo-Ramos et al., 2006a; Wilson, Dalberth, Koo, & Gard, 2010), far less communication between Latina mothers and daughters is consistently reported. One remarkable statistic attained by Zambrana et al. (2004) showed that almost 60% of over 1,000 Mexican and Puerto Rican women received no sexual education from their parents. When compared to other racial/ethnic groups, Latinas' lack of sexual communication is also evident (Buzi et al, 2009; Hutchinson, 2002; Meneses et al., 2006). Lack of Latina mother-daughter sexual communication has been attributed to the cultural construct of "marianismo" in which Latinas are expected to exemplify humility, decorum, and caregiving like the Virgin Mary, as well as repress sexual feelings (Guilamo-Ramos et al., 2006a; Guilamo-Ramos et al., 2007a). This gender-role ideology may create conflicting emotions and cognitions, in which girls and mothers may want to talk about sex and related topics, but fear it would not be appropriate and within the purview of a respectable lady.

Language and cultural barriers may also make it more difficult for Latina mothers, especially those who grew up in other countries, to adequately talk to their daughters about sexual activity (Guilamo-Ramos et al., 2006a; Wilson et al., 2010). Furthermore, a larger portion of Latina mothers have expressed higher levels of discomfort than have White, Black, and Asian mothers (Meneses et al., 2006). Latina mothers in focus group settings have also shared the beliefs that their daughters already had sexual health knowledge or would get it somewhere else like school, and that talking about sex might encourage sexual behavior (Guilamo-Ramos et al.,

2006a; O'Sullivan et al., 2001; Wilson et al., 2010). These beliefs may therefore help mothers feel absolved from talking to their daughters.

The content and tone of Latina mothers' sexual communication is also distinct in some ways. Particularly, qualitative studies have reported that Latina mothers tend to talk about sex as dirty and immoral and often imply pregnancy is inevitable once a female begins sexual relations (O'Sullivan et al., 2001). Moreover, Latina mothers may speak harshly of men, sometimes suggesting that males are unable to control their sexual urges and often warn their daughters to stay vigilant of men, and to not allow even their fathers to touch them. These views are consistent with "marianismo" in that morality and purity are evoked as central tenets to being a young woman, as well as the insinuation that girls and women are more delicate than boys and men and must be protected (Guilamo-Ramos et al., 2006a).

Contrary to Latina mothers' infrequent communication, Black mothers seem to talk to their daughters much more about sexual matters than other groups (Hutchinson, 2002; Hutchinson & Cooney, 1998). In a large, nationally representative sample, Black mothers had the lowest infrequency communication index with only about 1% of Black women reporting *not* talking to their child about *any* sexual matter. In contrast, almost 2% of White, 5% of Latina, and 14% of Asian mothers said they never spoke to their child about sexual issues (Meneses et al., 2006). Yet, even with higher rates of reported communication, Black mothers showed high rates of discomfort, statistically equivalent to those of Latina and Asian women. Moreover, Black mothers had the highest rates of discordance in report of daughters' sexual status, with 22.3% incorrectly reporting that their sexually active teen was not yet sexually active, compared to 14.6% White, 14.7% Latina, and 14.3% Asian mothers (Meneses et al., 2006). Therefore,

although it seems Black mothers are talking to their teens a great amount, it also appears that they may not always have the most accurate information.

There are also differences in the way sex may be presented to Black daughters by their mothers. More so than Puerto Rican and Dominican women, Black mothers tend to dissuade their daughters from having sex as a means of seeming more attractive (Guilamo-Ramos et al., 2007a). Consistent with this approach, Black mothers may also warn their daughters that having sex would make them seem less attractive and desirable to other men (O'Sullivan et al., 2001). Black women have also framed sexual involvement as a loss of resources such as money, time, and educational opportunities, assuming one would become pregnant as a consequence of initiating sexual relations (O'Sullivan et al., 2001).

Although a few of the above studies statistically compared members of different racial/ethnic groups, many of these findings are based on qualitative studies or comparisons of only two groups. In addition, most of these studies used only mother or daughter reports about communication variables. When data are collected from both mother and daughter, modest correlations between .18 and .32 of mother and adolescent reports are attained, typically demonstrating that mothers believe greater communication on a particular sexual topic or in general has occurred (Guilamo-Ramos et al., 2007b; O'Sullivan et al., 1999). It is unclear why this discrepancy exists. One related factor may be that adolescents might have greater difficulty with recall of these conversations, perhaps due to high levels of distraction because of embarrassment and discomfort. Other contributing factors to discrepancies in mother-daughter reports may come from *what* is being said and *how* it is being said, or the content and the tone of the conversations. Universally, parents tend to discuss negative consequences of sexual activity more than or instead of the positive results of healthy sexual behaviors, such as condom use or

fewer sexual partners, when sexually active (Akers, Schwarz, Borrero, & Corbie-Smith, 2010; Jerman & Constantine, 2010; O'Sullivan et al., 2001). Constant negative messages might deter daughters from listening to or internalizing sexual conversations and beliefs. More research on concordance in mother and adolescent reports about communication frequency and valence are needed. Further research on the role of communication discomfort is also necessary. In particular, racial/ethnic differences in concordance in reports about sexual communication have not been explored.

Race/Ethnicity as a Moderator of the Relation between Parent Communication and Adolescent Sexual Behavior

Overall, existing research suggests that at least in some families mothers talking to their daughters about sexually related issues can provide a safeguard from various negative consequences that can come from having sex. Nonetheless, many of the same studies that report positive behavioral outcomes also report instances where there were no associations between mother-daughter sexual communication and sexual behavior (Hadley et al., 2009; Hutchinson, 2002; O'Sullivan et al., 1999). These findings suggest that mother-daughter sexual communication may not always influence daughters' sexual choices and that perhaps simply discussing sexuality-related matters is not enough to produce positive outcomes.

Interestingly, studies show almost no differences by race/ethnicity for the role of communication in adolescent sexual behavior outcomes. Hutchinson (2002) analyzed racial/ethnic differences in communication effects on condom use and STI occurrence, but found none. Buzi et al. (2009) found that of those adolescents who reported sexual communication with their parents, 80% of Black versus 65% of Latina girls endorsed condom use during their most recent sexual encounter. However, the investigators also reported that of those adolescents

who did not use condoms, 70% of Black and 60% of Latina adolescents responded that they had sexual communication with mothers (Buzi et al., 2009). Most other studies have controlled for race/ethnicity and have not examined potential differences in effects on sexual behaviors (DiIorio et al., 1999; Guilamo-Ramos, Jaccard, Dittus, & Bouris, 2006b; Hadley et al., 2009).

Although many studies report similar findings across races/ethnicities, few directly compare mother-daughter dyads of diverse backgrounds, creating a dearth of understanding how race/ethnicity and cultural factors moderate the relationship between mother-daughter sexual communication and teen sexual behavior. Such ambiguous results create an impetus for comparisons across racial/ethnic groups in hopes of better understanding how adults might tailor their approaches to encourage safer sex practices in various teenage groups. Thus, in any study of racial/ethnic differences in mother-daughter sexual communication, it is important to first examine if the relation between sexual communication and actual sexual behavior is the same among different groups, and for these analyses to include sexual communication as measured by both mothers and daughters.

Factors Accounting for Racial/Ethnic Differences in Mother-Daughter Communication

Racial/ethnic differences in sexual health behavior and outcomes are well-documented. Culturally influenced attitudes and practices constitute an important part of the context in which sexual health outcomes occur (Afable-Munsuz & Brindis, 2006; Logan et al., 2002). Yet beyond documenting demographic differences in prevalence rates, cultural aspects of adolescent sexual health are still not well understood or effectively integrated into most health programs and interventions (Boyce & Fuligni, 2007; Williams, Holmbeck, & Greenley, 2002). Most studies of racial/ethnic differences in families focus only on the broad demographic group label (e.g., Black vs. White), without identifying the actual family characteristics that may underlie observed

racial/ethnic group differences. Therefore, the final goal of this study is to identify family factors that account for any racial/ethnic differences in sexual communication. These same factors may explain why racial/ethnic group differences do not exist in some studies – if factors that predict sexual communication (e.g., parental religious values) are similar across groups.

There are many factors that may account for differences in mother-daughter sexual communication and/or act as mediating factors underlying observed racial/ethnic differences in mother-daughter communication. Broadly, these types of factors may fall into at least three related domains: 1) differences in attitudes and values (gender attitudes, sex norms, ethnic identity, maternal acculturation, religious beliefs); 2) differences in relevant parenting practices (monitoring, autonomy granting, parental warmth), and 3) differences in mental health risk factors (anxiety, depressive, and PTSD symptoms, maternal sexual abuse history).

As discussed previously, values that may differ by race/ethnicity such as sex attitudes and religious beliefs may affect sexual communication in a variety of ways. The tone, frequency, and comfort level of such communication may be different depending on whether or not mothers believe it is beneficial to their daughters, part of their duty as a mother, or appropriate for women to discuss such topics. Further, the messages mothers convey to their daughters about their gender roles and sex may also differ depending on their cultural beliefs (Guilamo-Ramos et al., 2006a; O’Sullivan et al., 2001).

Parenting practices may also influence communication. For example, mothers who engage in less monitoring of their children may be less aware of their potential level of sexual risk. As a result, they may not talk about sex because they believe it is not yet necessary. Whether or not mothers monitor their daughters’ activities and allow daughters to make decisions about certain aspects of their life have implications for the ways in which mothers and

daughters interact and discuss sensitive topics. Because these types of parenting practices differ by race/ethnicity (Tolma, Oman, Vesely, Aspy, Beebe, & Fluhr, 2011), they may also underlie observed communication differences.

Mental health risk such as maternal or adolescent emotional distress (e.g., anxiety, depression, PTSD) and a mother having a history of childhood sexual abuse may also affect sexual communication between mothers and daughters. Research has demonstrated a link between depression and greater sexual risk behaviors in adolescent girls and women (Lehrer, Shrier, Gortmaker, & Buka, 2006; Lennon, Huedo-Medina, Gerwien, & Johnson, 2012). Further, emotional distress and depression in particular may negatively impact communication in a dyad, regardless of who may be depressed (i.e., whether mother or daughter), given that depressive symptomatology includes a diminished ability to concentrate and a loss of interest in activities which may lead to social withdrawal (APA, 2000).

Mothers who are depressed are more often withdrawn or hostile with their children (Goodman, Connell, Broth, Hall, & Heyward, 2011), which would likely impact mother-adolescent communication. However, the connections between mental health risk, parent-adolescent sexual communication, and adolescent sexual behaviors have not been studied. Plausibly, mothers or daughters who are depressed may be less engaged with their dyad member or be more irritable or hostile during conversations. Alternatively, women with a sexual abuse history may themselves approach sexual communication with their children differently (Wright, Fopma-Loy, & Oberle, 2012). A better understanding of how these mental health risk factors influence communication both generally and in specific racial/ethnic groups could improve intervention efforts and in turn lead to more positive outcomes in the future.

The Present Study

Given the consistent findings of racial/ethnic health disparities in sexual risk behaviors and outcomes among adolescent girls and their implications for public health, it is important to better understand the family factors influencing these differences to possibly improve interventions and outcomes. The proposed study will explore potentially important aspects of mother-adolescent sexual communication in a diverse urban sample of 13- to 17-year-old girls. More specifically, this study will ask three questions to attempt to address gaps in the mother-daughter sexual communication literature.

First, how does mother-daughter sexual communication relate to adolescent sexual risk when this communication is considered dyadically? Second, what are the ethnic/racial differences, if any, in the frequency, tone, and discomfort of mother daughter sexual communication and in mother-daughter concordance in reports of sexual communication; and is the relation between sexual communication and actual sexual activity the same across Latina, Black, and White dyads? Third, what factors (i.e., values that may differ by race/ethnicity, parenting practices, mental health risk) account for racial/ethnic differences in sexual communication? Even if racial/ethnic group differences are not found, how do these family factors relate to mother and adolescent reports of sexual communication? By addressing these questions, this study aims to explore the contextual factors of adolescent sexual behaviors and may provide information relevant to culturally tailoring interventions for diverse youth.

Method

Participants and Procedures

Participants came from a study entitled *The Cultural Context of Health Disparities in Adolescent Girls*, funded by the NIH. The sample was comprised of 194 adolescent girls (58% Latina, 22% Black, 20% non-Hispanic White) and their mothers from the mid-sized, low-income city of New Britain, CT. Methods of data collection included adolescent self-report and parent-report surveys administered using audio computer-assisted self-interview (ACASI) and individual interviews of mothers and their daughters in their preferred language (English or Spanish). Interviews were administered by trained graduate and undergraduate students, community collaborators, and the principal investigator. Families were recruited from schools, health centers, community agencies, and through word-of-mouth incentives. The interviews lasted approximately two hours, and mothers and daughters were each paid \$40 as compensation for their time. Mothers and daughters were interviewed separately in their preferred language. Approximately 20% of mothers completed interviews in Spanish. Whenever possible, measures were selected that have been previously translated and validated with Spanish-speaking individuals. For measures that have not been previously used, measures were translated, back-translated, and then piloted with members of the target population, as suggested by the WHO.

Measures

Adolescent risky sexual behavior. Adolescents were asked five questions about sexual activity from the Student Health Questionnaire (Coyle et al., 2004) and four questions about sexual activity from the CDC Youth Risk Behavior Surveillance System (YRBS; Eaton et al., 2010). Sexual items asked whether the adolescent had yet engaged in specific acts (e.g., vaginal sex) and about sexual history (e.g., more than one sexual partner ever). For the current purposes,

a count of nine potentially risky sexual activities (i.e., genital fondling of self or partner, oral sex of self or partner, sexual intercourse, sexual intercourse prior to age 14, more than one sexual partner ever, more than one sexual partner in the past three months, unprotected sex) was computed, with higher scores reflecting more sexual activity.

Sexual communication. Parents and adolescents were asked about the frequency and emotional tone (or valence) of communication about seven topics modeled after Ennett, Bauman, Foshee, Pemberton, & Hicks, (2001). Only responses from both mother and daughter regarding one item on sexual topics were used in analyses. Responses to the frequency measure were on a four-point scale from Never to Very Frequently. Responses to the valence question were on a five point Likert scale from Very Negative to Very Positive. It was explained that “negative” meant how much the dyad members fought, disagreed, or became upset when talking about a topic. Mothers and daughters were also asked to indicate how embarrassed they feel or would feel talking to the other dyad member (e.g., their daughter) about sex, and how embarrassed the other dyad member would feel talking to them about sex. This question was adapted from the Scale for the Comparison of the Sexual Attitudes of Adolescents and Their Parents (Fisher & Hall, 1988). Responses were on a five point Likert scale (*1=not at all, 5=very much*).

Mediating Factors

Values and attitudes that may account for differences in communication. Mothers’ and daughters’ attitudes towards females’ rights and roles were assessed using twelve items on a 5-point Likert scale (*1=strongly disagree, 5=strongly agree*) from the Adolescents’ Attitudes Towards Women (AATW; Galambos, Petersen, Richards, & Gitelson, 1985) measure. Based on results from factor analysis, responses were split into two categories of attitudes toward gender

equality (5 items, $\alpha = .74$) and attitudes toward traditional gender roles (7 items, $\alpha = .71$). A sample item of gender equality is: Girls should have the same freedoms as boys. A sample item of traditional gender roles is: Mothers of school age children should have a job outside the home only if necessary for money.

Mothers' and daughters' attitudes and perceived norms towards sex were assessed with 9 items and 10 items, respectively, adapted from the Scale for the Comparison of the Sexual Attitudes of Adolescents and Their Parents (Fisher & Hall, 1988). Items were revised to use more updated language. Only one item asking about religious beliefs about premarital sex was used, other than the aforementioned question about embarrassment. To assess perceived sexual and childbearing norms, 4 questions were created for the study that asked mothers and daughters about their perceptions regarding the average age at which adolescent girls and boys in their community start having sex, and the appropriate age for females and males to have children.

The commitment subscale of the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992), comprised of five items, assessed participants' sense of belonging, pride, and commitment to their racial/ethnic group. One multiple-choice question was added that asked mothers and adolescents what proportion of their friends were of their race or ethnicity. Mothers had a Cronbach's alpha of .79 and daughters had a .75. Maternal Acculturation was assessed with 4 items which asked mothers whether they grew up speaking a language other than English; if they did, they were asked to rate their comfort with English, and the frequency with which they watched television shows and spoke with their friends in their other language. Mothers also rated the frequency with which they attended religious or spiritual services.

Parenting practices. Maternal awareness about adolescents' behaviors was measured by six Likert-type questions from the widely used measure of Parental Supervision and Monitoring

originally developed by Kerr & Stattin, 2000. Through this measure, mothers ($\alpha = .78$) and daughters ($\alpha = .80$) reported on the mothers' knowledge about various domains of daughters' lives (e.g., friends, problems at school, how free time is spent). The Parental Control and Autonomy scale from the National Institute of Child Health and Development's (NICHD) Study of Early Child Care and Youth Development (SECCYD, <https://www.nichd.nih.gov/research/supported/Pages/seccyd.aspx>) measured the balance in how decisions are made about various domains of adolescents' lives, including dating, clothes, and afterschool time, using 8 items with a multiple-choice format (1= *my parents decide*, 2= *my parents decide after discussing it with me*, 3= *we decide together*, 4= *I decide after discussing it with my parents*, 5= *I decide all by myself*). The Cronbach's alpha score for mothers was .81 and for daughters was .73.

The Parental Warmth and Support subscale was adapted by the NICHD SECCYD (<https://www.nichd.nih.gov/research/supported/Pages/seccyd.aspx>) from the widely used Quality of Parental Relationships Inventory (Conger, Ge, Elder, Lorenz, & Simons, 1994) for developmentally appropriate language. Adolescents responded to 9 questions asking about the frequency of maternal warmth and support (e.g., How often does your mother let you know she really cares about you?) to assess the affective tone of the mother-child relationship. They were asked to indicate on a Likert scale the frequency of these behaviors over the past year (1 = *never* to 4 = *all the time*). The Chronbach's alpha for the Warmth subscale was 0.92.

Mental health risk. Two domains of maternal and adolescent psychopathology were assessed using widely validated measures. Maternal anxiety symptoms were measured with the 6-item *Anxiety* subscale of the Brief Symptom Inventory (BSI; Derogatis, 1975). Mothers rated the frequency that they experience various anxiety symptoms over the previous two weeks on a

5-point Likert scale (*0=not at all to 4=extremely*). In the current sample, the alpha reliability was .78. Maternal depressive symptoms were assessed with the 9-item Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, & Williams, 1999). Mothers rated the frequency of depressive symptoms over the previous two weeks on a 4-point Likert scale (*1=not at all to 4=nearly every day*). Items for the PHQ-9 were derived from DSM-IV diagnostic criteria for Major Depressive Disorder. A total score of 10 or above is considered the clinical cutoff for “probable depression”. In the current study, the alpha reliability was .88. Mothers’ perceptions of adolescent anxiety and depressive symptoms were measured using the anxiety and depressive subscales from the Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004), Parent Rating Scale – Adolescent Version. Mothers rated the frequency of anxiety and depressive symptoms that their daughters exhibited in the previous six months on a 4-point scale (*1 = never to 4 = almost always*). Cronbach alpha reliability scores for the anxiety subscale and depressive subscale in this study were .78 and .83, respectively.

Adolescent depressive symptoms were assessed using the 14-item Major Depression subscale of the Adolescent Psychopathology Scale- Short Form (APS-SF; Reynolds, 1998). Adolescents indicated how often they experienced various depressive symptoms (e.g., psychomotor retardation, insomnia, fatigue, suicidal ideation, guilt, difficulty concentrating, crying, anhedonia) over the past two weeks on a four-point Likert scale. The APS-SF Major Depression subscale Chronbach’s alpha was 0.90. Daughters also reported on their perceptions of their mother’s depressive symptoms from the previous six months using 9 items that were created for this study based on DSM-IV criteria for depression. Sample items include: My mother cries a lot; My mother does not seem very interested in things around her; My mother seems tired often or sleeps a lot. Ratings were on a 5-point Likert scale (*1 = not at all true to*

5 = *very much true*). Though this is not a validated measure, Cronbach's alpha demonstrated adequate reliability for this study ($\alpha = .82$).

Mothers were asked to report on distress due to PTSD symptoms (1 = *not at all*, 5 = *extremely*) from the Posttraumatic Stress Checklist-Civilian measure (PCL-C; Weathers, Litz, Huska, & Keane, 1994). Cronbach's reliability for this study was .93. To assess potential unwanted sexual experiences during childhood, a *yes/no* item was created asking mothers to think back to when they were a child, and indicate whether unwanted sexual events had happened to them before the age of 18. For the current purposes, mothers who endorsed having an unwanted sexual event before the age of 18 were considered to have childhood sexual abuse, although given the wording of the question the experiences they were reporting may not constitute sexual abuse as generally understood in the maltreatment literature since the experiences may have been from a peer.

Adolescents reported on their distress due to PTSD symptoms using 17 items from the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001). They indicated the most distressing or stressful type of event they have ever experienced from a list of 11 potentially traumatizing events. Adolescents were then asked to respond to 17 questions about post-trauma symptoms in relation to that event indicating on a four-point Likert scale the frequency with which they had experienced over the previous two weeks various DSM-IV PTSD symptoms. The Chronbach's alpha for the CPSS was 0.93.

Demographic information. Mothers and daughters reported their birthdate and race/ethnicity (Black, Hispanic/Latina, Caucasian/White, Asian, Native American, or Other). Adolescents also reported their grade and name of school. Mothers were asked to report the following additional demographic information: marital status, race/ethnicity of the adolescent's

biological father, birthplace, daughter's birthplace, biological father's birthplace, and parents' (i.e., maternal grandparents' birthplaces). If any of these individuals are said to have been born outside of the United States, mothers were asked to report the age at which the individual moved to the United States. Mothers who endorsed speaking any other language also completed a series of questions about their comfort with English. Mothers indicated how old they were when their first child was born, their educational level and that of the adolescent's father, current employment status, current housing situation (e.g., rental, section 8 qualified, homeowner), and daughters free lunch status.

Covariates. Factors that have consistently been associated with adolescent sexual risk were controlled for in analyses (Zimmer-Gembeck & Helfand, 2008). Control variables included adolescent age, maternal teenage motherhood, adolescent living with biological father, and a socioeconomic status risk composite. The SES risk composite was comprised of section 8 housing status, free or reduced priced lunch eligibility, and maternal education (less than high school diploma or equivalent). These covariates were used in analysis testing for racial/ethnic differences given that race/ethnicity and SES overlap in the US.

Data Analytic Plan

Prior to addressing research questions, descriptive statistics were computed for all variables.

Research question 1: Mother-daughter sexual communication considered dyadically and its relation to adolescent sexual risk. Several analyses were conducted to examine data dyadically. First, paired-samples t-tests and correlations were conducted for each type of communication variable on which mothers and daughters responded. This provided information about the level of agreement between mothers and daughters and similarity in dyad's responses

compared to other families. Next, bivariate correlations between all communication variables and adolescent sexual risk behavior were computed.

Finally, a polynomial regression approach (i.e., using interaction terms) was taken to examine how discrepancies between mother and daughter reports of communication relate to sexual activity, following De Los Reyes, Salas, Menzer, and Daruwala's (2013) recommendations for best practices in using parent-child discrepancy scores statistically. Specifically, regression approaches to moderation were conducted following recommendations and using SPSS macros by Hayes (2013). In the first step, covariates were entered (adolescent age, SES risk composite, living with biological father, maternal teen motherhood). In the second step, mother and adolescent reports of sexual communication frequency were entered. In the third step, the interaction term for mother and adolescent reports of sexual communication frequency were entered. Holmbeck's (2002a) guidelines for post hoc probing of moderator effects were used when significant interaction effects were present. This included (a) computing slope estimates using centered variables to reduce multicollinearity and (b) examining statistical significance of these slopes for frequent (1 *SD* above the mean) and infrequent (1 *SD* below the mean) sexual communication.

Research question 2: Race/ethnicity as a moderator of the relations between mother-daughter sexual communication and adolescent sexual behavior. First, MANCOVAs were used to examine racial/ethnic differences in communication variables, controlling for demographic factors. Correlations between communication variables and sexual risk were computed and Fisher transformations were used to see if any of these correlations differed significantly by race/ethnicity.

Research question 3: Family factors contributing to communication differences.

Results from question 2 determined this analysis which focused on identifying family factors that related to communication. As a first step, partial correlations between family factors and communication variables were estimated. MANCOVAs were then used to determine if communication frequency was associated with the other communication variables (tone, embarrassment) as well as with family factors, with a particular focus on determining if the high risk group of adolescent girls was associated with any specific family characteristics.

Power Analysis

As recommended by Kline (2005), a sample size of 200 was selected in order to use path analysis and SEM in the full sample. For tests of racial/ethnic group differences (main effects), a sample size of 45 adolescents per group provides adequate power ($1-\beta=.80$) to detect a medium size effect ($d=.50$) with alpha set at .05. Thus, power to detect racial/ethnic group differences was somewhat limited given the smaller group size of White adolescents.

Results

Racial/Ethnic Differences in Demographic Characteristics

In total, 194 mothers and daughters participated in the study, with Latinas comprising the majority of the sample. Notably, the number of mothers and daughters per racial/ethnic group were not equivalent given that daughters had the ability to choose their own racial/ethnic category, which did not always match that of their mothers. This only occurred in 22 dyads (11.3%) and often happened due to biracial status of the adolescent girls who identified themselves as a race/ethnicity different than their mothers. Maternal race/ethnicity was used in analyses investigating racial/ethnic differences since one focus of this study is the potential

impact that race and culture might have on maternal transmission of sexual information to their adolescent daughters. Preliminary analyses examined the composition of the sample to detect potential differences by race/ethnicity in socioeconomic status or other possible confounding variables in the overall sample (see Table 1).

Mothers/caretakers ranged from 29 – 66 years old, which significantly differed by race, $F(2, 191) = 6.48, p = .002$. Latina mothers ($M = 39.87, SD = 7.87$) were significantly younger than Black ($M = 44.04, SD = 7.70$) and White ($M = 43.87, SD = 7.80$) mothers. Adolescent girls ranged from 13.08 – 17.83 years, which did not significantly differ in age by maternal race, $F(2, 191) = .179, p = .84, (M=15.40, SD=1.05)$. Socioeconomic factors included free school lunch eligibility, maternal education less than high school, section 8 subsidized housing status, and adolescents living with their biological father. As reported by the maternal figures, dyads differed by race/ethnicity on most of these socioeconomic factors including daughter's eligibility for free versus reduced or full price school lunch, maternal education, and living in Section 8 subsidized housing.

Girls with Latina and Black mothers were more likely than girls with White mothers to have free school lunch, $X^2(4, N=186) = 32.20, p < .001$, have a mother who did not graduate from high school, $X^2(4, N=194) = 27.05, p < .001$, and live in subsidized housing, $X^2(2, N=188) = 16.73, p < .001$. Daughters did not differ significantly by race with regards to living in their home with their biological father, $X^2(2, N=191) = 1.48, p > .05$. Because most studies indicate SES risk factors compound risk (i.e., more risk factors = greater risk), a composite was formed. The racial/ethnic groups differed on the SES composite variable, $F(2, 191) = 18.34, p = .000$, with White families having fewer risks ($M = 0.32, SD = 0.53$), than Black ($M = 1.26, SD = 0.98$), and Latina ($M = 1.34, SD = 0.99$) families, as reported by mothers.

Another characteristic that differed by race was the age at which mothers had their first child and teenage motherhood status of the maternal figure, $F(2, 187) = 25.21, p < .001$, (see Table 2). Latina mothers were the youngest mothers at first birth with the mean age of 18.90 ($SD=4.20$), Black women the next youngest with the mean age of 21.23 ($SD=5.14$), and White women the oldest with the mean age of 25.36 ($SD=5.92$). Latinas were also more likely than any other group to have had their first child when they were a teenager (i.e., less than 20 years old), $X^2(2, N=190) = 31.09, p < .001$, with 76 Latinas (68.5%) being teen mothers. Black women were the next likely with 19 women (44.2%) being teen mothers and White women were the least likely with 6 women (16.7%) being teen mothers. Since teen motherhood may influence sexual communication (Grossman, Charmaraman, & Erkut, 2013), this variable was used as a control.

With regards to sexual intercourse as reported by the adolescents (see table 2), no differences in race were found regardless of maternal, $X^2(2, N=193) = 0.41, p = 0.82$, or adolescent race, $X^2(2, N=193) = 3.07, p = 0.22$. Of the girls with Latina mothers, 31 (27.7%) reported ever having sex; of those with Black mothers, 10 (23.3%) reported ever having sex; and of the girls with White mothers, 11 (28.9%) reported ever having sex in their life. Similarly, there were no significant differences by race for sexually risky behaviors, $F(2, 185) = .909, p = .41$, with daughters of Latina mothers having an average of 1.39 ($SD=2.13$) sexual risk behaviors, those of Black mothers with an average of 1.16 ($SD=1.95$) behaviors, and those of White mothers with an average of 1.86 ($SD=2.45$) risky behaviors. See Table 3 for a frequency of the total number of sexual risk behaviors reported by adolescents.

Research Question 1: Mother-Daughter Sexual Communication Considered Dyadically and its Relation to Adolescent Sexual Risk Behaviors

Paired-samples t-tests were conducted to evaluate the differences and similarities in responses endorsed by mothers and their daughters regarding frequency, tone, and level of embarrassment in sexual communication. Examining the overall sample, mothers and daughters differed significantly in their mean responses for all sexual communication variables (see Table 4). Mothers tended to report greater amounts of sexual communication ($M = 2.77$, $SD = 0.88$) than daughters ($M = 2.38$, $SD = 1.00$), $t(190) = 4.62$, $p = .000$, and a more positive tone ($M = 4.08$, $SD = 0.92$) in conversations than daughters ($M = 3.40$, $SD = 1.17$), $t(139) = 5.89$, $p = .000$. Mothers were also more likely to self-report a lower level of embarrassment ($M = 1.54$, $SD = 1.01$) for talking about sex than their daughters perceived them to have ($M = 2.07$, $SD = 1.33$), $t(181) = -4.33$, $p = .000$, as well as a lower level of perceived embarrassment for their own daughters ($M = 2.56$, $SD = 1.34$) than the adolescent girls tended to report ($M = 3.26$, $SD = 1.52$), $t(189) = -5.20$, $p = .000$. In other words, mothers tended to believe that they and their daughters were more comfortable discussing sexual topics than daughters did.

The relationships between mother and daughter reports of frequency, tone, and embarrassment, while controlling for adolescent age, were also investigated using partial correlations. Results demonstrate a variety of small and moderate statistically significant correlations (see Table 5). Positive correlations were found between mother and daughter reports of communication frequency, $r = .22$, $n = 188$, $p < .01$, maternal reports of frequency and tone, $r = .33$, $n = 174$, $p < .001$, and adolescent reports of frequency and tone, $r = .27$, $n = 146$, $p < .005$. Thus, results show that in this sample mothers and daughters slightly agree on the amount of communication that occurs and greater communication is likely to be reported when a

more positive tone is perceived. Frequency was negatively related with several embarrassment variables including mother report of frequency & own embarrassment, $r = -.15$, $n = 189$, $p < .05$, daughter report of frequency and own embarrassment, $r = -.30$, $n = 186$, $p < .001$, maternal reports of frequency and adolescent embarrassment, $r = -.22$, $n = 190$, $p < .05$, and adolescent reports of frequency and maternal embarrassment, $r = -.30$, $n = 180$, $p < .01$. These results indicate that frequency of communication tends to be lower when members of the dyad feel or perceive more embarrassment.

Maternal report of conversation tone was positively correlated with adolescent tone, $r = .19$, $n = 137$, $p < .05$. However, mother report of tone was negatively correlated with adolescent self-report of embarrassment, $r = -.26$, $n = 171$, $p < .01$, and mother report of daughter embarrassment, $r = -.41$, $n = 174$, $p < .001$. Adolescent report of tone was also negatively correlated with own embarrassment, $r = -.26$, $n = 144$, $p < .01$. Mothers and daughters seem to also slightly agree on the tone of conversations and the tone was negatively viewed by mothers who were likely to perceive greater daughter embarrassment and who had daughters that reported more embarrassment.

Mother self-report of embarrassment and mother report of daughter embarrassment had a moderate, positive correlation, $r = .42$, $n = 189$, $p < .001$. Daughters' self-report of embarrassment was positively correlated with mother report of daughter's embarrassment, $r = .17$, $n = 187$, $p < .05$. Adolescent self-report of embarrassment also had a moderate, positive correlation with their report of maternal embarrassment, $r = .39$, $n = 180$, $p < .001$. The moderate correlations demonstrate that when individual reporters feel greater embarrassment, they perceive their dyad partner to also have greater embarrassment. Moreover, mothers' perceptions of daughter embarrassment reflected daughter embarrassment to a small degree.

Controlling for adolescent age, partial correlations between all communication variables and adolescent sexual risk behavior were also computed (see Table 6). A small, positive correlation was found between maternal report of frequency of sexual communication and adolescent sexual risk behavior, $r = .19, n = 190, p < .01$. In contrast, adolescent report of frequency was not related to sexual risk. A small, negative correlation was found between adolescent report of tone and adolescent sexual risk behavior, $r = -.17, n = 146, p < .05$. These results indicate that girls' sexual risk behaviors tend to be greater when mothers report more frequent sexual communication and daughters report a more negative tone in sexual communication. No other statistically significant correlations were found.

Next, regression analyses were used to test the predictive importance of discrepancy scores in mother and daughter reports of sexual communication and their relation to adolescent sexual risk behaviors following recommended methods for testing reporter discrepancy (De Los Reyes et al., 2013). This approach involves using interaction terms rather than difference scores and was conducted with frequency, tone, and embarrassment variables; however, tone and embarrassment did not yield significant outcomes. Results of the regression analyses for the frequency in communication are in Table 7; the overall model was significant, $F(7, 177) = 8.91, p < .001, R^2 = .24$. As shown, greater adolescent age was related to greater sexual risk behaviors. In addition, greater maternal-reported sexual communication was related to greater sexual risk behaviors ($B = 0.33, SE = 0.16, p < .05$), but adolescent-reported sexual communication was not ($B = -0.04, SE = 0.14, p = .76$). Finally, the interaction between maternal and adolescent reports of sexual communication explained a significant amount of variance in adolescent sexual risk behavior, above and beyond individual reports of sexual communication ($B = -0.39, SE = 0.16, p < .05$).

Post hoc probing tests of moderation effects were conducted (Holmbeck, 2002a) to further examine the interaction between maternal and adolescent reports of sexual communication on adolescent sexual risk behaviors (see Figure 1). When adolescents reported high levels of sexual communication, there was no significant relation between maternal report of sexual communication and adolescent sexual risk behaviors ($B = -0.07$, $SE = 0.24$, $p > .05$). In contrast, when adolescents reported average levels of communication, there was a significant, positive relationship between mother's reports of communication and adolescent sexual behavior ($B = 0.33$, $SE = 0.16$, $p < .05$). Similar results were found when adolescents reported low levels of communication ($B = 0.72$, $SE = 0.21$, $p < .005$), with the strongest association between maternal reports of communication and sexual risk behavior found when adolescents reported no or low communication. As shown, sexual risk behavior was highest for adolescents in which mothers reported high communication but adolescents reported moderate or low communication. Overall, maternal and adolescent concordance on reports of low levels of sexual communication related to the lowest levels of adolescent sexual risk behaviors relative to other instances of mother-daughter reporting patterns of sexual communication (e.g., maternal "high" vs. adolescent "low"; maternal "high" vs. adolescent "average/medium"). In contrast, dyads in which mothers reported high levels of communication and daughters reported low levels of communication tended to demonstrate the greatest adolescent sexual risk behaviors.

Based on the Johnson-Neyman technique, the region of significance at the .05 level of probability for the moderator variable was .017. This is the value of the moderator variable at which the significant association between maternal communication frequency and sexual risk becomes non-significant statistically. Given that this value is almost equal to the mean of zero for adolescent report of communication frequency based on a standardized metric, it indicates

that maternal communication and sexual risk behavior were generally not related for most of the adolescent girls above the mean on their reports of sexual communication frequency but were for those below the mean. That is, maternal report of the frequency of communication was mostly related to sexual risk behavior when adolescents reported less frequent communication.

Given these findings, typologies of different communication patterns (mother frequent, daughter frequent; mother frequent, daughter infrequent; mother infrequent, daughter frequent; mother infrequent, daughter infrequent) were constructed (see Table 8). Reports of frequent communication by both dyad members was most often observed with 32.5% ($n = 62$) of the sample resulting in this “Concordant high” type. Of the entire sample, 31.4% ($n = 60$) demonstrated a discordance with mothers reporting a high level of communication and daughters reporting a low level of communication, labeled as “Discordant mother high” type. The next typology was comprised of 26.2% ($n = 50$) of the sample, with both mother and daughter reporting low communication in this “Concordant low” group. The smallest group consisted of daughters who reported greater sexual communication than their mothers with 9.9% ($n=19$) of the dyads resulting in this “Discordant mother low” group.

A follow-up ANCOVA was conducted to examine differences in sexual risk behavior in these four communication pattern groups. As expected, the pattern of results was similar to findings from tests using regression approaches to interactions above, although not meeting criteria of $p < .05$: $F(3, 186) = 2.13, p = .09$, (see Figure 2). Pairwise comparisons though demonstrated a significant difference between the “concordant low” ($M = .98, SE = .28$) and the “discordant mother high” ($M = 1.92, SE = .26$) groups. Results reflected those described above in which adolescents that engaged in more sexual risk behaviors were from dyads in the “discordant mother high” group. The group that was next highest on adolescent sexual risk

behavior was the “discordant mother low” group ($M = 1.50$, $SE = .45$), followed by the “concordant high” group ($M = 1.35$, $SE = .25$). The “concordant low” group had the least amount of adolescent sexual risk behavior, on average.

Research Question 2: Racial/ethnic differences in communication and race/ethnicity as a Moderator of the Relations Between Mother-Daughter Sexual Communication and Adolescent Sexual Behavior

Racial/ethnic differences in the frequency, tone, and level of embarrassment in sexual communication between mothers and their teenage daughters were computed. MANCOVA was used with the SES composite, mother’s age when first became a mother, adolescent age, and living with the adolescent’s biological father as the covariates. Table 9 presents the main effects on mother-daughter sexual communication by race/ethnicity. Maternal report of communication frequency differed significantly by race/ethnicity, $F(2, 180) = 3.28$, $p < .05$. Latina mothers, on average, reported greater sexual communication ($M = 2.93$, $SD = 0.86$; range 1-5) than Black mothers ($M = 2.47$, $SD = 1.00$). White mothers ($M = 2.66$, $SD = 0.73$) did not differ significantly from either race/ethnicity. Adolescent reports of frequency did not differ by race/ethnicity, $F(2, 178) = .246$, $p = .78$.

Although all participants were able to indicate how frequently they talk about sex, only those that responded “Once in a while,” “Often,” or “All the time” (i.e., those that did not respond “Never”) were asked to indicate the valence of these conversations; thus, the included sample in this analysis was restricted. In terms of tone, maternal caregivers did not differ significantly by race/ethnicity in their reported tone of sexual communication with their daughters, $F(2, 164) = 1.63$, $p = .20$, (overall $M = 4.11$, $SD = 0.90$), range 1-5. Similarly,

adolescent girls did not differ by race/ethnicity in their reported tone of sexual communication, $F(2, 136) = .493, p = .61, (M = 3.37, SD = 1.17)$, range 1-5.

Self-report of embarrassment (range 1-5) did not differ significantly by race/ethnicity for mothers, $F(2, 179) = 1.70, p = .19, (M = 1.54, SD = 0.99)$; or daughters, $F(2, 177) = .46, p = .64, (M = 3.24, SD = 1.52)$. Maternal report of perceived daughter embarrassment also did not differ significantly by race/ethnicity $F(2, 180) = 1.44, p = .24, (M = 2.53, SD = 1.34)$; nor did adolescent report of perceived mother embarrassment did not differ significantly by race/ethnicity, $F(2, 170) = .84, p = .44, (M = 2.10, SD = 1.35)$.

Initially, analyses were also going to be conducted to determine whether the association between communication variables and sexual risk differed by race. Given the small sample sizes of certain groups, there was limited power to test for racial/ethnic differences in path models as originally proposed or whether the interaction found above differed by race/ethnicity (i.e., a 3-way interaction). However, correlations between communication variables and sexual risk were computed by race/ethnicity, and Fisher transformations were used to see if any of these correlations differed significantly. There was no evidence of racial/ethnic differences in the association between communication and sexual risk. In general, communication variables were not related to sexual risk except for maternal communication frequency.

A chi-square test was also conducted to examine whether the four different patterns of communication concordance described above differed by race/ethnicity. There were no statistically significant differences by race/ethnicity, $X^2(6, N=191) = 6.40, p = 0.38$.

Research Question 3: Family Factors Contributing to Communication Differences

The third research question was meant to identify family factors that may mediate racial/ethnic differences in sexual communication variables or, if no racial/ethnic differences existed, to identify family factors that may contribute to communication differences. Few racial/ethnic differences existed in communication variables; consequently, analyses focused only on identifying family factors that relate to communication rather than family factors that mediate racial/ethnic differences. For descriptive statistics on all family factors see Tables 10-13. As a first step, correlations between family factors and communication variables controlling for adolescent age were estimated. Family factor variables included: family values (i.e., attitudes toward gender roles, sex norms, ethnic identity, maternal acculturation, religious beliefs), parenting practices (i.e., parental monitoring, parental control/adolescent autonomy, maternal warmth), and mental health risk (i.e., anxiety, depression, PTSD, maternal sexual abuse history). These results are presented below.

Results from RQ1 suggested that it is the interaction between maternal and adolescent communication that may be associated with sexual risk. Consequently, MANCOVAs were used to determine if the four dyadic patterns of communication frequency were associated with the other communication variables (tone, embarrassment) as well as with family factors, with a particular focus on determining if the “discordant mother high” group (high mother report and low daughter report) was associated with any specific family characteristics.

Communication frequency. Correlations between family factors and communication variables, controlling for age, are presented in Tables 14-19. As shown, the frequency of communication was related to certain family values and parenting practices, but not to any

mental health variables. In terms of family values, maternal report of communication was positively correlated with adolescent attitude towards traditional gender roles, $r = .17, n = 190, p < .05$, and adolescent report of family religious beliefs about sex before marriage, $r = -.179, n = 183, p < .05$. Daughters' reports of sexual communication were only correlated with adolescent attitude towards traditional gender roles, $r = .187, n = 189, p < .05$. Sex norms, ethnic identity, and maternal acculturation were not related to mother or daughter sexual communication frequency. In terms of parenting practices, maternal report of communication frequency was positively correlated with maternal report of parental monitoring, $r = .19, n = 190, p < .01$, but none of the other variables. Adolescent report of communication frequency was correlated with adolescent report of parental monitoring, $r = .21, n = 189, p < .01$ and of maternal warmth, $r = .26, n = 189, p < .001$. Overall, correlations were small in magnitude, but suggest that communication is higher in families with more traditional views of gender roles, less religious beliefs about sexual prohibitions, greater parental monitoring, and more warmth in the mother-daughter relationship.

Communication tone. Communication tone was related to variables in all three areas of family factors. In terms of family values, maternal report of sexual communication tone was negatively correlated with maternal attitude towards gender equality, $r = -.17, n = 174, p < .05$, but positively correlated with adolescent attitude towards traditional gender roles, $r = .17, n = 174, p < .05$. Maternal tone was also positively correlated with adolescent report of sex norms, specifically typical age of a boy's first sexual encounter, $r = .16, n = 169, p < .05$, and mothers' report of how often they attend spiritual services, $r = .19, n = 174, p < .05$. Daughters' report of tone had small, positive correlations with adolescent report of sex norms, including average age of a girl's first sexual encounter, $r = .18, n = 144, p < .05$, as well as a boy's first sexual

encounter, $r = .23$, $n = 144$, $p < .01$. Ethnic identity and maternal acculturation were not related to communication tone.

In terms of parenting practices maternal report of sexual communication tone was positively correlated with maternal report of monitoring, $r = .26$, $n = 174$, $p < .01$, and adolescent report of monitoring, $r = .18$, $n = 174$, $p < .05$. Adolescent reports of communication tone were positively correlated with adolescent report of parental monitoring, $r = .26$, $n = 146$, $p < .01$, and maternal warmth, $r = .18$, $n = 146$, $p < .05$. Tone was not related to parental control/adolescent autonomy. Regarding mental health risk, maternal tone was negatively correlated with maternal anxiety, $r = -.22$, $n = 171$, $p < .01$, maternal depression, $r = -.16$, $n = 171$, $p < .05$, and maternal PTSD, $r = -.19$, $n = 171$, $p < .05$. It was also negatively correlated with mothers' report of adolescent depression, $r = -.30$, $n = 174$, $p < .001$, and daughters' report of maternal depression, $r = -.18$, $n = 173$, $p < .05$. Adolescent tone was negatively correlated with adolescent depression, $r = -.17$, $n = 146$, $p < .05$, and daughters' report of maternal depression, $r = -.21$, $n = 171$, $p < .05$. Once again, correlations were mostly small in magnitude. Nevertheless, this data suggests that tone is more positive in families with mothers that value gender equality less and daughters that have more traditional attitudes towards gender roles, greater levels of parental monitoring, and more maternal warmth. Mothers in these families also tended to have fewer symptoms of mental health difficulties, whereas daughters had fewer depressive symptoms, and both dyad members perceived fewer depressive symptoms in their dyadic partner.

Communication embarrassment. Variables of mother embarrassment were also related to all three areas of family factors. Examining family values, mothers' self-report of embarrassment had a small, positive correlation to maternal attitude towards traditional gender roles, $r = .17$, $n = 189$, $p < .05$, but a small, negative correlation to maternal acculturation,

$r = -.17, n = 189, p < .05$, mothers' report of how often they attend spiritual services, $r = -.15, n = 189, p < .05$, and adolescent report of family religious beliefs about sex before marriage, $r = -.15, n = 182, p < .05$. Daughters' perceptions of mothers' embarrassment were related to all sex norms as reported by the adolescents. There were small, positive correlations with the average age girls first have sex, $r = .18, n = 179, p < .05$, and when boys first have sex, $r = .15, n = 179, p < .05$, as well as the ideal age for women to become mothers, $r = .18, n = 180, p < .05$ and for men to become fathers, $r = .16, n = 180, p < .05$. There were no correlations with ethnic identity. In terms of parenting practices, daughters' report of maternal embarrassment was negatively correlated with adolescent report of monitoring, $r = -.25, n = 181, p < .001$, maternal report of parental control/adolescent autonomy, $r = -.15, n = 180, p = .05$, and adolescent report of maternal warmth, $r = -.29, n = 180, p < .001$.

In terms of mental health risk, maternal self-report of embarrassment was positively correlated with maternal anxiety, $r = .15, n = 185, p < .05$, maternal depression, $r = .15, n = 185, p < .05$, maternal PTSD, $r = .18, n = 185, p < .05$, and mothers' report of adolescent depression, $r = .20, n = 189, p < .01$. Adolescent report of maternal embarrassment was negatively correlated with maternal depressive symptoms, $r = -.16, n = 176, p < .05$, and maternal PTSD, $r = -.17, n = 176, p < .05$; but positively correlated with adolescent report of maternal depression, $r = .19, n = 180, p < .01$. Correlations were mostly modest and suggest that mothers were more embarrassed when they held greater traditional attitudes towards gender roles, were less acculturated, attended spiritual services less frequently, had greater symptoms of mental health difficulties, and perceived their daughters to be more depressed. They also had daughters with fewer religious beliefs about sexual prohibitions who also believed that males and females have sex and should become parents at older ages. Daughters perceived their mothers to be more

embarrassed when there was less parental monitoring, adolescent autonomy, and maternal warmth. These mothers also had fewer depressive and PTSD symptoms, but were perceived to be more depressed by their daughters.

Daughter embarrassment was related to family factors from all three areas that were explored. In terms of family values, adolescent self-report of embarrassment was negatively correlated with adolescent ethnic identity, $r = -.26$, $n = 186$, $p < .001$, but positively correlated with adolescent report of family religious beliefs about sex before marriage, $r = .16$, $n = 181$, $p < .05$. Maternal report of daughter embarrassment was positively related to maternal attitude towards gender roles, $r = .14$, $n = 190$, $p = .05$, and negatively related to adolescent attitude towards gender roles, $r = -.14$, $n = 190$, $p = .05$, maternal ethnic identity, $r = -.17$, $n = 184$, $p < .05$, adolescent ethnic identity, $r = -.23$, $n = 189$, $p < .01$, and mothers' attendance of religious services, $r = -.23$, $n = 190$, $p < .01$.

Regarding parenting practices, adolescent self-report of embarrassment had negative correlations to adolescent report of parental monitoring, $r = -.32$, $n = 188$, $p < .001$, and maternal warmth, $r = -.20$, $n = 187$, $p = .05$. Mothers' report of daughter embarrassment had small, negative correlations to maternal, $r = -.22$, $n = 190$, $p < .01$, and adolescent report of monitoring, $r = -.19$, $n = 190$, $p = .01$, and adolescent report of maternal warmth, $r = -.20$, $n = 189$, $p < .01$. Daughters' self-report of embarrassment was positively correlated with adolescent depression, $r = .14$, $n = 188$, $p < .05$, and adolescent report of maternal depression, $r = .22$, $n = 187$, $p < .01$. Mothers' report of daughter embarrassment was positively correlated with maternal depression, $r = .17$, $n = 185$, $p < .05$, adolescent depression, $r = .18$, $n = 190$, $p < .05$, maternal report of adolescent depression, $r = .28$, $n = 190$, $p < .001$, and adolescent report of maternal depression, $r = .15$, $n = 189$, $p < .05$.

In general, correlations were small but indicate that families with lower ethnic identity, less parental monitoring, and less warmth in the mother-daughter relationship tended to have girls who were more embarrassed and who were perceived as more embarrassed by their mothers. These girls were also more likely to have stronger religious beliefs about sexual prohibition, felt more depressed, and believed that their mothers were more depressed. Mothers who perceived that their daughters were more embarrassed were more likely to have stronger agreement to traditional gender roles, though their adolescents held less traditional views on gender roles, and these mothers attended fewer religious services. These mothers also belonged to families in which both mothers and daughters endorsed more depressive symptoms and perceived each other as more depressed.

Due to the categorical nature of maternal childhood sexual abuse, a mental health risk variable, MANCOVAs were run to test its relation to the communication variables, controlling for adolescent age (see Table 20). Although maternal childhood sexual abuse was not related to maternal report of sexual communication, $F(1, 183) = .12, p = .74$, it was associated with differences in adolescent report of communication, $F(1, 181) = 5.30, p = .02$. More frequent sexual communication was reported by adolescents of mothers who reported childhood sexual abuse ($M = 2.63, SD = 1.02$ vs. $M = 2.25, SD = .95$). No statistically significant group differences were found with either maternal, $F(1, 169) = 1.31, p = .25$, or adolescent, $F(1, 141) = .28, p = .60$, report of tone and maternal sexual abuse, or mothers' self-report of embarrassment, $F(1, 182) = .24, p = .63$.

Maternal childhood sexual abuse was associated with adolescent report of mother embarrassment about sexual communication, $F(1, 173) = 7.46, p = .007$, with adolescents of mothers reporting childhood sexual abuse perceiving their mothers as less embarrassed to talk

about sex than adolescents of mothers without a childhood sexual abuse history ($M = 1.77$, $SD = 1.17$ vs. $M = 2.30$, $SD = 1.42$). Similarly, maternal report of daughter embarrassment was significantly related to childhood sexual abuse history, $F(1, 183) = 4.57$, $p = .03$, with mothers who endorsed sexual abuse perceiving their daughters to be more embarrassed ($M = 2.83$, $SD = 1.38$ vs. $M = 2.43$, $SD = 1.32$). Daughter self-report of embarrassment demonstrated the opposite pattern, $F(1, 181) = 3.63$, $p = .05$, in which on average girls reported less embarrassment when they had mothers that experienced sexual abuse ($M = 2.97$, $SD = 1.61$ vs. $M = 3.42$, $SD = 1.45$). In sum, these findings indicate that in dyads where a mother reports a history of childhood sexual abuse, daughters report more frequent sexual communication. These daughters also believe their mothers are less embarrassed to talk about sex, and they feel less embarrassment talking to their mothers. Interestingly, however, their mothers perceive their daughters to be more embarrassed than mothers who do not report childhood sexual abuse.

Differences in communication variables and family factors by communication group patterns. Next, because of the correlations that resulted between the communication variables of frequency, tone, and embarrassment, MANCOVAs were run to determine if there were any group differences in valence and discomfort variables for the four sexual communication dyadic typologies (“concordant low”, “discordant mother low”, “discordant mother high”, and “concordant high”). MANCOVAs were also run to determine group differences in family factors for the four typologies.

Communication variables. All tone and embarrassment variables were significantly different by group overall, except for mothers’ self-report of embarrassment which demonstrated differences through pairwise comparisons. Mothers’ report of tone, $F(3, 171) = 5.21$, $p = .002$, differed by typology in that the “concordant low” group had the lowest mean in tone ($M=3.58$,

$SD=0.98$) whereas the “discordant mother high” ($M=4.22$, $SD=0.85$) and “concordant high” ($M=4.23$, $SD=0.88$) groups had the highest mean scores for tone. Daughters’ report of tone, $F(3, 143) = 3.77$, $p = .01$, resulted in the “concordant low” group ($M=2.90$, $SD=1.26$) having a lower mean tone than the “discordant mother low” ($M=3.89$, $SD=0.88$) and the “concordant high” ($M=3.62$, $SD=1.14$) groups. The “discordant mother low” group ($M=3.89$, $SD=0.88$) had a greater mean tone than the “discordant mother high” ($M=3.18$, $SD=1.13$) group. This indicates the mothers and daughters who perceived greater amounts of communication also perceived more positive tone in sex-related conversations. This also reinforces the disconnect between mothers and daughters within the group of adolescents who are most likely to engage in sexual risk behaviors, as mothers in this group tend to believe the tone of sexual conversations is on the more positive end of the spectrum but these daughters tend to believe the tone is on the more negative end of the spectrum.

Though mothers’ self-report of embarrassment did not show significant overall group differences, $F(3, 185) = 1.74$, $p = .16$, pairwise comparisons showed that mothers were more embarrassed on average in the “concordant low” group ($M=1.78$, $SD=1.18$) than in the “discordant mother high” group ($M=1.38$, $SD=0.80$). Daughters’ report of mother embarrassment, $F(3, 177) = 4.80$, $p = .003$, demonstrated that the girls in the “concordant low” ($M=2.61$, $SD=1.47$) group generally perceived their mothers as more embarrassed than did the girls in the “discordant mother low” ($M=1.58$, $SD=1.07$) and “concordant high” ($M=1.81$, $SD=1.21$) groups. Taken together these data indicate that mothers tended to feel more embarrassed and were typically perceived as more embarrassed when they had daughters who agreed on low communication and were least likely to engage in sexual risk behaviors. In

contrast, mothers who felt least embarrassed tended to have daughters who disagreed on high levels of communication and were more likely to engage in sexual risk behaviors.

Daughters' self-report of embarrassment differed by typology, $F(3, 183) = 4.34, p = .006$, with the girls in the "concordant low" group ($M=3.76, SD=1.39$) feeling more embarrassed overall than the girls in the "discordant mother low" ($M=2.58, SD=1.58$) and "concordant high" ($M=2.90, SD=1.59$) groups. Mothers' report of daughter embarrassment also differed by group, $F(3, 186) = 4.24, p = .006$, with mothers in the "concordant low" dyads ($M=3.08, SD=1.40$) on average perceiving their daughters as more embarrassed than mothers in the "discordant mother high" ($M=2.43, SD=1.33$) and "concordant high" ($M=2.21, SD=1.24$) groups. Similarly to mothers, daughters tended to feel more embarrassed and were typically perceived as more embarrassed when they had mothers who agreed on low communication. Once again, these were the girls who were least likely to engage in sexual risk behaviors.

Family values. Most family values variables did not differ between the four types of communication dyads, though there were group differences in sex norms and attendance of spiritual services. Maternal report on the ideal age of when males become fathers was significantly different by group, $F(3, 184) = 3.37, p = .02$, with the "concordant high" group having the oldest age ($M = 27.62, SE = 3.95$) and the "discordant mother high" group having the youngest age ($M = 25.67, SE = 3.25$). These findings suggest that daughters who report less communication than their mothers and are most likely to engage in sexual risk behaviors tend to have mothers who believe the ideal age for males to become fathers is younger than other mothers believe.

Overall group differences were not found in adolescent report of average age that boys first have sex, $F(3, 186) = 1.47, p = .22$, but pairwise comparisons showed that the “concordant high” group ($M = 13.36, SE = 1.98$) believed boys first have sex at a significantly younger mean age than the “concordant low” group did ($M = 14.16, SE = 1.81$). Therefore, daughters who agreed with their mothers that they spoke about sex often were more likely to believe that boys started having sex at much younger ages than did daughters who agreed on low communication.

Maternal report of attendance of spiritual services did not result in overall group differences, $F(3, 186) = 2.47, p = .06$, though pairwise comparisons showed the “discordant mother low” group ($M = 1.16, SE = 1.54$) had a lower mean attendance of spiritual services than the “discordant mother high” group ($M = 2.13, SE = 1.52$). Daughters who perceived less communication than their mothers and were at greatest risk for sexual risk behaviors thus tended to have mothers who attended spiritual services more frequently.

Parenting practices. Parental monitoring did not differ significantly overall between the different communication patterns, $F(3, 186) = 2.34, p = .08$. However, pairwise comparisons determined significant group differences in mothers’ report of parental monitoring. The “concordant low” group ($M = 3.09, SE = .07$) had significantly lower scores in parental monitoring than did the “discordant mother high” group ($M = 3.32, SE = .07$). This means that in this sample, on average, the greatest levels of parental monitoring were related to the group of adolescents who report less communication than their mothers and who are most likely to engage in sexual risk behaviors.

Neither maternal nor adolescent report of parental control/adolescent autonomy produced statistically significant group differences. Maternal warmth, as reported by daughters, did differ

significantly by group, $F(3, 186) = 3.87, p = .01$. Warmth was lower in the “concordant low” group ($M = 2.96, SE = .10$) than in the “discordant mother low” ($M = 3.39, SE = .16$) and “concordant high” ($M = 3.37, SE = .09$) groups. Results indicate that girls in dyads where daughters perceive more frequent communication tend to view their mothers as warmer than girls in the dyads that agree with less frequent communication.

Mental health risk. Mental health risk variables did not result in significant differences by group. Chi-square was used to investigate the connection between mothers’ experiences with childhood sexual abuse and the four communication typologies, which showed significant group differences, $X^2(3, N=184) = 9.25, p < .05$, (see Table 21). The “discordant mother low” group was different from the other typologies in that this group had a greater percentage of mothers who endorsed sexual abuse than did not (66.7% vs. 33.3%), whereas all other groups had a smaller percentage of women who endorsed abuse than did not (e.g., concordant low: 31.9% vs. 68.1%). Thus, adolescents who reported more communication than their mothers also had mothers that were more likely to report childhood sexual abuse.

Discussion

Parent-adolescent communication about sex is viewed as an effective strategy for reducing adolescent sexual risk behavior. However, evidence to support this belief has been mixed and it is unclear if the effects are the same across diverse racial/ethnic backgrounds or the cultural and relational context in which communication occurs. Further, there is limited research examining communication from a dyadic perspective. In light of these limitations, the present study examined mother-daughter sexual communication from the perspective of both members and how communication relates to sexual risk behavior, racial/ethnic group membership, and family characteristics.

Mother-Daughter Sexual Communication Considered Dyadically and its Relation to Adolescent Sexual Risk Behaviors

Consistent with other studies (Guilamo-Ramos et al., 2007b; Hadley et al., 2009; Miller et al., 1998; O'Sullivan et al., 1999), mothers overall reported a greater amount of sexual communication than their daughters. In general, mothers appear to believe they are talking about sex more than their daughters believe they are. Maternal and adolescent reports of communication frequency had a small but statistically significant correlation ($r = .22$), supporting previous findings of low concordance rates of sexual communication (Guilamo-Ramos et al., 2007b; Hadley et al., 2009; Miller et al., 1998; Newcomer & Udry, 1985). These findings reinforce the need for including both mother and daughter report when investigating sexual communication because their views are largely independent. This reporting difference may also be one reason why there are mixed results on the role of parent-adolescent communication in the sexual health literature.

In the present study, maternal report of communication frequency was positively related to adolescent sexual risk behavior, whereas adolescent report of frequency was not. This is in direct contrast to other studies which have found that adolescent reports of sexual communication were stronger predictors of adolescent girls' sexual behaviors than maternal reports of such communication (Guilamo-Ramos et al., 2007b; Hadley et al., 2009; O'Sullivan et al., 1999). Plausibly, mothers may be talking to their daughters more once they know that they are involved in romantic relationships or that they have already engaged in some forms of sexual activity. In this case, increased maternal sexual communication may be the result of sexual activity in the daughter. In interpreting bivariate relations between communication and sexual behavior, however, it is important to note that the relation between maternal report of sexual

communication and adolescent sexual risk behavior was moderated by adolescent reports of sexual communication. In other words, it was the interaction between how mothers versus daughters perceived sexual communication that was predictive of sexual risk behavior in this sample. This again highlights the importance of collecting information about sexual communication from both parents and adolescents: It is not just that they have different perspectives, but rather that the nature and context of these differences may be important for understanding adolescent sexual activity.

The girls who reported the most sexual risk behaviors perceived less frequent sexual communication but their mothers perceived more. This is intriguing since research, especially with families of color, has found that mothers are usually concerned that greater sexual communication will encourage girls to have sex (Guilamo-Ramos et al., 2006a; O'Sullivan et al., 2001), yet in this instance girls did not believe they were talking about sex very often. As results showed, frequency of communication was related to a variety of communication variables and family characteristics. Therefore, the members of this high-risk group of dyads not only differed in their view of how often sexual conversations took place, but also in many other areas. These differences and how they might impact girls' sexual risk behaviors are further described below in discussing family characteristics and the context of this group.

Mothers and daughters also tended to view the valence of communication somewhat similarly ($r = .18$), although again this correlation is quite small. This association is of particular importance given that daughters who reported a more negative tone in sexual communication also reported greater amounts of sexual risk behaviors. This link was small ($r = -.17$), but is informative because past studies generally have not explored the relationship between sexual communication valence and adolescent sexual risk behavior. Instead, the tone of conversations

has been examined mostly for descriptive or qualitative purposes (Guilamo-Ramos et al., 2007a; Jerman & Constantine, 2010; O'Sullivan et al., 2001). These studies have shown that parents typically discuss adverse consequences of sexual activity (Akers et al., 2010; Jerman & Constantine, 2010; O'Sullivan et al., 2001), which might inherently create a more negative valence around these conversations. This might lead to some distrust on behalf of the adolescents as they are likely aware that they are not receiving balanced information. In one qualitative study including adolescent girls of color, daughters were able to voice the notion that their mothers were purposely trying to scare them into not desiring sex and laughed these tactics off as ridiculous and useless (O'Sullivan et al., 2001). Indeed, adolescents' perceptions of their parents' expertise in sexual knowledge has been highly correlated to their perception of that parent's trustworthiness in that area (Guilamo-Ramos et al., 2006b). This distrust in turn may lead daughters to make choices around sexual behaviors that are not in line with the advice their mothers offer.

Not surprisingly, more frequent communication was related to a more positive perceived tone of these conversations for both mothers and daughters overall. In addition, the level of embarrassment that mothers and daughters reported feeling regarding these conversations was also related to communication frequency, consistent with other studies (Guilamo-Ramos et al., 2006a; Meneses et al., 2006). Specifically, if either member of the dyad felt that they themselves were embarrassed and/or that the other member was embarrassed to talk about sex then they self-reported talking about sex less frequently. Perhaps this is done in an attempt to protect themselves as well as their partner from discomfort by not putting them into an awkward situation. Interestingly, mothers' perceptions of how daughters felt were largely inaccurate (i.e., the correlation was quite small) and daughters' perceptions of how their mothers felt had no

relation to how embarrassed mothers reported feeling. Consequently, mothers or daughters may be unnecessarily avoiding conversations for the sake of the other person. Alternatively, mothers or adolescents may believe they are not embarrassed to talk about this sensitive topic but actually appear uncomfortable to the other person.

Greater communication, though, might allow dyads more practice in having these sensitive conversations, leading them to perceive the conversations as more positive and to feel more comfortable with sexual communication. They might also feel more comfortable to have these conversations, and therefore feel comfortable initiating conversations with the other person as parents often cite embarrassment as a barrier to conversations (Guzman et al., 2003, Romo, Bravo, & Tschann, 2014). If early conversations are positive, it may lead either or both members to feel more comfortable initiating the topic in the future. Dutra, Miller, and Forehand (1999) have found that parent-adolescent sexual communication is “transactional” in that the more comfortable one feels about discussing sex the more topics they will discuss, and the more that they discuss the more comfortable they feel. Moreover, communication that is perceived as more open, receptive (i.e., positive), and comfortable by the adolescent has been linked to greater adolescent agreement around the occurrence of sexual communication and less risky sexual behavior (Dutra et al., 1999; Guzman et al., 2003; Miller et al., 1998; Romo et al., 2014). Therefore, working towards creating positive communication between mothers and daughters, even before sexual communication begins, could be beneficial in sexual risk reduction.

In looking at tone and embarrassment and their relation to communication frequency, one can see the potential difficulties that this sets up for mothers and daughters in the high-risk group given their opposing views on frequency. Since these mothers believe that conversations happen more often, they are also likely to perceive communication as positive and feel like they and

their daughters are comfortable with sexual communication. However, since their daughters perceive less communication, these adolescents may see conversations as more negative and as less comfortable for the dyad. It is possible then that daughters feel like sexual conversations are infrequent, hostile or awkward, and mothers are unaware of this perception, potentially causing some tension on the daughters' side of the dyad.

Racial/ethnic differences in communication and race/ethnicity as a Moderator of the Relations Between Mother-Daughter Sexual Communication and Adolescent Sexual Behavior

The literature regarding the effect of race/ethnicity on mother-daughter sexual communication has also demonstrated mixed outcomes, though racial/ethnic differences in communication frequency, tone, and level of embarrassment have been found (Buzi et al., 2009; Hutchinson, 2002; Jerman & Constatine, 2010; Meneses et al., 2006). This current study, however, did not find any racial/ethnic differences in valence and discomfort. Differences in communication frequency, though, were in direct contrast to other studies in which Latinas had the lowest rates of sexual communication frequency (Buzi et al., 2009; Hutchinson, 2002; Meneses et al., 2006). Latinas in this sample on average spoke more about sex than Black mothers, but not White mothers. The contrast in findings might be due to the Latina samples as this study was mostly comprised of Puerto Rican families and did not include a heterogeneous representation of Latinas from varying nationalities. There might also be generational or cohort-effects between this Latina subsample and others as these Latina mothers tended to be younger than the Black and White mothers and were more likely to have been teen mothers. This might have created more reason for Latina mothers to feel urgency about speaking to their daughters about the consequences of sex since they had experienced it themselves. Some evidence

suggests that parents who become parents as teenagers speak to their children differently about sex than parents who are older when they have their first child (Grossman et al., 2013). These early parents are more likely to talk about the risks of being a teenage parent and send a message about their personal experience in doing so. Indeed, in semi-structured interviews with this sample, many women who had become mothers during their teenage years explicitly described their hope that their daughter would not do the same.

The findings that there were no racial/ethnic differences in tone or embarrassment are also in contrast to a few studies that have found valence and discomfort to differ by race/ethnicity (Meneses et al., 2006; O'Sullivan et al., 2001). However, potential racial/ethnic differences in valence and discomfort of sexual communication are not often explored or reported as race/ethnicity is instead generally used as a control variable in analyses (Beckett et al., 2010; Deptula et al., 2010; DiIorio et al., 1999; Hadley et al., 2009; Teitelman et al., 2008). This again highlights the continued need for research in these areas to further clarify whether or not racial/ethnic differences exist in valence and comfort of sexual communication.

Finally, there also were no racial/ethnic differences in the frequency of the different communication groups or in adolescent sexual risk behavior. The lack of difference in sexual risk behavior was somewhat surprising given the well-established documentation of racial/ethnic sexual health disparities in negative sexual health outcomes. However, larger studies and nationally representative samples often include girls who differ in socioeconomic factors and geography as well, which may be driving sexual health differences. Among girls in the same neighborhoods, racial/ethnic differences may be less likely to emerge. In addition, there is some evidence that racial/ethnic differences are more evident in sexual health outcomes (e.g., unplanned pregnancy, STD) than they are in actual sexual behaviors (e.g., number of partners in

the last 6 months). In the current study, only behaviors were measured. The lack of racial/ethnic differences suggests that, at least within this sample, race and ethnicity do not contribute to consistent differences in how families approach sexual communication or in decisions daughters make about sex. Instead, these behaviors may be linked to family characteristics that occur in families from various racial/ethnic backgrounds.

Family Factors Contributing to Communication Differences and their Relations to Adolescent Sexual Risk

Several family factors were correlated with communication variables, demonstrating mostly weak relationships. These links will be briefly discussed, paying specific attention to areas in which mothers and daughters in the “discordant mother high” group might have had differing perspectives. Further, due to the focus of the dyadic approach in this study, the relations between family factors and the different communication typologies are emphasized. In particular, the differences between the high-risk group (i.e., “discordant mother high”) and the other communication styles will be highlighted.

Given that correlations were small it is difficult to make definitive statements regarding participants’ perspectives and behaviors. Nevertheless, there are several instances in which mother and daughter perspectives from the high-risk group could potentially differ markedly, due to their opposing views on the frequency of communication. Namely, mothers in this group probably perceive a more positive tone and more parental monitoring than their daughters. The girls, who reported less communication and a more negative tone, likely feel more discomfort, perceive greater mother discomfort, perceive less parental monitoring, and feel less warmth in their relationship with their mother. These mothers then are very optimistic about their

conversations and compared to other mothers believe they are the most knowledgeable of their daughter's activities though daughters do not seem to have the same perception. The girls in this group are also more likely to feel that their relationship with their mother is not as warm and supportive as other girls do.

Maternal warmth differed by group, with the “discordant mother low” and “concordant high” groups having the highest ratings of warmth. Though these groups were not significantly different than the at-risk group, they were statistically different than the “concordant low” group and characteristically different in that they were the two groups with daughters that reported the most frequent sexual communication. Adolescents in the at-risk group then might not have perceived their relationships with their mother as the most negative, but also did not perceive them as the most positive. This may be especially problematic for these families as other research has found that affective perceptions of the parent-child relationship moderate the parental influence on adolescent risk behaviors (Darling & Steinberg, 1993; Lippold, Greenberg, Graham, & Feinberg, 2014). As described by Lippold et al. (2014), adolescents who believe they have a warm, caring relationship with their parents may view parental monitoring efforts as a way for parents to take care of their children. However, if the relationship is felt as less warm, these efforts might be viewed as intrusive, controlling, and might cause adolescents to react with oppositionality and resistance. Therefore, the girls in the “discordant mother high” group may not feel as connected to their mothers and might be rebelling in some ways by engaging in more sexual risk behaviors.

Mental health variables and depression in particular were also consistently associated with valence and discomfort at the bivariate level, though no differences were found by communication groups. Tone was viewed as more negative when mothers reported greater

symptoms of anxiety, depression, and PTSD, daughters reported more depressive symptoms, and when dyad members viewed each other as more depressed. Similar results occurred with discomfort and perception of the other dyadic member's level of discomfort demonstrating the important role that mental health, especially depression, plays in sexual communication. Although frequency of communication did not seem to be related with mental health variables, the negative relation that depression and perception of dyad member's depression had with valence and discomfort illustrates another potential point of discord between mothers and their daughters in the high-risk group. It is possible that these daughters feel depressed and view their mothers as depressed, but once again their mothers are unaware of their daughter's perspectives and do not provide them with the necessary support and warmth.

Indeed, in a study with a sample of middle and high school students (Lehrer et al., 2006), girls' depressive symptoms were associated with several sexual risk behaviors including condom and birth control nonuse at last sex and 3 or more sexual partners. Further, Lennon et al.'s 2012 meta-analysis demonstrated that HIV prevention interventions were effective at reducing sexual risk behaviors in young women when depressive levels decreased as well. This was particularly true for interventions that included larger Latina samples. Therefore, interventions aimed at reducing sexual risk behaviors might be more effective if they included a component meant to also reduce adolescent depressive symptoms. This could also help to improve the valence and discomfort of sexual communication as experienced by these girls.

Mother's sexual abuse history was also related to daughters' report of frequency with girls whose mothers reported childhood sexual abuse perceiving that their mothers discuss sex more often. The "discordant mother low" group was different than other groups in this regard in that the group was composed of more mothers that reported childhood sexual abuse. Although

their daughters reported higher levels of sexual communication, these mothers believed that they rarely talked about sex. It might be that these mothers underestimate their parenting skills generally, or particularly in regards to providing for the sexual education and sexual development needs of their daughters (Wright et al., 2012). They might also have a higher threshold than other mothers for the amount of sexual communication that is seen as adequate or protective due to their own sexual abuse history. In other words, no matter how much they talk about sex it might not be viewed as frequent communication since sex can never be discussed enough when a mother is trying to keep her daughter safe from such an event. Alternatively, they may be talking about sex in a way that they do not consider “sexual communication” but that their daughters do (e.g., talking about their childhood experiences, talking about men in general, etc.). This discordant group was associated with the second highest amount of adolescent sexual risk behavior; thus, the mismatch between mothers’ and daughters’ perceptions of communication may have implications for these girls particularly as they enter into the teenage years when sexual activity becomes more frequent and normative.

Families in which mothers believe communication is happening a lot but daughters do not demonstrated other important differences in family characteristics. With regards to family values, mothers in the “discordant mother high” group attend spiritual services more often than other mothers and believe that males should become fathers at a younger age. Attending religious services more frequently might be indicative of greater maternal religiosity that might be incongruent with adolescents’ level of religiosity as there were no group differences in adolescent report of sexual prohibition due to religious beliefs. Moreover, this higher level of religiosity might impact sexual communication in a way that might not be viewed as positive by adolescents. Using data from the first wave of the National Longitudinal Study of Adolescent

Health (Add Health) and the National Study of Youth and Religion, Regnerus (2006) indeed found that parental attendance of spiritual services increased the likelihood of parents talking to their adolescents about the morality of sex and decreased the likelihood of talking to their teens about sex in general or birth control. Therefore, girls might hear more about the moral reasons for not engaging in sexual behaviors rather than safe sexual practices, which might not be as welcome by the girls in this group.

As outlined, there are a number of differences in the maternal and adolescent perspectives of sexual communication, family values, and parenting practices in the “discordant mother high” group. Considering the differences in tone, parental monitoring, and maternal warmth, it seems that perhaps the discordant nature of communication might be due to relationship quality overall and the messages girls perceive to be receiving about sex. Daughters might feel that their mothers are not very in tune with their emotional needs as evidenced by the opposing perspectives of comfort discussing sexual topics. Given mothers’ greater religiosity, daughters might also feel that mothers are not aware of their pragmatic needs for safer sex. So although mothers in this group feel like they talk about sex to their daughters regularly, daughters might not view these as useful, open conversations about sex. They might be considered more hostile warnings regarding the perils of sex. Overall, the daughters in the at-risk group seem to feel that they are not strongly connected to their mothers.

Parent-child connectedness has been cited as a protective factor that delays adolescent sexual debut (Kirby, 2002). Moreover, this lack of connection may also lead girls to feel like their mother is not a trustworthy, reliable, close resource for discussing sex or much of any other topic. The quality of general communication between mothers and daughters is seen as a predictive factor in the frequency of sexual communication, with better general communication

leading to greater sexual communication (Hutchinson, 2002; Romo et al., 2014). This makes sense in that people are less likely to talk about private, intimate issues with someone if they are uncomfortable talking to that person about less sensitive topics. Thus, poor sexual communication might be indicative of poor general communication which creates distance in the dyad. This distance, along with feeling greatly misunderstood and under supported by mothers, potentially leads girls to make their own, sometimes risky, choices around sexual behaviors.

Clinical Implications

The results of this study suggest that adolescents are at greatest risk for engaging in sexual risk behavior when they and their mothers have opposing views about how often they talk about sex and when mothers believe facets of the relationship are better than how daughters perceive them to be. Mothers and daughters in the at-risk group were at odds about a variety of factors including the dyad's level of embarrassment talking about sex. Therefore, interventions aimed at improving parent-child sexual communication need to focus on more than increasing sexual communication, and should include numerous factors such as decreasing discomfort and perhaps improving general communication as proposed by other researchers (Dutra et al., 1999; Hutchinson, 2002; Romo et al., 2014). Importantly, work on improving communication should occur before adolescence as there is substantial evidence of the benefits of talking to children before adolescence for having the greatest likelihood of influencing children in making healthy choices around sex (Downing, Jones, Bates, Sumnall, & Bellis, 2011; Miller et al., 1998). Early intervention with families then seems to be key.

Interventions that provide greater structure to communication such as starter sentences for conversations, potential topics to discuss, and how to approach discussions in a more honest and balanced manner might help with directly reducing discomfort for mothers and thus

indirectly for daughters. Providing information about sexual education to parents has also been an important component in effective interventions (Sutton, Lasswell, Lanier, & Miller, 2014). Adolescent health providers (e.g., pediatricians, gynecologists) might also be able to help in these respects by giving families materials aimed at facilitating conversations about sex, for example, cards with questions on them, a few starter topics, or tips for communicating comfortably and effectively. They could also provide a brief handout on basic sexual education information to parents with resources such as websites that might be useful. Since mothers also have differing concerns and beliefs about sexual discussion with their daughters, it would be useful to allow mothers ample space and time to discuss these concerns and receive feedback that could be based in research. For example, if mothers express worry that talking about sex will lead to sex, an open conversation regarding this belief can occur and perhaps will serve to help change mothers' cognitions allowing them to feel more comfortable talking about topics such as condom use and birth control.

Interventions that have been most successful for decreasing adolescent sex risk have been those that encourage parent involvement and target parents as well as those that include both parents and adolescents (Sutton et al., 2014). Engaging parents and encouraging them to be more involved in sexual communication with their children may lead to greater connectedness and improved relationships. Moreover, discussing topics more than once has been related to more parent-adolescent connectedness and perceptions of more open communication (Martino, Elliott, Corona, Kanouse, & Schuster, 2008). It would be important to help mothers and their daughters learn how to check-in with each other about their comfort level around discussing these sensitive topics and to also feel like they can discuss other topics more openly. Mothers and daughters would also benefit from discussing their perceptions of the valence of sexual

conversations and the messages that girls hear in what their mothers say. These goals could be accomplished by teaching mothers and daughters empathic listening skills as well as practicing how to check-in with each other to make sure they are understanding each other and that their meaning is being understood could help improve. Such behaviors would help inform mothers about their daughter's perspective and allow families to be on the same page regarding sexual communication and most likely improve daily communication overall.

Notably, mental health variables were related to valence and discomfort of sexual communication and girls at risk for more sexual risk behaviors also seem to be at risk for greater levels of depression. This suggests that an important factor for improving sexual communication between mothers and daughters would be to also reduce maternal symptoms of anxiety, depression, and PTSD and adolescent symptoms of depression. By doing so, mothers and daughters might view communication as more positive and less uncomfortable which might allow for more open and receptive conversations between mothers and their daughters. Moreover, interventions that have mitigated depressive symptoms the most have also demonstrated greater effectiveness in reducing sexual risk behaviors (Lennon et al., 2012).

Therefore, intervention programs aimed at improving mother-daughter sexual communication should consider having a screener or brief measure to assess anxiety, depressive, and PTSD symptoms. They should also include psychoeducation about anxiety, depression, and PTSD, as well as developmental aspects of these mental health issues. Mothers and daughters should be given tools and information about how to manage these symptoms and participants should be referred for individual or group therapy services in cases where these symptoms might be at clinical levels. Child and family therapists should also routinely include conversations about sex when working with adolescents, especially those that exhibit depressive symptoms.

Therapists might then be influential in improving communication about sex in families by teaching and providing a safe space to practice active listening and effective communication. Addressing mental health risks might then reduce adolescent sexual risk behaviors through a variety of mechanisms, including improving valence and discomfort in mother-daughter sexual communication.

Culturally tailored programs were also more effective with youth of color (Sutton et al., 2014). Though there were almost no racial/ethnic differences in the outcomes of this study, there were differences in the frequency of communication which was related to a number of family characteristics. Therefore, it seems that tailoring interventions to targeted members would be beneficial in increasing engagement and support from participants. Attending to language barriers, religious beliefs, and family connections would be of particular importance to ensuring greater likelihood of implementing successful interventions.

Limitations

The results from this study and the dyadic approach to investigating mother-daughter sexual communication offer an important contribution to this field of study. However, findings must be interpreted in light of several study limitations. First, the cross-sectional design of this study does not allow for causal conclusions. The theoretical model guiding research questions put communication as being a risk and protective factor for sexual risk behavior; however, communication and sexual activity are probably mutually influential over time (e.g., when mothers realize their daughters are having sex, they may talk more about it, talking more about it may serve to reduce later risky behaviors). Controlled randomized trials that directly aim to improve communication in one group of participants are needed to determine if there are any long-term benefits of improving sexual communication in mothers and their adolescents. To

date, most studies are retrospective and based on self-report of communication. Thus, questions of causality and temporal precedence are largely untested. Moreover, the cross-sectional data collection occurred at an age when the majority of girls were not yet sexually active; consequently, the sample may have been too young for there to be sufficient variability in sexual risk behavior.

There also are limitations with the sample. Latinas were overrepresented and were largely from one specific background (Puerto Rico), therefore generalizations to broader populations should be made with caution. Also, the lack of racial/ethnic differences may be due to the low level of power given that certain racial/ethnic groups had much smaller samples; this also made it impossible to reliably run certain analyses within each group. This study only included mothers and daughters. Although research on sexual communication should include more fathers and sons, this study was a step further in better understanding the familial context of parent-adolescent sexual communication. Finally, the measures of communication used in this study did not focus on the actual content (or perceived content) of conversations or other communication process variables (e.g. who typically initiates conversations). Understanding content and process aspects of sexual communication from a dyadic perspective is an important area for further research in order to develop the most tailored sexual health programs. Perhaps equally important, the communication variables used in this study were largely unrelated to family factors included in the study. There were far more nonsignificant correlations than statistically significant correlations. Consequently, the findings that are highlighted from this study should be considered within the larger context in which there were many nonsignificant or small associations.

Conclusions

This study of diverse mothers and their adolescent daughters contributes to the literature on parent-adolescent communication in several ways. First, it directly compared families from White, Black, and Latino backgrounds living in the same community, and documented that these groups do not differ in mother-daughter sexual communication or adolescent sexual risk behavior despite often held beliefs that certain racial/ethnic groups are at greater sexual risk. Second, this study illustrated a richer context within which sexual communication occurs by highlighting a variety of family characteristics that are associated with communication frequency. In particular, the factors of communication valence, discomfort, maternal attendance of religious services, parental monitoring, maternal warmth, maternal mental health, adolescent depression, and maternal childhood sexual abuse were all related to communication frequency as reported by mothers and their daughters.

Finally, and most importantly for subsequent research, the dyadic approach used indicates that it may not be sufficient to just collect data on sexual communication from mothers or daughters because it is the interaction or discrepancy in perspectives that is most meaningful. Additional research using this dyadic approach is necessary to further elucidate potential risk and protective factors in parent-adolescent sexual communication and its impacts on adolescent sexual behaviors. This information would bring greater insight to useful components of effective interventions in improving such communication and reducing negative adolescent sexual outcomes.

References

- Afable-Munsuz, A., & Brindis, C. D. (2006). Acculturation and the sexual and reproductive health of Latino youth in the United States: A literature review. *Perspectives on Sexual and Reproductive Health*, 38(4), 208-219.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhi & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 11 -39). Heidelberg: Springer.
- Akers, A. Y., Schwarz, E. B., Borrero, S., & Corbie-Smith, G. (2010). Family discussions about contraception and family planning: A qualitative exploration of Black parent and adolescent perspectives. *Perspectives on Sexual and Reproductive Health*, 42(3), 160-167.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Annie E. Casey Foundation. (1998). *Kids Count special report: When teens have sex: Issues and trends*. Baltimore, MD: Annie E. Casey Foundation.
- American Social Health Association. (2008). *Show me the money: State investment in STD prevention, FY 2007*. Retrieved on November 8, 2011, from <http://www.ashastd.org/stdprevention10/>.
- Atienzo, E., E., Walker, D. M., Campero, L., Lamadrid-Figueroa, H., & Gutierrez, J. P. (2009). Parent-adolescent communication about sex in Morelos, Mexico: Does it impact sexual behavior? *The European Journal of Contraception and Reproductive Health Care*, 14(2), 111-119.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Becker, M. H., & Rosenstock, I. M. (1984). Compliance with medical advice. In A. Steptoe & A. Matthews (Eds.), *Health care and human behavior* (pp. 135-152). London, England: Academic Press.
- Beckett, M. K., Elliott, M. N., Martino, S., Kanouse, D. E., Corona, R., Klein, D. J., & Schuster, M. A. (2010). Timing of parent and child communication about sexuality relative to children's sexual behaviors. *Pediatrics*, 125(1), 34-42.
- Boyce, C. A., & Fuligni, A. J. (2007). Issues for developmental research among racial/ethnic minority and immigrant families. *Research in Human Development*, 4, 1-19.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-531.
- Buzi, R. S., Smith, P. B., & Weinman, M. L. (2009). Parental communication as a protective factor in increasing condom use among minority adolescents. *International Journal of Adolescent Medical Health*, 21(1), 51-59.
- Byrne, B. M. (2001). *Structural Equation Modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Center for Disease Control and Prevention. (n.d.). *Sexually transmitted diseases - Interactive data 1996-2009: Selected STDs by age, race/ethnicity, and gender*. Retrieved on August 1, 2011, from <http://wonder.cdc.gov/std-std-v2008-race-age.html>.
- Centers for Disease Control and Prevention. (2010). Youth risk behavior surveillance – United States, 2009. *Morbidity and Mortality Weekly Report*, 59(SS-5). Retrieved on December 6, 2010, from <http://www.cdc.gov/mmwr/pdf/ss/ss5905.pdf>.

- Center for Disease Control and Prevention (2011). Vital signs: Teen pregnancy --- United States, 1991—2009. *Morbidity and Mortality Weekly Report*, 60(13), 414-420. Retrieved on August 1, 2011, from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6013a5.htm?s_cid=mm6013a5_w.
- Centers for Disease Control and Prevention. (2013). *Sexually transmitted disease surveillance 2012*. Atlanta: U.S. Department of Health and Human Services. Retrieved on June 24, 2014, from <http://www.cdc.gov/std/stats12/Surv2012.pdf>.
- Centers for Disease Control and Prevention. (2014a). *Teen birth rates drop, but disparities persist*. Retrieved on June 27, 2014, from <http://www.cdc.gov/features/dsteenpregnancy/>.
- Center for Disease Control and Prevention (2014b). *Youth Online: High school YRBS --- 2013 results*. Retrieved on June 16, 2014, from <http://nccd.cdc.gov/youthonline/App/Default.aspx>.
- Conger, R. D., Ge, X., Elder, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development*, 65(2), 541-561.
- Cook, W. & Kenny, D. (2005). The actor partner interdependence model: A model of bidirectional effects in developmental studies. *Journal of Family Psychology*, 18, 361-371.
- Coyle, K. K., Kirby, D. B., Marín, B. V., Gómez, C. A. PhD, & Gregorich, S. E. (2004). Draw the line/Respect the line: A randomized trial of a middle school intervention to reduce sexual risk behaviors. *American Journal of Public Health*, 94, 843–851.
- Crosby, R., Voisin, D., Salazar, L. F., DiClemente, R. J., Yarber, W. L., Caliendo, A. M. (2006). Family influences and biologically confirmed sexually transmitted infections among detained adolescents. *American Journal of Orthopsychiatry*, 76(3), 389-394.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, 113, 487-496.
- Davies, S. L., Crosby, R. A. DiClemente, R. J. (2009). Family influences on adolescent health. In R. J. DiClemente, J. S. Santelli, & R. A. Crosby (Eds.), *Adolescent health: Understanding and preventing risk behaviors* (pp.391-410). San Francisco, CA, US: Jossey-Bass.
- De Los Reyes, A., Salas, S., Menzer, M. M., & Daruwala, S. E. (2013). Criterion validity of interpreting scores from multi-informant statistical interactions as measures of informant discrepancies in psychological assessments of children and adolescents. *Psychological Assessment*, 25(2), 509-519.
- Deptula, D. P., Henry, D. B., & Schoeny, M. (2010). How can parents make a difference? Longitudinal associations with adolescent sexual behavior. *Journal of Family Psychology*, 24(6), 731-739.
- Derogatis, L. R. (1975). *Brief Symptom Inventory*. Baltimore, MD: Clinical Psychometric Research.
- DiClemente, R. J., Wingood, G. M., Crosby, R., Cobb, B. K., Harrington, K., & Davies, S. L. (2001). Parent-adolescent communication and sexual risk behaviors among African American adolescent females. *The Journal of Pediatrics*, 139(3), 407-412.
- DiIorio, C., Kelley, M., & Hockenberry-Eaton, M. (1999). Communication about sexual issues: Mothers, fathers, and friends. *Journal of Adolescent Health*, 24, 181-189.
- DiIorio, C., Pluhar, E., & Belcher, L. (2003). Parent-child communication about sexuality: A review of the literature from 1980-2002. *Journal of HIV/AIDS Prevention & Education*

- for *Adolescents & Children*, 5, 7-31.
- Downing, J., Jones, L., Bates, G., Sumnall, H., Bellis, M. A. (2011). A systematic review of parent and family-based intervention effectiveness on sexual outcomes in young people. *Health Education Research*, 26(5), 808-833.
- Dutra, R., Miller, K. S. & Forehand, R. (1999). The process and content of sexual communication with adolescents in two-parent families: Associations with sexual risk-taking behavior. *AIDS and Behavior*, 3(1), 59-66.
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Ross, J., Hawkins, J., et al. (2010). Youth Risk Behavior Surveillance- United States, 2009. *Morbidity and Mortality Weekly Report*, 59, (SS-5), N SS-5, 1-142.
- Ennett, S. T., Bauman, K. E., Foshee, V. A., Pemberton, M., & Hicks, K. A. (2001). Parent-child communication about adolescent tobacco and alcohol use: What do parents say and does it affect youth behavior? *Journal of Marriage and Family*, 63(1), 48-62.
- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, 26, 399-419.
- Fisher, W.A., Fisher, J. D., & Harman, J. (2003). The information-motivation-behavioral skills model: A general social psychological approach to understanding and promoting health behavior. In J. Suls & K. A. Wallston (Eds.), *Social Psychological Foundations of Health and Illness* (pp. 82-106). Malden, MA: Blackwell.
- Fisher, T. D., & Hall, R. G. (1988). A scale for the comparison of the sexual attitudes of adolescents and their parents. *The Journal of Sex Research*, 24, 90-100.
- Foa, E. B., Johnson, K. M., Feeny, N. C., & Treadwell, K. R. H. (2001). The Child PTSD Symptom Scale (CPSS): A preliminary examination of its psychometric properties. *Journal of Community Psychology*, 30, 376-384.
- Galambos, N.L., Petersen, A.C., Richards, M., & Gitelson, I.B. (1985). The Attitudes toward Women Scale for Adolescents (AWSA): A study of reliability and validity. *Sex Roles*, 13, 343-356.
- Goodman, S. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*, 14(1), 1-27.
- Grossman, J. M., Charmaraman, L., & Erkut, S. (2013). Do as I say, not as I do: How parents talk with early adolescents about sex. *Journal of Family Issues*.
- Gudykunst, W. B., & Lee, C. M. (2001). An agenda for studying ethnicity and family communication. *Journal of Family Communication*, 1, 75-85.
- Guilamo-Ramos, V., Dittus, P., Jaccard, J., Goldberg, V., Casillas, E., & Bouris, A. (2006a). The content and process of mother-adolescent communication about sex in Latino families. *Social Work Research*, 30(3), 169-181.
- Guilamo-Ramos, V., Dittus, P., Jaccard, J., Johansson, M., Bouris, A., & Acosta, N. (2007a). Parenting practices among Dominican and Puerto Rican Mothers. *Social Work*, 52(1), 17-30.
- Guilamo-Ramos, V., Jaccard, J., Dittus, P., & Bouris, A. (2006b). Parental expertise, trustworthiness, and accessibility: Parent-adolescent communication and adolescent risk behavior. *Journal of Marriage and Family*, 68, 1229-1246.
- Guilamo-Ramos, V., Jaccard, J., Dittus, P., Bouris, A., Holloway, I., & Casillas, E. (2007b).

- Adolescent expectancies, parent-adolescent communication and intentions to have sexual intercourse among inner-city, middle school youth. *Annals of Behavioral Medicine*, 34(1), 56-66.
- Guzmán, B. L., Schlehofer-Sutton, M. M., Villanueva, C. M., Dello Stritto, M. E., Casad, B. J., Feria, A. (2003). Let's talk about sex: How comfortable discussions about sex impact teen sexual behavior. *Journal of Health Communication*, 8(6), 583-598.
- Hadley, W., Brown, L. K., Lescano, C. M., Kell, H., Spalding, K., DiClemente, R., Donenberg, G., & Project STYLE Study Group (2009). Parent-adolescent sexual communication: Associations of condom use with condom discussions. *AIDS & Behavior*, 13, 997-1004.
- Hamilton, B. E., Martin, J. A., & Ventura, S. J. (2013). Births: Preliminary data for 2012. *National Vital Statistics Report*, 62(3): U.S. Department of Health and Human Services. Retrieved on June 27, 2014 from http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_03.pdf.
- Harkness, S. & Super, C. M. (1994). The developmental niche: A theoretical framework for analyzing the household production of health. *Social Science & Medicine*, 38, 217-226.
- Hardway, C., & Fuligni, A. J. (2006). Dimensions of family connectedness among adolescents with Mexican, Chinese, and European backgrounds. *Developmental Psychology*, 42, 1246-1258.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY; Guilford Press.
- Hoffman, Saul D., and Rebecca A. Maynard, eds. (2008). *Kids having kids: Economic costs & social consequences of teen pregnancy*, 2nd edition. Washington, DC: The Urban Institute Press.
- Holmbeck, G. N. (2002a). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, 27(1), 87-96.
- Holmbeck, G. N. (2002b). A developmental perspective on adolescent health and illness: An introduction to the special issues. *Journal of Pediatric Psychology*, 27(5), 409-415.
- Hutchinson, M. K. (2002). The influence of sexual risk communication between parents and daughters on sexual risk behaviors. *Family Relations*, 51(3), 238-247.
- Hutchinson, M. K. & Cooney, T. M. (1998). Patterns of parent-teen sexual risk communication: Implications for intervention. *Family Relations*, 47(2), 185-194.
- Hutchinson, K., & Montgomery, A. J. (2007). Parent communication and sexual risk among African Americans. *Western Journal of Nursing Research*, 29(6), 691-707.
- Jerman, P. & Constantine, N. (2010). Demographic and psychological predictors of parent-adolescent communication about sex: A representative statewide analysis. *Journal of Youth & Adolescence*, 39, 1164-1174.
- Juang, L. P. & Nguyen, H. H. (2009). Misconduct among Chinese American adolescents: The role of acculturation, family obligation, and autonomy expectations. *Journal of Cross-Cultural Psychology*, 40, 649-666.
- Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, 36, 366 – 380.
- Kiang, L. & Fuligni, A. J. (2009). Ethnic identity and family processes among adolescents from Latin American, Asian, and European backgrounds. *Journal of Youth and Adolescence*, 38, 228-241.
- Kirby, D. (2002). Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy.

- American Journal of Health Behavior*, 26(6), 473-485.
- Kline, R. B. (2005). *Principles and practice of Structural Equation Modeling* (2nd ed.). New York: Guilford.
- Lehrer, J. A., Shrier, L. A., Gortmaker, S., & Buka, S. (2006). Depressive symptoms as a longitudinal predictor of sexual risk behaviors among U.S. middle and high school students. *Pediatrics*, 118, 189-200.
- Lennon, C. A., Huedo-Medina, T. B., Gerwien, D. P., Johnson, B. T. (2012). A role for depression in sexual risk reduction for women? A meta-analysis of HIV prevention trials with depression outcomes. *Social Science & Medicine*, 75, 688-698.
- Lippold, M. A., Greenberg, M. T., Graham, J. W., and Feinberg, M. E. (2014). Unpacking the effect of parental monitoring on early adolescent problem behavior: Mediation by parental knowledge and moderation by parent-youth warmth. *Journal of Family Issues*, 35(13), 1800-1823.
- Logan, TK, Cole, Jennifer, Leukefeld, C. (2002). Women, sex, and HIV: Social and contextual factors, meta-analysis of published interventions, and implications for practice and research. *Psychological Bulletin*, 128, 851-885.
- Martino, S. C., Elliott, M. N., Corona, R., Kanouse, D. E., Schuster, M. A. (2008). Beyond the "big talk": The roles of breadth and repetition in parent-adolescent communication about sexual topics. *Pediatrics*, 121(3), 612-618.
- Meneses, L. M., Orrell-Valente, J. K., Guendelman, S. R., Oman, D., & Irwin, C. E. (2006). Racial/ethnic differences in mother-daughter communication about sex. *Journal of Adolescent Health*, 39, 128-131.
- Milan, S., Ethier, K., Lewis, J., Kershaw, T., Niccolai, L., & Ickovics, J. (2006). Reproductive health of urban adolescents: Differences in the behaviors, cognitions, and social context of African-American and Puerto Rican females. *Journal of Youth and Adolescence*, 35(6), 959-967.
- Miller, K. S., Kotchick, B. A., Dorsey, S., Forehand, R., & Ham, A. (1998). Family communication about sex: What are parents saying and are their adolescents listening? *Family Planning Perspectives*, 30(5), 218-235.
- Moen, P., Erickson, M. A., & Dempster-McClain, D. (1997). Their mothers' daughters? The intergenerational transmission of gender attitudes in a world of changing roles. *Journal of Marriage and the Family*, 59, 281-293.
- Nadeem, E., Romo, L. F., & Sigman, M. (2006). Knowledge about condoms among low-income pregnant Latina adolescents in relation to explicit maternal discussion of contraceptives. *Journal of Adolescent Health*, 39, 119.e9-119.e15.
- The National Campaign to Prevent Teen and Unplanned Pregnancy. (2013). *Counting it up: Key data*. Washington, DC. <https://thenationalcampaign.org/resource/counting-it-key-data-2013>.
- Newcomer, S., & Udry, J. R. (1985). Parent-child communication and teen sexual behavior. *Family Planning Perspectives*, 17, 170-174.
- NICHD Early Child Care Research Network. *NICHD Study of early health care and youth development (SECCYD), Phase IV, 2005-2008*. Available at www.secc.rti.org.
- Nolin, M. J., & Petersen, K. (1992). Gender differences in parent-child communication about sexuality: An exploratory study. *Journal of Adolescent Research*, 7(1), 59-79.
- Office of Adolescent Health. (2014). *Trends in Teen Pregnancy and Childbearing*. Washington,

- DC. http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/teen-pregnancy/trends.html#.U6HzQGcU_xM
- O'Sullivan, L. F., Jaramillo, B. M. S., Moreau, D., & Meyer-Bahlburg, H. F. L. (1999). Mother-daughter communication about sexuality in a clinical sample of Hispanic adolescent girls. *Hispanic Journal of Behavioral Sciences*, 21(4), 447-469.
- O'Sullivan, L. F., Meyer-Bahlburg, H. F. L., & Watkins, B. X. (2001). Mother-daughter communication about sex among urban African American and Latino families. *Journal of Adolescent Research*, 16(3), 269-292.
- Oyserman, D. & Lauffer, A. (2002). Examining the implications of cultural frames on social movements and group action. In L. Newman and R. Erber (Eds.), *What social psychology can tell us about the Holocaust: Understanding the perpetrators of genocide* (pp.162-187). New York: Oxford University Press.
- Phinney, J. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. *Journal of Adolescent Research*, 7, 156-176.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.
- Regnerus, M.D. (2006). Talking about sex: Religion and patterns of parent-child communication about sex and contraception. *The Sociological Quarterly*, 46, 79-105.
- Reynolds, W. M. (1998). *Adolescent Psychopathology Scale- Short form professional manual*. Lutz, FL: Psychological Assessment Resources.
- Reynolds, C. R., & Kamphaus, R. W. (2009). *Behavior Assessment System for Children –Second Edition (BASC-2): Progress Monitor (BASC-2 PM)*. Bloomington, MN: Pearson.
- Romo, L. F., Bravo, M., & Tschann, J. M. (2014). The effectiveness of a joint mother–daughter sexual health program for Latina early adolescents. *Journal of Applied Developmental Psychology*, 35(1), 1-9.
- Shearman, S. M., & Dumlao, R. J. (2008). A cross-cultural comparison of communication patterns and conflict between young adults and parents. *Journal of Family Communication*, 8, 186-211.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence*, 11(1), 1-19.
- Spitzer, R., Kroenke, K., & Williams, J. (1999). Validation and utility of a self-report version of PRIME-MD: The PHQ Primary Care Study. *Journal of the American Medical Association*, 282, 1737-1744.
- Sutton, M. Y., Lasswell, S. M., Lanier, Y., & Miller, K. S. (2014). Impact of parent-child communication interventions on sex behaviors and cognitive outcomes for black/African-American and Hispanic/Latino youth: a systematic review, 1988-2012. *The Journal of Adolescent Health*, 54(4), 369-384.
- Teitelman, A. M., Ratcliffe, S. J., & Cederbaum, J. A. (2008). Parent-adolescent communication about sexual pressure, maternal norms about relationship power, and STI/HIV protective behaviors of minority urban girls. *Journal of the American Psychiatric Nurses Association*, 14(1), 50-60.
- Tolma, E. L., Oman, R. F., Vesely, S. K., Aspy, C. B., Beebe, L., & Fluhr, J. (2011). Parental youth assets and sexual activity: Differences by race/ethnicity. *American Journal of Health Behavior*, 35(5), 513-524.

- United Nations Statistics Division. (2011). *Demographic Yearbook 2009-2010: Live births by age of mother*. New York, NY: United Nations. Retrieved May 13, 2014 from <http://unstats.un.org/unsd/demographic/products/dyb/dyb2009-2010.htm>
- Villaruel, A. M. (1998). Cultural influences on the sexual attitudes, beliefs, and norms of young Latina adolescents. *Journal of the Society of Pediatric Nurses*, 3, 69-79.
- Weathers, F. W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *The PTSD Checklist—Civilian Version (PCL-C)*. Boston: National Center for PTSD.
- Whitaker, D. J., Miller, K. S., May, D. C., & Levin, M. L. (1999). Teenage partners' communication about sexual risk and condom use: The importance of parent-teenager discussions. *Family Planning Perspectives*, 31(3), 117-121.
- Williams, P. G., Holmbeck, G. N., & Greenley, R. N. (2002). Adolescent health psychology. *Journal of Consulting and Clinical Psychology*, 70(3), 828-842.
- Wilson, E. K., Dalberth, B. T., Koo, H. P., & Gard, J. C. (2010). Parents' perspectives on talking to preteenage children about sex. *Perspectives on Sexual and Reproductive Health*, 42(1), 56-63.
- Wingo, P. A., Smith, R. A., Tevendale, H. D., & Ferré, C. (2011). Recent changes in the trends of teen birth rates, 1981-2006. *Journal of Adolescent Health*, 48, 281-288.
- World Health Organization. (2012). Adolescent pregnancy: Fact sheet No 364. In *World Health Organization: Media centre*. Retrieved September 13, 2013, from <http://www.who.int/mediacentre/factsheets/fs364/en/>.
- World Health Organization. (2013). Sexually transmitted infections (STIs): Fact sheet No 110. In *World Health Organization: Media centre*. Retrieved September 13, 2013, from <http://www.who.int/mediacentre/factsheets/fs110/en/index.html>.
- Wright, M. O., Fopma-Loy, J., & Oberle, K. (2012). In their own words: The experience of mothering as a survivor of childhood sexual abuse. *Development and Psychopathology*, 24(2), 537-55.
- Yu, J. (2007). British-born Chinese teenagers: The influence of Chinese ethnicity on their attitudes towards sexual behavior. *Nursing and Health Sciences*, 9, 69-75.
- Zambrana, R. E., Cornelius, L. J., Boykin, S. S., & Lopez, D. S. (2004). Latinas and HIV/AIDS risk factors: Implications for harm reduction strategies. *American Journal of Public Health*, 94(7), 1152-1158.
- Zimmer-Gembeck, M. J., & Helfand, M. (2008). Ten years of longitudinal research on U.S. adolescent sexual behavior: developmental correlates of sexual intercourse, and the importance of age, gender and ethnic background. *Developmental Review*, 28, 153-224.

Appendices

Tables

Table 1
Demographic Information of Sample

Variable	Race/Ethnicity							
	Overall Sample		Latina		Black		White	
	n (%)	M (SD)	n (%)	M (SD)	n (%)	M (SD)	n (%)	M (SD)
Sample Size								
Mothers	194 (100)		113 (58)		43 (22)		38 (20)	
Daughters	194 (100)		108 (56)		54 (28)		32 (16)	
Maternal Age		41.58 (8.04)		39.87 ^a (7.87)		44.04 ^b (7.70)		43.87 ^b (7.80)
Adolescent Age		15.40 (1.05)		15.46 (1.10)		15.26 (0.93)		15.45 (1.06)
Free School Lunch	121 (62.4)		80 (74) ^a		30 (73) ^a		11 (29.7) ^b	
Maternal Education ($<$ than high school)	41 (21)		33 (29) ^a		8 (18.6) ^a		0 (0) ^b	
Section 8 Subsidized Housing	55 (29)		38 (35) ^a		16 (40) ^a		1 (3) ^b	
Adolescent's Biological Father Living in the Home	68 (36)		36 (32)		16 (37)		16 (43)	
SES Composite		1.12 (0.99)		1.34 (0.99) ^a		1.26 ^a (0.98)		0.32 ^b (0.53)
Never Talk Sex								
Mothers	16 (8.2)		5 (4) ^a		9 (21) ^b		2 (5) ^a	
Daughters	40 (20.6)		23 (20)		13 (30)		4 (11)	

Each subscript letter denotes a subset of demographic data whose column means or proportions do not differ significantly from each other at the .05 level. If no subscript is present, the column means or proportions for that variable did not differ significantly.

Table 2

Demographic Information Regarding Relevant Sexual Information

Variable	Overall Sample		Race/Ethnicity					
			Latina		Black		White	
	M (SD)	n (%)	M (SD)	n (%)	M (SD)	n (%)	M (SD)	n (%)
Maternal Age When First Became Mother	20.65 (5.36)		18.90 (4.20) ^a		21.23 (5.14) ^b		25.36 (5.92) ^c	
Maternal Teen-Motherhood		101 (52.1%)		76 (68.5%) ^a		19 (44.2%) ^b		6 (16.7%) ^c
Adolescent Report of Ever Having Sexual Intercourse		52 (26.8%)		31 (27.7%)		10 (23.3%)		11 (28.9%)
Adolescent Report of Sexual Risk Behaviors	1.43 (2.18)		1.39 (2.13)		1.16 (1.95)		1.86 (2.45)	
Endorse that Never Talk About Sex	Mothers	16 (8.2%)	Mothers	5 (4%) ^a	Mothers	9 (21%) ^b	Mothers	2 (5%) ^a
	Daughters	40 (20.6%)	Daughters	23 (20%)	Daughters	13 (30%)	Daughters	4 (11%)

Each subscript letter denotes a subset of demographic data whose column means or proportions do not differ significantly from each other at the .05 level. If no subscript is present, the column means or proportions for that variable did not differ significantly.

Table 3

Frequency of the Total Number of Sexual Risk Behaviors Reported by Adolescents

Total Number of Sexual Risk Behaviors (SRBs) Reported by Adolescents	Frequency of Adolescents Reporting Each Total Number of Sexual Risk Behaviors	Percent of Adolescents Reporting Each Total Number of Sexual Risk Behaviors
0 SRBs	123	63.4
1 SRB	8	4.1
2 SRBs	12	6.2
3 SRBs	9	4.6
4 SRBs	10	5.2
5 SRBs	18	9.3
6 SRBs	9	4.6
7 SRBs	5	2.6
8 SRBs	0	0.0
9 SRBs	0	0.0

Table 4

Paired Samples Difference Statistics of Mother-Daughter Communication Responses

Communication Variable	Paired Samples n	Mother		Daughter		Difference Score	t-value	Correlation
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Frequency	191	2.77	.87	2.38	0.99	0.39	4.62***	.22**
Valence	140	4.08	.92	3.40	1.16	0.68	5.88***	.19*
Embarrassment (mother)	182	1.54	1.00	2.07	1.33	-0.53	-4.32***	.02
Embarrassment (daughter)	190	2.56	1.34	3.26	1.51	-0.70	-5.20***	.17*

* indicates significance at $p < .05$ **indicates significance at $p < .01$ ***indicates significance at $p < .001$

Table 5

Partial Correlations between Mother and Daughter Sexual Communication Variables (Controlling for Adolescent Age)

Communication Variable	Frequency MR	Frequency AR	Tone MR	Tone AR	Self-Report Embarrassment MR	Self-Report Embarrassment AR	Adolescent Embarrassment MR	Maternal Embarrassment AR
Frequency MR	----							
Frequency AR	.22**	----						
Tone MR	.33***	.14	----					
Tone AR	.06	.27***	.19*	----				
Self- Report Embarrassment MR	-.15*	-.11	-.16*	-.05	----			
Self- Report Embarrassment AR	-.13	-.30***	-.26***	-.26**	.05	----		
Adolescent Embarrassment MR	-.22**	-.16*	-.41***	-.12	.42***	.17*	----	
Maternal Embarrassment AR	-.12	-.30***	-.04	-.11	.02	.39***	.14	----

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$

**indicates significance at $p < .01$

***indicates significance at $p < .001$

Table 6

*Partial Correlations between Communication Variables and Adolescent Sexual Risk Behaviors by Race/Ethnicity
(Controlling for Adolescent Age)*

Communication Variable	Overall <i>r</i>	Race/Ethnicity		
		Latina	Black	White
Mother Report				
Frequency	.19**	.20*	.25	.17
Valence	-.07	.00	-.02	-.20
Own Embarrassment	-.11	-.07	-.13	-.22
Daughter's Embarrassment	-.007	.02	-.18	-.04
Daughter Report				
Frequency	.02	-.02	.21	-.09
Valence	-.17*	-.22*	-.006	-.19
Own Embarrassment	.03	.07	-.05	-.02
Mother's Embarrassment	.04	.07	.03	-.08

* indicates significance at $p < .05$

** indicates significance at $p < .01$

Table 7

Regression Analyses for Maternal and Adolescent Report of Communication Frequency

Variable	B	SE	p-value	F	df	p-value
Constant	-10.95	2.32	.000	8.90	7.00	.000
Adolescent Age	.88	.14	.000			
Maternal Age When First Became Mother	-.03	.03	.37			
SES Risk Composite	-.27	.16	.09			
Live With Biological Father	-.39	.34	.26			
Maternal Report of Communication Frequency	.33	.16	.04			
Adolescent Report of Communication Frequency	-.04	.14	.76			
Interaction between Maternal Report and Adolescent Report of Communication Frequency	-.39	.16	.01			

Note: $R^2 = .24$ ($p < .001$)

Table 8

Typologies of Dyadic Patterns of Communication Frequency

Communication Typology	Overall <i>n</i> (%)	Race/Ethnicity		
		Latina <i>n</i> (%)	Black <i>n</i> (%)	White <i>n</i> (%)
Concordant Low	50 (26.2)	24 (21.2)	15 (34.9)	11 (28.9)
Discordant Mother Low	19 (9.9)	10 (8.8)	6 (14.0)	3 (7.9)
Discordant Mother High	60 (31.4)	37 (32.7)	9 (20.9)	14 (36.8)
Concordant High	62 (32.5)	40 (35.4)	12 (27.9)	10 (26.3)
Total	191 (100)	111 (98.2)	42 (97.7)	38 (100)

$X^2 (6, N=191) = 6.40, p = 0.38$

Table 9

Group Differences in Mother-Daughter Sexual Communication by Race/Ethnicity Controlling for Covariates[†]

Communication Variable	Overall M (SD)	Race/Ethnicity			Univariate F (Mean Square)
		Latina M (SD)	Black M (SD)	White M (SD)	
Frequency					
Mother	2.77 (0.88)	2.93 (0.86) ^a	2.47 (1.00) ^b	2.66 (0.73) ^{ab}	3.28 (2.50)*
Daughter	2.37 (1.00)	2.40 (1.01)	2.29 (1.09)	2.38 (0.86)	0.25 (0.17)
Valence					
Mother	4.11 (0.90)	4.17 (0.89)	4.18 (0.87)	3.82 (0.92)	1.63 (1.30)
Daughter	3.37 (1.17)	3.33 (1.25)	3.55 (1.21)	3.30 (0.88)	0.49 (0.67)
Embarrassment					
Mother self-report	1.54 (0.99)	1.69 (1.13)	1.47 (0.83)	1.20 (0.47)	1.70 (1.58)
Mother report of daughter	2.53 (1.34)	2.58 (1.41)	2.30 (1.32)	2.69 (1.13)	1.44 (2.58)
Daughter self-report	3.24 (1.52)	3.28 (1.55)	3.21 (1.63)	3.18 (1.27)	0.46 (1.06)
Daughter report of mother	2.10 (1.35)	2.18 (1.44)	1.97 (1.33)	2.00 (1.05)	0.84 (1.54)

Notes: Each subscript letter denotes a subset of demographic data whose column means or proportions do not differ significantly from each other at the .05 level. If no subscript is present, the column means or proportions for that variable did not differ significantly.

[†]covariates = SES composite, mother's age when first became mother, adolescent age, living with the adolescent's biological father

* indicates significance at $p < .05$

Table 10
Descriptive Statistics of Family Gender Attitudes and Sex Norms by Race

Family Values Variable	Overall M (SD)	Race/Ethnicity		
		Latina M (SD)	Black M (SD)	White M (SD)
Gender Equality MR	3.18 (0.93)	3.02 (0.98)	3.26 (0.83)	3.56 (0.78)
Gender Equality AR	4.04 (0.86)	3.98 (0.88)	4.10 (1.00)	4.17 (0.61)
Gender Traditional MR	2.97 (0.85)	3.03 (0.90)	3.10 (0.84)	2.67 (0.64)
Gender Traditional AR	3.09 (0.83)	3.21 (0.83)	2.94 (0.89)	2.90 (0.74)
Age Girls' First Sex MR	14.17 (2.45)	14.24 (2.68)	13.81 (2.01)	14.38 (2.17)
Age Girls' First Sex AR	14.25 (1.89)	14.23 (2.18)	13.72 (1.27)	14.97 (1.27)
Age Boys' First Sex MR	13.74 (2.37)	13.71 (2.67)	13.49 (1.69)	14.11 (2.06)
Age Boys' First Sex AR	13.72 (1.98)	13.79 (2.22)	13.14 (1.58)	14.22 (1.43)
Ideal Age Female Become Mother MR	25.16 (2.90)	24.92 (2.96)	24.79 (2.69)	26.29 (2.73)
Ideal Age Female Become Mother AR	24.59 (3.04)	24.78 (3.07)	23.74 (3.23)	25.00 (2.62)
Ideal Age Male Become Father MR	26.52 (3.60)	26.24 (3.75)	26.56 (3.81)	27.32 (2.80)
Ideal Age Male Become Father AR	25.31 (3.30)	25.37 (3.18)	24.65 (3.74)	25.89 (3.08)

Note: MR = Maternal Report, AR = Adolescent Report

Table 11
Descriptive Statistics of Family Acculturation, Ethnic Identity, and Religious Values by Race

Family Values Variable	Overall M (SD)	Race/Ethnicity		
		Latina M (SD)	Black M (SD)	White M (SD)
Maternal Acculturation	2.54 (1.12)	1.88 (0.66)	3.63 (0.86)	3.28 (1.08)
Ethnic Identity MR	2.49 (0.81)	2.50 (0.80)	2.49 (0.86)	2.47 (0.80)
Ethnic Identity AR	2.71 (0.62)	2.69 (0.65)	2.70 (.57)	2.77 (0.60)
Premarital Sex Against Religion MR	3.31 (1.35)	3.42 (1.36)	3.33 (1.42)	2.92 (1.20)
Premarital Sex Against Religion AR	2.33 (1.55)	2.11 (1.48)	2.44 (1.70)	2.89 (1.43)
Religious Service Attendance MR	1.75 (1.53)	1.80 (1.57)	1.88 (1.59)	1.42 (1.36)

Note: MR = Maternal Report, AR = Adolescent

Table 12

Descriptive Statistics of Parenting Practices by Race

Parenting Practices Variable	Race/Ethnicity			
	Overall M (SD)	Latina M (SD)	Black M (SD)	White M (SD)
Parental Monitoring MR	3.18 (0.52)	3.21 (0.52)	3.11 (0.52)	3.20 (0.55)
Parental Monitoring AR	2.93 (0.66)	2.91 (0.68)	2.90 (0.70)	3.01 (0.54)
Parental Control/ Adolescent Autonomy MR	3.25 (0.77)	3.17 (0.73)	3.20 (0.95)	3.54 (0.58)
Parental Control/ Adolescent Autonomy AR	4.04 (0.69)	3.96 (0.75)	4.25 (0.55)	4.03 (0.61)
Maternal Warmth	3.18 (0.70)	3.16 (0.73)	3.13 (0.73)	3.29 (0.58)

Note: MR = Maternal Report, AR = Adolescent

Table 13

Descriptive Statistics of Mental Health Risk by Race

Mental Health Risk Variable	Overall M (SD)	Race/Ethnicity		
		Latina M (SD)	Black M (SD)	White M (SD)
Maternal Anxiety	1.14 (0.87)	1.21 (0.88)	0.96 (0.90)	1.14 (0.80)
Maternal Depression MR	6.01 (5.34)	6.42(5.66)	5.23 (5.15)	5.68 (4.52)
Maternal Depression AR	13.34 (5.10)	13.29 (4.97)	13.26 (5.91)	13.60 (4.65)
Maternal PTSD	1.83 (0.92)	1.88 (0.99)	1.78 (0.89)	1.73 (0.74)
Adolescent Anxiety MR	1.70 (0.48)	1.73 (0.52)	1.51 (0.35)	1.81 (0.45)
Adolescent Depression AR	1.52 (0.40)	1.51 (0.39)	1.50 (0.38)	1.56 (0.43)
Adolescent Depression MR	1.60 (0.43)	1.63 (0.48)	1.48 (0.28)	1.64 (0.38)
Adolescent PTSD	1.91 (1.02)	1.90 (0.99)	1.79 (0.63)	2.10 (1.39)

Note: MR = Maternal Report, AR = Adolescent

Table 14

Partial Correlations between Communication Variables and Family Gender Attitudes (Controlling for Adolescent Age)

Communication Variable	Gender Equality MR	Gender Equality AR	Gender Traditional MR	Gender Traditional AR
Frequency MR	-.06	-.07	-.04	.17*
Frequency AR	-.05	-.11	-.09	.19**
Tone MR	-.17*	-.11	-.02	.17*
Tone AR	-.03	.05	-.04	.03
Self- Report Embarrassment MR	-.05	-.09	.17*	.06
Self- Report Embarrassment AR	.04	-.003	-.006	-.06
Adolescent Embarrassment MR	.007	.11	.14	-.14
Maternal Embarrassment AR	-.02	.02	.06	-.02

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$

**indicates significance at $p < .01$

***indicates significance at $p < .001$

Table 15

Partial Correlations between Communication Variables and Family Sex Norms (Controlling for Adolescent Age)

Communication Variable	Age Girls' First Sex MR	Age Girls' First Sex AR	Age Boys' First Sex MR	Age Boys' First Sex AR	Age Female Become Mother MR	Age Female Become Mother AR	Age Male Become Father MR	Age Male Become Father AR
Frequency MR	-.05	-.10	-.11	-.15*	-.03	.03	-.05	.04
Frequency AR	.01	-.05	-.05	-.07	.09	-.04	.19**	-.02
Tone MR	-.06	.09	-.04	.16*	-.01	-.02	-.06	-.06
Tone AR	.10	.18*	.05	.23**	.05	-.07	-.007	-.13
Self- Report Embarrassment MR	.08	-.01	.09	-.008	-.05	-.04	-.03	-.08
Self- Report Embarrassment AR	-.01	-.07	.04	-.08	.03	.08	.003	.04
Adolescent Embarrassment MR	.04	-.05	-.03	-.13	-.05	.08	-.05	.06
Maternal Embarrassment AR	-.06	.18*	.009	.15*	.005	.18*	.02	.16*

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$ **indicates significance at $p < .01$ ***indicates significance at $p < .001$

Table 16

*Partial Correlations between Communication Variables and Family Acculturation, Ethnic Identity, and Religious Values
(Controlling for Adolescent Age)*

Communication Variable	Maternal Acculturation	Ethnic Identity MR	Ethnic Identity AR	Premarital Sex Against Religion MR	Premarital Sex Against Religion AR	Religious Service Attendance MR
Frequency MR	-.10	.11	.03	-.02	-.18*	.13
Frequency AR	-.04	.02	.21	-.04	-.13	-.13
Tone MR	-.07	.09	.10	.07	-.07	.19*
Tone AR	.01	.07	.12	.02	.04	.05
Self- Report Embarrassment MR	-.17*	-.12	-.02	.06	-.15*	-.15*
Self- Report Embarrassment AR	-.04	.03	-.26***	.03	.16*	.14
Adolescent Embarrassment MR	-.01	-.17	-.23***	-.01	-.06	-.23***
Maternal Embarrassment AR	.01	-.007	-.07	-.03	.11	.08

Note: MR = Maternal Report, AR = Adolescent Report *indicates significance at $p < .05$ **indicates significance at $p < .01$
***indicates significance at $p < .001$

Table 17

Partial Correlations between Communication Variables and Parenting Practices (Controlling for Adolescent Age)

Communication Variable	Monitoring MR	Monitoring AR	Parental Control/ Adolescent Autonomy MR	Parental Control/ Adolescent Autonomy AR	Maternal Warmth AR
Frequency MR	.19**	.05	-.11	-.06	.05
Frequency AR	-.05	.21**	.10	-.08	.26***
Tone MR	.26***	.18*	-.04	-.12	.13
Tone AR	.09	.26**	-.09	-.06	.18*
Self- Report Embarrassment MR	.04	.03	-.007	-.008	-.02
Self- Report Embarrassment AR	-.11	-.32***	.03	.05	-.14
Adolescent Embarrassment MR	-.22**	-.19**	.03	.02	-.20**
Maternal Embarrassment AR	-.09	-.26**	-.15	-.06	-.29***

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$ **indicates significance at $p < .01$ ***indicates significance at $p < .001$

Table 18

Partial Correlations between Communication Variables and Maternal Mental Health Risk (Controlling for Adolescent Age)

Communication Variable	Maternal Anxiety	Maternal Depression MR	Maternal Depression AR	Maternal PTSD
Frequency MR	.08	.006	-.05	-.04
Frequency AR	.03	.10	-.07	.01
Tone MR	-.22**	-.16*	-.18*	-.19*
Tone AR	.02	.13	-.21*	.07
Self- Report Embarrassment MR	.15*	.15*	.03	.18*
Self- Report Embarrassment AR	-.07	-.14	.22**	.06
Adolescent Embarrassment MR	.14	.17*	.15*	.11
Maternal Embarrassment AR	-.12	-.16*	.19**	-.17*

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$

**indicates significance at $p < .01$

***indicates significance at $p < .001$

Table 19

Partial Correlations between Communication Variables and Adolescent Mental Health Risk (Controlling for Adolescent Age)

Communication Variable	Adolescent Anxiety MR	Adolescent Depression AR	Adolescent Depression MR	Adolescent PTSD
Frequency MR	.07	-.01	.03	.04
Frequency AR	.05	.01	.06	.003
Tone MR	-.10	-.12	-.30***	-.03
Tone AR	.02	-.17*	.06	-.10
Self- Report Embarrassment MR	.06	-.06	.20**	-.05
Self- Report Embarrassment AR	.007	-.14*	-.02	-.07
Adolescent Embarrassment MR	.03	.18*	.28***	-.06
Maternal Embarrassment AR	-.05	.12	-.12	.002

Note: MR = Maternal Report, AR = Adolescent Report

*indicates significance at $p < .05$

**indicates significance at $p < .01$

***indicates significance at $p < .001$

Table 20

Multivariate Analysis of Covariance (MANCOVA) Between Communication Variables and Maternal Childhood Sexual Abuse (Controlling for Adolescent Age)

Communication Variable	No Sexual Abuse M (SD)	Yes Sexual Abuse M (SD)	Mean Square	Univariate <i>F</i>	<i>p</i>
Frequency MR	2.81 (.86)	2.77 (.91)	0.09	0.12	.74
Frequency AR	2.25 (.95)	2.63 (1.02)	5.00	5.30	.02*
Tone MR	4.11 (.89)	3.92 (.98)	0.86	1.31	.25
Tone AR	3.31 (1.17)	3.51 (1.18)	0.37	0.28	.60
Self- Report Embarrassment MR	1.53 (1.01)	1.49 (.87)	0.22	0.24	.63
Self- Report Embarrassment AR	3.42 (1.45)	2.97 (1.61)	8.34	3.63	.06
Adolescent Embarrassment MR	2.43 (1.32)	2.83 (1.38)	8.18	4.57	.03*
Maternal Embarrassment AR	2.30 (1.42)	1.77 (1.17)	13.20	7.46	.007**

Note: *df* = 1 *indicates significance at $p < .05$ **indicates significance at $p < .01$

Table 21

*Chi-square Difference Test for Maternal Childhood Sexual Abuse Across Communication Typologies**

Communication Typology	No Childhood Sexual Abuse n (%)	Mother Yes Childhood Sexual Abuse n (%)
Concordant Low	32 ^a (68.1)	15 ^a (31.9)
Discordant Mother Low	6 ^a (33.3)	12 ^b (66.7)
Discordant Mother High	42 ^a (71.2)	17 ^a (28.8)
Concordant High	36 ^a (60.0)	24 ^a (40.0)

Note: Each subscript letter denotes a subset of demographic data whose column means or proportions do not differ significantly from each other at the .05 level. If no subscript is present, the column means or proportions for that variable did not differ significantly.

* $\chi^2 (3, N=184) = 9.25, p < .05$

Figures

Figure 1

The Moderating Effects of Adolescent Report of Sexual Communication Frequency on the Association Between Maternal Report of Sexual Communication Frequency and Adolescent Sexual Risk Behaviors

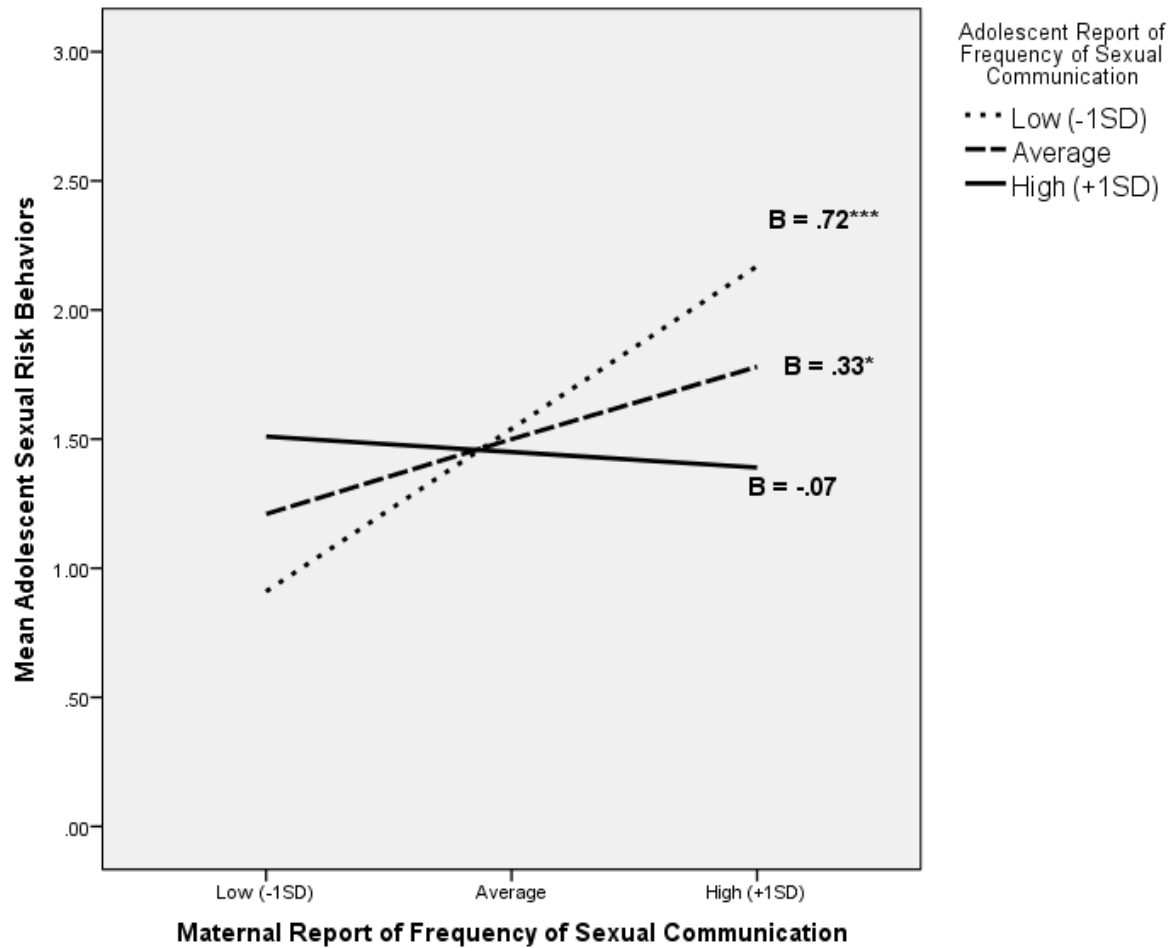


Figure 2

Bar Graph of Mean Scores of Adolescent Sexual Risk Behaviors by Typologies of Communication Frequency as Reported by Mothers and Daughters

