Family Communication and Family Talk about Sex as Predictors of College Students' Sexual Behavior

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This dissertation titled
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ABSTRACT

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Family Communication and Family Talk about Sex as Predictors of College Students' Sexual Behavior

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This dissertation examines the relationship between family communication patterns, family talk about sex and sexual behaviors: safe sex, high risk sex, and avoiding sex. This dissertation offers a structural equation model to explore the associations between the aforementioned constructs. Positive outcomes: avoiding sexual behavior (as mediated by conservative family values) and engaging safe sex behavior, are positively predicted by conformity orientation. Pluralistic families are most likely to have children who report engaging in high risk sex behavior, likewise protective families may also produce this relationship. Ongoing open discussions about sex and sexuality are recommended to mitigate negative (i.e. high risk sex) outcomes in the models.

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To my amazing husband – Eric Astrup – your outstanding love and support have been an incredible blessing.

To my children – Carsten Astrup and Siri Astrup – you have changed me in ways I could never anticipate. You are my greatest contribution, thank you for your love.
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CHAPTER 1: INTRODUCTION

Sex and sexuality are inherent to the human condition. As such, sexual behavior in teens, adolescents, and young adults has been studied from various perspectives. The topics addressed encompass, among other things, sexually transmitted disease infection rates and pregnancy rates (e.g., Kirby, 2009), abstinence or avoiding sexual behaviors (e.g., Brückner & Bearman, 2005), engaging in high-risk sexual behaviors (e.g., Bigalan et al., 1990), and engaging in safe-sex behaviors (e.g., White, Terry & Hogg, 1994).

Much research investigates the influence of the family, finding that parental communication surrounding sexuality influences children’s sexual behavior. However, how parents choose to communicate with children about sex is only one factor in understanding how communication within the family functions. Family communication patterns research provides another lens for examining how communicative patterns are established throughout time in the family. These patterns have been linked to many well-being, psychological and behavioral outcomes (see Koerner & Fitzpatrick, 2002a, 2002b). Communication patterns within the family, along with parent-child communication about sex, are linked in this study to three primary behavioral constructs: safe-sex, avoiding sex, and high-risk sex. The chief goal of this study is to understand how family communication predicts sexual behaviors in young adults. Subsequently, in the following sections an examination of sexual behavior of young adults and teens is offered and a rationale for the connection between behavior and communicative constructs is provided.
Teens and young adults are engaging in sexual behavior that has resulted in alarming levels of STDs/STIs (sexually transmitted diseases/sexually transmitted infections). According to the CDC’s most current statistics on adolescent sexuality, 48% of students in high school have engaged in sexual intercourse, and of those, 15% have had four or more sexual partners (CDC, 2009). Although no statistics were reported for people outside of the high school age (over 19) on the CDC website, sexual activity does not cease in the years following high school. For some, sexual activity and partners might increase. The Kaiser Family Foundation (2008) presents statistical information consistent with the CDC website, but these statistics also incorporate young adulthood. Of high school students who are sexually active, 39% reported failing to use a condom the last time they had sexual intercourse (CDC, 2009). Failing to use a condom contributes to the approximately 19 million new STIs reported in 2009 (CDC, 2009; see, also, Weinstock, Berman, Cates, 2004). Of the new STIs, almost half of the people infected fall between the ages of 15 and 24 (Weinstock et al., 2004). This demonstrates the need for further understanding sexual behavior and developing the ability to predict these behaviors.

A majority of statistics available for STD/STI infection rates are tied to the teenage bracket, approximately ages 13-19 (see CDC, 2009; see also Kaiser Family Foundation, 2008). The primary demographic for this study is college attending young adults, the majority of whom range in age from 18 to 24. Because this group of college-attending students spans the age range between teens and young adults, understanding sexual behavior, implications of and communication about sex in families of both teens
and young adults is paramount. Subsequently, literature spanning the teen/young adult age bracket will be explored throughout this study.

The most influential people in helping teens to make decisions about engaging in sex are parents (Mitchell, Tanner & Raymond, 2004; Moore, Raymond, Mittlestaedt & Tanner, 2002; Tanner, Carlson, Raymond & Hopkins, 2008). Previous research demonstrates that parental communication about sex can influence the sexual behavior of young adult children. Mothers might be even more influential than fathers when a teen is making the decision to engage in sexual behavior. Moreover, mothers are more involved, and cited by both daughters and sons as more influential, in discussions about engaging in sex and discussing sexuality (Somers & Vollmar, 2006).

How and when mothers choose to communicate with their children about sex and sexuality can have lasting effects. Mother-daughter communication about sex in early adolescence is associated with a delay in first sexual intercourse (Hutchenson, 2004). Daughters who report having mothers who communicate with them about condom use reported having more consistent condom use, and subsequently a lower rate of STD/STI infection (Hutchenson, 2004). Subsequently, children with parents who choose to communicate with their children about sex might engage in safer-sex behavior (e.g., using a condom at every sexual encounter, delaying sexual behavior, and/or limiting sexual partners).

Parents are influential when discussing sexuality and helping teens to make decisions about sexual behavior. Parental communication with youth about sexuality, both verbal and nonverbal, can impact sexuality throughout adolescence (Darling &
Hicks, 1982). However, little is known about how the previously established family communication patterns paradigm (see Koerner & Fitzpatrick, 2002a; 2002b) predicts sexual behavior. Moreover, communication about sex within families is often limited to frequency of communication rather than other communicative constructs. While this discussion will be elaborated upon in the following chapter, this study aims to contribute other communicative constructs (avoidance, culture, deception, openness, satisfaction, and family values), along with family communication patterns, as having predictive power to explain sexual behavior in young adult children. Because the family seems to be the critical force in helping teens to navigate and explore sexuality and sexual behavior, parents can continue to serve as influential agents in sexual choices and behavior throughout young adulthood.

Understanding sexual behavior in this population provides a fruitful area of research given the levels of high-risk sexual behavior and subsequent sexual consequences (i.e., sexually transmitted infections/diseases) and the sexual freedom many children encounter after leaving home for college. The chief goal of this study is to understand the connection between family communication patterns, family communication about sex, and young adult children’s sexual behavior. Specifically, this study examines whether parent-child communication about sex mediates the association between family communication patterns and sexual behavior.

Summary and Preview of Chapters

This chapter supplies a problem and chief goal for this dissertation. Relevant literature provides a foundation for this area of study as well as outlining conceptual and
theoretical definitions, which will be explored further in Chapter Two. The primary purpose of this chapter was to provide the rationale for this area of study.

Chapter Two outlines substantive literature related to communication about sex and sexuality and the family unit. This chapter also posits hypotheses and research questions to guide the methodology of this dissertation. The extant literature, although brief, provides a substantive foundation for examining the relationship between family communication patterns, family communication about sex, and their ability to predict sexual behavior in young adults. For a visual representation of the theoretical proposed relationship between the constructs see Figure 1.

Chapter Three outlines the results from a pilot study. The pilot study was designed to test the construct FSCI (family sexual communication instrument) and provide potential factors through an exploratory factor analysis. The chapter examines the methods used for the pilot work as well as the final results from constructing the FSCI.

Chapter Four outlines the methodology used for the dissertation. Specifically, this chapter aims to outline the data collection procedures, analysis procedures and methods for interpretation. The sampling method, participants and procedures are described. Finally, this chapter outlines the results from confirmatory factor analyses for each instrument used in the dissertation (including the FSCI scale construction).

Chapter Five outlines and reports the results of the study. Firstly, the results from the confirmatory factor analysis for each model (safe sex/high risk sex and avoiding sex) are reported. Secondly, the results from the saturated models and trimmed models are reported. A final model for safe sex/high risk sex is advanced as well as a final model for
avoiding sex. Lastly, the orthogonalized interaction effect is decomposed and tests for indirect effects are reported.

Chapter Six outlines the findings for the measurement and structural models, provides theoretical and practical implications as well as directions for future research. Findings for both the avoiding sex model and safe sex/high risk sex model are discussed. After that, theoretical implications for family communication patterns and family talk about sex are offered. Then, practical and family implications are offered, as well as suggestions for parents of children engaging in high risk sexual behavior. Finally, limitations and directions for future research are discussed.
CHAPTER 2: REVIEW OF LITERATURE

Family Communication Patterns

One particularly useful theoretical approach for understanding family communication about sex is Koerner and Fitzpatrick’s (2002a) model of family communication patterns (Fitzpatrick & Ritchie, 1994; Ritchie & Fitzpatrick, 1990). Family communication patterns research has identified the fundamental cognitive orientations underlying communication within the family as a whole, and these orientations have proven remarkably useful in predicting a host of psychosocial outcomes across a wide array of domains (Schrodt, Witt, & Messersmith, 2008); therefore, we would expect, theoretically, family communication patterns to provide insight into family communication about sex as well. Family communication patterns are comprised of two primary dimensions: conversation orientation and conformity orientation (see Koerner & Fitzpatrick, 2002a). In what follows, an explanation of each dimension will be offered as well as an explanation of the four family types that are associated with conversation orientation and conformity orientation.

Conversation orientation is defined “as the degree to which families create a climate in which all family members are encouraged to participate in unrestrained interactions about a wide array of topics” (Koerner & Fitzpatrick, 2002a, p. 39). Families high in conversation orientation openly share details of their own and other family members’ lives, discuss personal thoughts and emotions, and engage in conversation concerning controversial topics (Ledbetter, 2009). Conformity orientation is defined as “the degree to which family communication stresses a climate of homogeneity of
attitudes, values and beliefs” (Koerner & Fitzpatrick, 2002a, p. 39). In families that exhibit high levels of conformity orientation, parents are chief instigators in developing rules for the family and, specifically, rules for the children. Children are expected to follow the family norms and adhere to family beliefs and values (Ledbetter, 2009). The dimensions exhibit a weakly moderate correlation (r = approximately .30) in published research, but research also demonstrates divergent effects arising from each orientation (Schrodt, Witt & Messersmith, 2008). While both conformity orientation and conversation orientation are continuous in nature, discussing them as dichotomous is a conceptually driven rather than methodologically driven choice. However, scholars use a dichotomous categorization of each of these variables (i.e., high and low in conformity orientation, high and low in conversation orientation) to generate a typology of four family types.

**Family Types**

The first of the four family types is consensual families. These families are characterized by reporting high levels of both conversation and conformity orientation. Consensual families are “characterized by a tension between pressure to agree and to preserve the existing hierarchy within the family, on the one hand, and an interest in open communication and in exploring new ideas on the other hand” (Koerner & Fitzpatrick, 2002a, p. 44). The second of the four family types is pluralistic. These families are high in conversation orientation, but low in conformity orientation. Koerner and Fitzpatrick (2002a) describe these families stating, “Communication in pluralistic families is characterized by open, unconstrained discussions that are open to and involve all family
members” (p. 44). The third type is protective; these families are the opposite of pluralistic, high in conformity, but low in conversation orientation. Koerner and Fitzpatrick (2002a) state, “Communication in protective families is characterized by an emphasis on obedience to parental authority and by little concern for conceptual matters or for open communication within the family” (p. 44). And finally, the fourth family type is laissez-faire; these families are characterized by being low in both conversation orientation and conformity orientation. In laissez-faire families “communication is characterized by few and usually uninvolving interactions among family members that usually concern only a limited number of topics” (Koerner & Fitzpatrick, 2002a, p. 45).

Various psychosocial, behavioral and well-being outcomes for families have been linked to conversation and conformity orientation (see Koerner & Fitzpatrick, 2002a, 2002b). These outcomes include children’s resilience to external environmental influences (Fitzpatrick & Koerner, 1996), anxiety and depression (Koerner & Fitzpatrick, 1997), children’s future romantic relationships (Koerner & Fitzpatrick, 2002c), integration with peers (Koerner & Fitzpatrick 2002a), social restraint and social withdrawal (Fitzpatrick, Marshall, Leutwiler & Kemar, 1996), and how families perform rituals (Baxter & Clark, 1996). Although many contexts have been studied linking family communication patterns to communicative and well-being outcomes, relating the archetype of family communication patterns directly to parent-child communication about sex has not been extensively researched.

Family communication patterns provide us with an understanding of communication that is anchored in more than frequency, or simply a sender to receiver,
linear model (as opposed to a transactional model). Koerner and Fitzpatrick (2002b) elaborate on the inferential model of communication:

…symbols must be recognized and interpreted through rather complex cognitive processes involving form, recognition, memory and so forth. The entire process requires the ability to make inferences about the intentions behind the use of a symbol, which are based on an understanding of social conventions governing the use of certain symbols, the relationship between sender and receiver, and the sender’s and the receiver’s idiosyncrasies. Similarly, the process of choosing symbols to communicate also relies on the sender’s ability to predict how the intended receiver will react to a symbol, which involves the same types of knowledge of social conventions, the relationship between sender and receiver and their idiosyncrasies. (p. 72)

An understanding of communication in this way is complex and multifaceted. Incorporating any form of communicative interaction that is transactional rather than linear to the body of research on communication with parents about sex provides a fruitful area of research. Moreover, conversation orientation can tap into the “openness” theme that Kirkman, Roesenthal and Feldman (2005) challenged others to incorporate into their research on family communication and sexuality.

Although modeling communicative constructs (with a method such as SEM) can be understood as a “linear model,” reference to linearity in this sense refers to the linear model of communication (i.e., not the transactional model of communication, see Miller, 2005). This linear understanding of communication removes the complexity of feedback,
simultaneously sending, receiving and interpreting communicative messages, communicative situations and contexts. Subsequently, the linear model of communication negates the understanding of communication as a process. In what follows, an argument is made for understanding family communication patterns as a process guiding communication within the family.

Family communication patterns provide us with an understanding of communication as a dynamic process, rather than a stagnant moment in time. Scholars such as Duck (1990) have called for more research in the communication discipline focusing on a process-based understanding of communication, avoiding idle moments and, instead, focusing on the ongoing communication within interpersonal relationships. Because family communication patterns demonstrate how communication has evolved and is used within the family unit, this theory provides a more heuristic understanding of the communicative relationships that exist within the family unit. Moreover, although family communication patterns strive to understand how frequently we discuss issues (conversation orientation) and how often we conform to the standards set by the family (conformity orientation), the theory goes beyond simple frequency of communication to embedded patterns within the family of communicative interactions. Subsequently, communicative expectations are drawn out by the family, which are understood as a process-based or transactional understanding of communication rather than a linear model (see Koener & Fitzpatrick, 2002b).

Openness in the family can be of utmost importance in understanding the link between family communication patterns, specifically, conversation orientation and how
children and parents communicate about sex. We know from previous research that families with high conversation orientation are more open, in general, about topics within the family (Koerner & Fitzpatrick, 2002a). Communication between parents and college-age children about sexuality is linked to how open the family is about both sexuality and alcohol use (Booth-butterfield & Sidelinger, 1998). Thus, it is reasonable to expect that, as openness within the family increases, so does parent-child communication about sex.

H1: Conversation orientation is positively associated with parent-child communication about sex.

Accounting for how people act given their perceptions of family communication about sex is one of the goals of this project, and thus, it is crucial to understand the connections between family communication and sexual behavior. Dong (2005) found that controlling families (which are conceptually related to the protective family type), who avoid discussing risky behavior (such as the consumption of drugs/alcohol or engaging in sex that could result in unwanted pregnancy or STDs), have children who are more likely to engage in risky behavior. Controlling families might be closely tied to conformity orientation, especially high levels of conformity. This link might provide insight into which types of families are less likely to discuss (conversation orientation) sexuality and sexual risk with their children. Subsequently, that lack of discussion could be linked to behavioral outcomes for the child (i.e., what kinds of sexual behavior the child chooses to engage in).

H2: Conformity orientation is negatively associated with parent-child communication about sex.
Parent-Child Communication about Sex

Much of the literature describing communication between parents and children about sex is based on frequency of communication (e.g., Feldman & Rosenthal, 2000; Furstenberg, Herceg-Baron, Shea, & Webb, 1984), or is conceptualized using a non-transactional model of communication (sender and receiver, not accounting for feedback, lack of communication/avoidance, dishonesty etc.) (e.g., Miller, Kotchick, Dorsey, Forehand & Ham, 1998). However, as a communication scholar, looking at frequency of communication and employing a non-transactional model of communication do not supply us with the theoretical groundings that other communicative constructs/models can supply.

Very little communicative research has been conducted investigating parent-child communication about sex. One study focuses on what topics were discussed, level of satisfaction with the discussion and parental involvement (see Heisler, 2005). One qualitative study advocates for the process of communication being paramount in understanding how communication impacts sexual behavior (Pluhar & Kuriloff, 2004). Powell and Segrin (2004) suggested that communication within the family influences communication with sexual partners in general and, more specifically, with sexual partners about HIV/AIDS. Another study examined how openness (defined as balanced with privacy, open attitude, and responsiveness to the child) is an important variable when understanding how parents and children communicate about sexuality (Kirkman, Rosenthal & Feldman, 2005). Although Kirkman and colleagues are not communication scholars, they understand communication as dyadic interaction, and emphasize how this
complex construct should be studied in future contexts. In summary, existing literature posits parent-child communication about sex is composed of frequency of communication between parents and children, how satisfied each person is with the communication, and how open the parents are with their children.

Booth-Butterfield and Sidelinger (1998) examined how openness in family communication patterns is related to attitudes of college-aged children about sexuality and alcohol use. Although few communicative predictors were linked to sexual behaviors, the participants who were more open were more likely to make safe choices in regards to sex and alcohol use. Parental communication about sexuality and consistent family communicative norms focusing on a high conversation orientation might then predict safe-sex behavior on the part of young adults.

Warren and Neer (1986) found that frequency of communication within the family about sex is neither effective nor recurrent; however, having habitual conversations within the family about sex could provide children with a model for how to engage in communication about sex with sexual partners. Moreover, a “strong family sex communication orientation… seems to facilitate children’s open discussion with dating partners and with parents and to develop responsible pre-parenting attitudes” without providing “sexual license” to the children (Warren & Neer, 1986, p. 86).

In summary, previous research gives us reason to believe that children’s decisions about sexual behavior are affected by how parents choose to communicate with children. In families with high conformity expectations, parents might expect their children to adhere more closely to cultural norms or family expectations for how the family talks
about sex and sexuality. Parents of families with low conformity expectations might expect their children to make autonomous choices about sex-related talk in the family. Families high in conversation orientation might expect high levels of disclosure and free discussion of sex and sexuality. Families low in conversation orientation might expect more avoiding talk behaviors and low levels of disclosure within the family about sex and sexuality.

The interaction effect between conversation orientation and conformity orientation (forming the four family types) is a specific kind of prediction that has been examined in recent literature on family communication patterns (e.g., Ledbetter, 2010). Koerner and Fitzpatrick (2002b) emphasized the importance of accounting for the interaction effect in family communication patterns research:

The effects that these two core beliefs [conversation orientation and conformity orientation] about communication in families have on actual family communication are often dependent on each other. That is, rather than having main effects on family communication, these two beliefs often interact with one another. Therefore, to predict how one belief affects family communication, it is not sufficient to know only that belief; it is as well necessary to know the other belief. (p. 86)

In other words, it is essential to account for conformity orientation, conversation orientation, and their interaction effect. How conformity orientation and conversation orientation predict variables does not have the same predictive power as the four family types (interaction effect). A significant finding in an interaction effect can, in fact, present
a new way for explaining variance within a model. Koerner and Fitzpatrick (2002b) observed:

… in addition to having direct effects on family communication, the two dimensions of conformity and conversation orientation also interact with one another to create four family types that differ from each other in qualitative ways. To distinguish them, therefore, is of theoretical significance and not just a convenient way of describing the four family types that are created by crossing these two dimensions. (p. 86)

It is to be expected that a significant finding for an interaction term path does not simply account for more variance in the model. Instead, it provides us with a theoretical foundation for understanding the specific communicative constructs and their relationship with the four family types.

In addition to the importance of accounting for the interaction effect in the model, it is vital to understand the nature of the interaction effect, specifically, how precisely one effect of one orientation (conversation) changes as the function of the other (conformity), and vice versa. The interaction effect predicts that conversation orientation will reduce the effect of conformity orientation in the model. Schrodt (2005) provided an example of this reduction in effect on conformity orientation when examining the relationship between the interaction effect and family flexibility. Schrodt stated,“Structural traditionalism [conversation orientation] in the presence of moderate to high levels of family expressiveness [conformity orientation] has less of a negative impact on perceptions of family flexibility than structural traditionalism with little to no family
effectiveness” (p. 368). Thus, when conversation orientation is considered in conjunction with conformity orientation, conformity orientation has a reduced impact in the variance accounted for. Although family flexibility is not a variable in this study, Schrodt provided an example of how conversation orientation reduces the effect of conformity orientation in his model. Schrodt (2005) went on to explore the mediated relationship in his model by stating:

Evidently, family expressiveness [conversation orientation] moderates the negative influence of structural traditionalism [conformity orientation] on family flexibility, such that structural traditionalism [conformity orientation] in the presence of moderate to high levels of family expressiveness has less of a negative impact on perceptions of flexibility than structural traditionalism in the presence of little to no family effectiveness. (p. 371)

For this study, family communication patterns, specifically conversation orientation and conformity orientation, are hypothesized to have direct effects (linked to sexual behaviors, which will be discussed further at the end of this chapter) and indirect effects/mediated effects (links to parent-child talk about sex). It is reasonable to expect that conversation orientation will change how conformity orientation predicts parent-child communication about sex.

H3: Conversation orientation mitigates the inverse association between conformity orientation and parent-child communication about sex.

Figure 1 demonstrates the hypothesized main effects. The following section elaborates on the relationship between FCP and communication about sex. The
theoretical background covered thus far suggests that parent-child communication about sex mediates the association. This is consistent with other literature identifying specific communication behavior that mediate the effect of FCP (Ledbetter, 2009; Schrodt & Ledbetter, 2007).

H4: Family communication patterns indirectly predict sexual behavior, with the effect mediated by parent-child communication about sex.
Figure 1. Saturated Structural Model.
Sexual Behavior

Before considering family communication about sex, we must first address what is meant by the term “sexual behavior.” Available literature generally divides sexual behavior into three subcategories: high-risk, safe-sex, and avoidance. Although these three constructs do serve a purpose, the sexual behaviors tied to each construct vary greatly in their operationalization. Although each category in and of itself is not problematic, understanding the constructs in such a way is difficult due to the inconsistency across studies as to a definition of what behaviors are categorized as high-risk versus safe-sex. Avoidance or abstinent behaviors can also be inconsistent in the operationalization of the terms used.

More problematic still are the vast majority of studies in which the authors do not define how they conceptualized any of these (high-risk, safe-sex, avoiding sex) terms. Many of these terms manage to make it into the text or title of the research, but the terms themselves are not defined in the study. As such, it is difficult to decipher what different scholars are discussing when they refer to high-risk and safe-sex behaviors. This somewhat false dichotomy could be problematic in the research available, and also in helping to construct what behaviors are classified as which category.

In the following sections, each of the three dominant categories (high risk sex, safe sex, and avoiding sex/abstinence) is explored. Each of these categories supplies this project with a basis for linking communication to sexual behaviors. In reviewing this literature, special attention is given to communication-focused studies and studies that emphasize communication with parents and the impact of communication on sexual
behaviors of teens, adolescents and young adults. In the following section, examination of how safe sex, high risk sex and avoiding sex behaviors are operationalized is offered.

**Operationalization of Sexual Behavior**

**Safe Sex Behaviors**

Safe sex behaviors are not well defined in the literature. Some studies use the term “safe sex” without ever operationalizing the term (e.g., Ekstrand & Coates, 1990; Stall, McKusick, Wiley, Coates, & Ostrow, 2008). Although no concrete definition is offered, for this study safe sex behaviors will be defined as: (a) using condoms and (b) talk about sexual history and/or safe sex practices.

The majority of adolescents see using condoms as a means of engaging in safe sex (see Hillier, Harrison & Warr, 1998). Intentionality can play a key role in a young adult’s sexual behavior. Namely, intention to use a condom positively predicts condom use (Boldero, Moore, & Rosenthal, 1992). In this study, self-report of using a condom will be one of the constructs used to characterize safe sex behaviors.

Talk about sexual history and/or safe sex practices with a dating/sexual partner is considered to be an important concept when operationalizing safe sex. Troth and Peterson (2000) suggested that talk about sex within early sexual relationships is essential to engaging in safe sex behaviors. Moreover, Adelman (1992) suggested that framing talk of safe sex practices is an ongoing dialogue between sex partners prior to, during, and after a sexual encounter. Talk with partners about sexual history and safe sex provides an additional lens for capturing the construct of safe sex behaviors.
High Risk Sexual Behaviors

High risk sexual behaviors are rarely defined in the extant literature. Indeed, authors often use the term “high risk sexual behavior” without offering an operationalization of the construct (e.g., Marks, Crepaz, Senterfitt, & Janssen, 2004; Stall, McKusick, Wiley, Coates, & Ostrow, 2008). Clarifying this theoretical/operational ambiguity is beyond the scope of this dissertation, but in light of the foregoing research and knowledge of behaviors that can lead to negative health outcomes, in this study high risk sexual behaviors will be defined as: (1) having sex (including anal sex) without a condom, (2) drug and/or alcohol use during or before a sexual encounter, and (3) casual sex (i.e. brief sexual encounters or a sexual encounter on one occasion -- “one night stand”). In the following section, an examination of the pertinent literature about high risk sex is offered.

For many years, health campaigns, news sources, and entertainment media have emphasized the protective health benefits of condom use. To understand the prevalence and problems associated with not using a condom, current research on adolescent and young adult sexual education about condoms and high risk sexual behavior is offered.

The vast majority (86.6%) of high schools across the U.S. teach abstinence as the most effective method of preventing unwanted pregnancy and STIs, only 65.4% of high schools teach about condom efficacy, and fewer, 38.5%, teach students how to correctly use a condom (CDC, SHPPS, 2006). This lack of knowledge about how to appropriately use a condom could directly affect not using condoms, but not using them appropriately, decreasing their effectiveness in preventing pregnancy and STI transmission. Although
lack of knowledge is important to consider, some young adults who are knowledgeable engage in high risk sexual behaviors. Gold (2004) discussed this inconsistency by noting high levels of knowledge do not lead to consistent condom use. Instead, many participants in her study reported not using condoms, even though they were aware of the repercussions of such actions.

High risk behaviors are often linked with using drugs or alcohol (see Cooper, 2002; Leigh & Stall, 1993). To reify this point the Kaiser Family Foundation (2011) states, “Almost one-quarter (22%) of sexually active high school students reported using alcohol or drugs during their most recent sexual encounter…” (not paginated). Consumption of alcohol and drugs prior to sexual activity is often understood as high risk sexual behavior (e.g., Biglan et al., 1990; Booth, 1995; Critchlow Leigh, 2010). Additionally, deeply held cultural norms of heavy drinking at a college campus (see Borsari & Carey, 2001) could lead to increased drinking behaviors and, subsequently, more high-risk sexual behaviors in this particular population. In guiding my own operationalization of high risk sexual behavior, accounting for alcohol and drug use prior to, or while engaging in, sexual activity is important to capture.

Engaging in casual sex (Cubbins & Tafner, 2000) and having sex on the first date are identified for this study as high risk sexual behaviors. Casual sex can be linked to not using a condom but is, in and of itself, a high risk sexual behavior (see Franzini & Hwang, 1992). Casual sex is common among college students, and frequently reported as an important variable of study (e.g., Grello, Welsh & Harper, 2006).
Avoiding Sex Behaviors

Avoiding sex is a bit clearer in the literature. Some studies (e.g., Jemmott III, Sweet Jemmott, & Fong, 1998) use delaying intercourse or “reducing its frequency” (p. 1529); others operationalize abstinence as avoiding vaginal intercourse only (e.g., Kohler, Manhart, & Lafferty, 2008), while others include avoiding oral sex (e.g., Remez, 2000). Other studies clearly operationalize abstinence and control for behaviors such as “genital touching, oral sex, vaginal intercourse and anal sex” (e.g., Bersamin, Fisher, Walker, Hill & Grube, 2007, p. 182). For this study, one question was asked: “are you sexually active?” Participants were supplied with a “yes” or “no” dichotomous response. Although this construct does not capture all the potential variants of behaviors for avoiding sex (versus engaging in sex), it is parsimonious construct, and includes participants that might have engaged in sexual behavior in the past, but are currently not sexually active. Including these participants will undoubtedly increase the total number of participants who are avoiding sex.

Family Talk about Sex

Family Communication Patterns and Sexual Behaviors

Adolescents might turn strongly to parents for guidance about making sexual decisions, especially focusing on when to engage in sexual behavior. For this study, parents are of primary interest, but Lefkowitz and Espinosa-Hernandez (2007) suggested that young adults are more likely to discuss sexual topics with their same sex friends than with their parents, especially when transitioning to college. Although peers increase in
importance for communication about sexuality in college, the family unit, primarily parental communication, continues to guide discussions of sex and sexuality.

Frequency of discussion of sexual issues is more prevalent in sexually active young adults than it is in abstinent young adults (Lefkowitz & Espinosa-Hernandez 2007), meaning frequency might be more tied to experience than it is to relational closeness with friends or parents. When understanding the frequency of communication between young adults and their parents about sexual behavior, transitions to college could be essential. Young adults focus on same sex friends for guidance on when to engage in sexual behavior might be tied closely to proximity and relational closeness (Lefkowitz & Espinosa-Hernandez, 2007) (i.e., as young adults move away from home and enter the college scene they might rely more on friends to help make difficult decisions than on parents). Parents might play more of an ongoing role as children continue to negotiate sexual behaviors throughout their time in college rather than just the initial transition to college. Although communication with other people (including romantic partners, friends, teachers) influences sexual behavior, previous research indicates that parental communication influences sexual behavior.

Although frequency of communication is most likely only one link between communication and sexual behaviors, it is possible that cultural norms, religiosity, honesty, and other communicative and sociological factors are at work. While frequency of communication must be considered, other communication variables are accounted for through family communication patterns and an instrument created for this study (the Family Sexual Communication Instrument, see Appendix A).
Simply asking parents to communicate more frequently with adolescents about sex might not be enough to ensure an effective communication relationship. Miller, Fasula, Dittus, Wiengand, Wyckoff, and McNair (2009) found that mothers who demonstrated more responsiveness (knowledge, comfort, skills and confidence) discussed sexuality related topics (including abstinence) more frequently with their children. Thus, communication is multifaceted and a skills-based endeavor. Some parents might be more equipped to discuss uncomfortable and controversial topics with their children. Additionally, some parents have a better repertoire of communication skills and are subsequently better at communicating with their children about sensitive issues like sexuality and sexual behaviors. Messages (or lack of open communication) among family members might prove influential in guiding the sexual practices of teens as they launch into their young adult years.

Family communication patterns, along with parent-child communication about sex, provide a foundation for predicting sexual behaviors in young adults. Specifically, conversation orientation and conformity orientation, and their interaction in the typology of family types, provide a theoretical grounding to understand the communicative patterns that were previously established within the family. Together with long established family communicative norms, how parents and children communicate about sex provides a lens for examining the frequency of communication about sex, how deception is employed by children, and how avoiding and satisfaction can potentially impact the communication within the family about sex. It is reasonable to expect family
communication patterns and family communication about sex to predict sexual behaviors in college-age children (for a visual representation of this model, see Figure 1).

The saturated structural model consists of three latent constructs addressing family communication patterns: conformity orientation, conversation orientation, and the orthogonalized interaction effect. The interaction effect encompasses conversation orientation by conformity orientation formulating four family types: consensual, pluralistic, protective, and laissez-faire (see Figure 2). The three family communication patterns constructs (conformity orientation, conversation orientation and the interaction effect) are each hypothesized to predict one mediating latent construct in the model, family communication about sex. From the moderating variable, three other latent constructs are used to encompass sexual behaviors in young adults: high risk sexual behaviors, safe-sex behaviors, and avoiding sex behaviors.
<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
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<tbody>
<tr>
<td><strong>Conversation Orientation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Laissez-fair</td>
<td>Pluralistic</td>
</tr>
<tr>
<td>High</td>
<td>Protective</td>
<td>Consensual</td>
</tr>
</tbody>
</table>
The following hypotheses and research questions were used to guide the direct effects (i.e., the relationship between family communication patterns and sexual behaviors).

H5: Conversation orientation is positively associated with safe sex behavior.

RQ1: How is conformity orientation associated with safe sex behavior?

H6: Conversation orientation is negatively associated with high risk sex behavior.

H7: Conformity orientation is positively associated with high risk sex behavior.

RQ2: How is conversation orientation associated with avoiding sex behavior?

H9: Conformity orientation is positively associated with avoiding sex behavior.

RQ3: Do conversation and conformity orientations interact to predict safe sex, high risk sex, and avoiding sex behavior?

Family Talk and Safe Sex Behaviors

Parents can be more persuasive than they believe in helping adolescents and young adults engage in safe-sex behaviors. Weinman, Small, Buzi and Smith (2008) found that communication between parents and children about birth control and condom use was a predictor of actual condom use. While a major drawback to Weinman and colleagues’ study is the lack of male perspective (the participants were 290 females attending family planning clinics), the correlations drawn between parental communication and condom use are nevertheless compelling. Although we know that communication is complex and multifaceted, this study characterized communication with parents as “how often do you have a ‘Good’ talk with your parents about:” (a) “sex in the last year,” (b) “birth control in the last year” (c) “risks/dangers of STDs in the last year,” and (d) “the importance of delaying pregnancy in the last year” (Weinman et al.,
The results yielded significant differences “between condom users and non-users with condom users checking the very often category more than twice and as much as three times higher than non-users” (Weinman et al., 2008, p. 162, emphasis in original). It appears that parental communication about pregnancy is not a determining factor in condom efficacy for young women, however birth control, talk about sex, and the risks and dangers surrounding STDs all were related to increased condom use in participants.

Sexual discussions by parents can be a larger predictor of safe-sex behavior in young adults than some studies account for. One study examined Australian young adults (16-19 years old) who were attending a university. Troth and Peterson (2000) found “Difficulties with self-assertion outside of the sexual context and mothers' and fathers' use of avoidance as a conflict resolution strategy were negatively correlated with willingness to discuss safe-sex, whereas mothers' more frequent safe-sex education was a positive predictor” (p. 195). Thus, Troth and Peterson reinforced the argument that parents can have a large influence on children’s sexual behaviors. Moreover, practicing the communicative strategy of avoidance proved to be problematic when assessing safe-sex of young adults in this study. Understanding strategies for both open communication and avoiding tactics are equally important in predicting how communicative behaviors impact safe-sex behaviors (along with other sexual behaviors) in young adults.

*Family Talk and High Risk Sex Behaviors*

Much of the research about high risk sexual behaviors focuses on marginalized populations. These populations include African Americans (e.g., Geringer, Marks, Allen
& Armstrong, 1993), people living in urban locations or impoverished places
(DiClemente, Lodico, Ginstead, Harper, Rickman, Evans, & Coates, 1996), and gay and
bisexual men (e.g., Kalichman, Kelly, & Rompa, 1997). Although at-risk populations are
covered in great depth, because of the location of data collection for this dissertation (a
medium sized Midwestern university), these studies don’t provide a compelling
foundation for this study.

Family talk about high risk sexual behaviors has been linked to social support
(Kimberly & Serovich, 1999) of families and friends. However, very little is known about
family talk and its link to high risk sexual behaviors. It is reasonable to expect, because of
the plausible inverse association between high risk sex behaviors and safe sex behaviors,
that many of the relationships between family talk about sex and high risk sexual
behaviors would be opposite of associations between family talk about sex and safe sex
behaviors. In other words, the associations for high risk sex and family talk about sex
may be inverse of the relationships hypothesized in the aforementioned section on safe
sex behaviors. Because little is known about these associations the following research
questions are offered.

Family Talk and Avoiding Sex Behaviors

The culture of abstinence is far-reaching. Miller and Murray (2008) argued that an
ideographic notion of purity juxtaposed with the ideograph of taint creates a social
climate where it is increasingly less acceptable to engage in sexual behavior outside of
wedlock. This cultural shift has created room in the social sphere to endorse abstinence-
only educational policies (Miller & Murray, 2008) that have continually been shown to
be ineffective in reducing STDs, STIs or delaying sexual behavior until marriage (Starkman & Rajani, 2002). These reinforced cultural norms can impact how families construct messages about how and when it is appropriate to engage in sexual behavior. Social norms are reinforced through interpersonal sexual scripts that accentuate avoiding engaging in intercourse (see Hertzog, 2008). Social scripts are one form of communication that impact delaying or avoiding sexual intercourse. It is possible that abstinence messages are in direct opposition to many other messages in society that tell young men and women to engage in sexual behavior. These two dominant voices create a dualism between being sexual and avoiding sexuality, one which young adults must wrestle with when engaging or avoiding sexual behaviors.

Being comfortable with communicating about sex with friends, family, and dating partners is important in predicting why some adolescents choose to delay intercourse. Guzmán, Schlehofer-Sutton and Villanueva (2003) state, “Comfortable sexual communication is predictive of less likelihood of being sexually active, older at first intercourse, and increased intentions to delay intercourse” (p. 583). This comfort in communication might lead to more open discussions about sex and sexuality with friends and family members making it possible for potential behaviors to be discussed openly.

Teens cite parents as the “single most influential agent when making decisions about having sex” (Tanner, Carlson, Raymond & Hopkins, 2008, p. 149; see also, Mitchell, Tanner & Raymond, 2004; Moore, Raymond, Mittlestaedt & Tanner 2002). Although parents are cited as the most influential people when deciding to have sex, mothers are more influential in discussions about sexual behaviors and sexuality than
fathers for both sons and daughters (Somers & Vollmar, 2006). Abstinence messages can come from many sources, but parents, who have a tremendous amount of influence on their children’s sexual behaviors, might be the dominant force for abstinence messages. Some parents might engage in abstinence messages for moral reasons; however, Elliott (2010) argued that parents are more interested in the physiological and physical well-being of their children. Although parents doubt that their children will remain abstinent until marriage, messages of abstinence are still prevalent because parents anticipate these messages will keep their children safe in the present and in the future (Elliott, 2010). As such, it is possible that many parents engage in abstinence only conversations with their children, fully anticipating that this message may only delay sexual behavior. However, having a delay in sexual behavior may result in fewer partners and less exposure to potential risk of contracting STDs/STIs and unwanted pregnancy.

Covariates

Several covariates are of interest in this dissertation. Specifically, religiosity could be of theoretical significance due to its link to delaying sexual behaviors (see Murray, Ciarrocchi & Murray-Swank, 2007). Additionally, controlling for amount of parental talk could be of theoretical significance. To control for how much participants report talking with parents, an experimental method was employed, randomly assigning each participant to one of two conditions: reporting on the parent talked to most frequently or (b) parent talked to least frequently. These two covariates might control for theoretically significant variance in the model.
Religiosity

In addition to the focus on communication, religiosity might be of interest for a covariate for this project. Sexual practices for young adults might (in addition to previously discussed variables) be associated with their personal belief system. Murray, Ciarrocchi and Murray-Swank (2007) found a link from religion to sexual attitudes and sexual practices. The authors used blocking variables to remove the misconstrued notion that shame and guilt are predictors of sexual attitudes and practices. Instead, Murray and colleagues (2007) found sexual attitudes and experiences are connected closely with religious practices and spirituality of the individual. Religious beliefs/religiosity will be examined for a connection to prediction of sexual behaviors in young adults.

RQ3: How will religiosity impact overall variance in communication about sexuality within families and its link to sexual behaviors in young adults?

Participant and Parental Talk

Parents, especially mothers, seem to engage in talk about sex with children more frequently and with greater levels of competence than fathers. Another variable associated with mothers discussing sex with their children is the outcomes she anticipated through dialogue about sex (DiIorio et al., 2000). Other research also finds that mothers communicate more openly about sex with daughters versus sons (DiIorio et al., 1999; Nolin & Peterson, 1992; Warren & Neer, 1986). To further understand how communicating more or less often with children impacts sexual behaviors in young adults a second covariate is offered. The second covariate consists of which parent children report communicating more or less frequently. In this study, parents talked most and
least with is controlled for by randomly assigning a participant to a condition where he/she is told to answer the following prompts with the parent talked most/least with in mind.

RQ4: With respect to the overall variance in communication about sexuality, what is the impact, if any, of whether the young adult is reporting on conversations with the parent he/she talks with the most or talks with the least?

Summary

The purpose of this chapter was to review literature and establish theoretically driven hypotheses and research questions for this dissertation. This dissertation proposes a communicatively driven model for understanding sexual behavior in college students. Specifically, family communication patterns (conversation orientation and conformity orientation) along with family talk about sex (family sexual communication instrument) will help to predict safe sex, avoiding sex and high risk sexual behavior in the target population of college students.
CHAPTER 3: PILOT STUDY

The purpose of conducting pilot work was to test an instrument that was created for the final study. The Family Sexual Communication Instrument (Appendix A) was created to measure unique communicative constructs surrounding how parents and children communicate about sex and sexuality. Constructs were designed for this study focusing on literature that emphasizes specific communicative skills and techniques that are imperative to parent-child communication about sex. In the following sections, the relevant literature is explored along with the methodological choices for constructing the Family Sexual Communication Instrument.

Participants

Participants (N = 240) were recruited from a convenience sample of undergraduates at a medium sized Midwestern University. All participants were enrolled in communication courses. Instructors of the courses sent an email link to their students. Although no incentives were offered by the researcher, some instructors chose to give extra credit or research participation points to the students. Points were minimal, accounting for less than 2% of the overall grade in the communication course.

The sample included 156 females and 82 males (two participants did not specify their sex). A majority of the participants were Caucasian (77%), although 5.5% were African American, 2.2% were Hispanic, .7% were Asian, and the remaining participants did not identify an ethnicity. The majority of the participants reported their parents were married (65%), and 18.3% indicated their parents were divorced. Most of the participants
identified they were raised by both parents (70%), 8.1% indicated they were raised by their mom, and 5.5% indicated being raised by a mother/father and step-parent.

Data Collection

Data collection occurred in several phases of survey work. The first phase included pilot work on the initial instrument for the mediating construct of parent-child communication about sex. The pilot study tested the Family Sexual Communication Instrument (FSCI instrument, see Appendix A). The FSCI is comprised of 31 Likert-type items. The items are measured on a 5-point scale indicating agreement (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). The additional phases of data collection occurred with the final sample incorporating all instruments for the project.

Data Analysis

An exploratory factory analysis (EFA) was conducted on the pilot work for the FSCI instrument as well as a reliability analysis. An EFA “determine[s] whether the items, in fact, do focus on one central, underlying construct, or if the measure is multidimensional, that is if it taps a number of different constructs” (Crano & Brewer, 2002, p. 43, emphasis in original). In other words, an EFA simplifies a set of items into a more parsimonious factor structure. Prior to the EFA the FSCI instrument was conceptualized as having five constructs: culture impacting communication about sex within the family, frequency of communication about sex/sexuality in the family, honesty/deception about sex/communication about sex in the family, avoidance of communication about sex in the family, and satisfaction with communication about sex within the family. These five constructs were chosen based on literature indicating
culture (e.g., Abramson, Moriuchi, Waite, & Perry, 1983) and frequency (e.g., Fisher, 1998) were important variables to consider when studying how families communicate about sex and sexuality. However, previous research on family attitudes surrounding sex/sexuality has not covered other communicative variables. Thus, three primary communicative constructs were chosen (avoidance, deception, and satisfaction) to represent more comprehensively the domain of family communication about sex. Lack of communication is a communicative choice, thus avoidance was selected as an important construct. We know from interpersonal research that deception can influence communication in many situations (e.g., Chory & Hubbell, 2008; George & Robb, 2008; Lippard, 1988), and might be of utmost importance here because of the sensitive nature of discussing sexual choices. One final variable was selected: overall satisfaction about the communicative encounters. I selected satisfaction because the child/participant can then identify if he or she perceives the communicative choices the family is making as positive (satisfying) or negative (unsatisfying).

The initial reliability of the FCSI indicated high reliability ($\alpha = .92$) with no items removed. Removing one item, “my family’s beliefs are conservative,” yielded only a minor increase in reliability of the measure ($\alpha = .94$); subsequently, all items were retained for the EFA. The second phase of the analysis consisted of validating and modifying the FSCI instrument through running an EFA. This process included deleting items to fit with .60/.40 criteria for each item loading to the factors. All deletions were made using both theoretical and empirical considerations, although the majority of the decisions were empirically driven. The final measurement model was tested using all
items. A confirmatory factory analysis (CFA) CFA was run with the second (and final) data set to ensure items loaded on the five factor solution as demonstrated by the EFA in the pilot study. Whereas EFA proceeds in a data-driven manner, CFA is theory driven; the method evaluates the extent to which a set of items fits a factor structure specified a priori by the researcher (Kline, 2005).

EFA Results

The factors were identified using Principal Axis Factoring and Varimax rotation, with number of factors identified using the criterion of eigenvalue > 1.0. Initially the EFA yielded a seven factor solution, although no items loaded on the sixth or seventh factor (see Table 1). Items were removed in three iterations. In the first iteration, all items with loadings below .5 on the primary factor were removed (items 24, 22, 25 and 7). The subsequent solution had six factors remaining. In the second iteration all items with loadings on the primary factor below .5 were again removed (items 9 and 18), and again, a six factor solution emerged. In the third and final iteration, no items had primary loadings below .5, so the items with cross-loadings above .5 were removed (items 28 and 6).
Table 1

*Pilot: Eigenvalues Total Variance Explained*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.782</td>
<td>32.298</td>
<td>32.298</td>
</tr>
<tr>
<td>2</td>
<td>1.895</td>
<td>9.022</td>
<td>41.320</td>
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<tr>
<td>3</td>
<td>1.650</td>
<td>7.856</td>
<td>49.176</td>
</tr>
<tr>
<td>4</td>
<td>1.529</td>
<td>7.282</td>
<td>56.458</td>
</tr>
<tr>
<td>5</td>
<td>1.207</td>
<td>5.748</td>
<td>62.206</td>
</tr>
<tr>
<td>6</td>
<td>.993</td>
<td>4.728</td>
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</tr>
<tr>
<td>7</td>
<td>.794</td>
<td>3.780</td>
<td>70.714</td>
</tr>
</tbody>
</table>

*Extraction Method: Principal Axis Analysis*
These procedures resulted in 21 items loading (see Table 2). None of the items had high secondary loadings to any of the factors. The final solution yielded five factors, all of which met the .60/.40 criteria. To further verify solution stability, a final solution was re-run using Principal Axis Factoring and Promax rotation. This analysis yielded similar results.
Table 2

Pilot: Factor Loadings for Family Sexual Communication Instrument

<table>
<thead>
<tr>
<th>Question</th>
<th>Factor1</th>
<th>Factor2</th>
<th>Factor3</th>
<th>Factor4</th>
<th>Factor5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Talk w/ Parents ($\alpha = .51$)</td>
<td>Lying to Parents ($\alpha = -.93$)</td>
<td>Talk w/ Siblings ($\alpha = .86$)</td>
<td>Conservative Values ($\alpha = -.83$)</td>
<td>Openness w/ Parents ($\alpha = .19$)</td>
</tr>
<tr>
<td>Q2</td>
<td>.814</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>-.766</td>
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<td>Q27</td>
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<td>Q17</td>
<td>.726</td>
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<td>Q16</td>
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<td>Q12</td>
<td>.641</td>
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<td>Q29</td>
<td>.558</td>
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Extraction Method: Principal Component Analysis with Varimax Rotation.
The five factors (see Table 2) were re-labeled and conceptualized guided empirically by the exploratory factor analysis. The first factor, *talk with parents* about sex/sexuality, was comprised of items from three conceptual constructs (frequency, culture, and avoiding). The second factor, *lying to parents*, was comprised of items from the deception/honesty construct. The third factor, *talk with siblings*, was comprised of items from two constructs, frequency and avoiding talk. Although talk with siblings was not intended to load as its own factor, this factor was not included in the next stage of research due to the conceptual focus on parental talk about sexuality (rather than talk with other members of the family unit). The fourth factor, *conservative values*, was comprised of three items that were originally conceptualized to be part of a culture construct. This shift away from culture to conservative values moves from a strictly communicative standpoint to a more sociological construct. Integrating a sociological factor in this study is discussed in Chapter 6. The final factor, *openness with parents*, contained two items, one originally conceptualized as frequency and another conceptualized as culture. These five constructs are used to empirically guide a confirmatory factor analysis for the second (and final) data collection.

In the next phase of research, a final data collection was conducted with a similar, but larger, sample. In addition to the FSCI, several other communicative and behavioral instruments were included. Data analysis for the FSCI includes a CFA, as well as a reliability analysis.

Based on the exploratory factor analysis, a clearer view of the constructs is presented. Although these factors will be further refined through a CFA in Chapter Four,
these factors, and the substantive research (discussed in Chapter Two), I will clarify my hypotheses as follows:

- **H10:** Talk with parents about sex is positively associated with safe sex behaviors.
- **RQ5:** Is deception with parents about sex associated with safe sex behaviors?
- **RQ6:** Are conservative family values associated with safe sex behaviors?
- **RQ7:** Is talk with parents about sex associated with high risk sex behaviors?
- **RQ8:** Is deception associated with high risk sex behaviors?
- **RQ9:** Are conservative family values associated with high risk sex behaviors?
- **H11:** Talk with parents about sex is positively associated with avoiding sex behaviors.
- **RQ10:** How will deception predict avoiding sex behaviors?
- **H12:** Conservative family values are positively associated with avoiding sex behaviors.
- **H13:** Conversation orientation is positively associated with talk with parents about sexuality.
- **H14:** Conformity orientation is positively associated with talk with parents about sexuality.
- **H15:** Conversation orientation is positively associated with children’s deceptive communication about sex.
- **H16:** Conformity orientation is positively associated with children’s’ deceptive communication about sex.
H17: Conversation orientation is positively associated with conservative family 
values.

H18: Conformity orientation is positively associated with conservative family 
values.

RQ11: Do conversation and conformity orientations interact to predict talk with 
parents, deception and conservative family values?

Summary

The chief purpose of this chapter was to outline the data collection procedures and 
results from the exploratory factor analysis tests performed on the Family Sexual 
Communication Instrument. The primary contribution of the EFA was limiting the items 
to a five-factor structure to empirically guide subsequent tests (CFAs) on the FSCI. The 
EFA, along with substantive theory and literature from Chapter Two, provided the 
background to advance hypotheses.
CHAPTER 4: METHOD

Procedures

Participants

Participants were recruited from a convenience sample of undergraduate students at a medium sized Midwestern University. The initial pool for recruitment was comprised of 5,000 students. Student email addresses were obtained through the university student information system database. Minimal compensation was offered from the researcher. Two twenty-dollar Amazon gift cards were placed in a random drawing and emailed directly to the winning participants. “A large sample is required to meet the demands of maximum likelihood estimation, and a sample size of approximately 400 is more than adequate to so for all but extremely complex models” (Ledbetter, personal communication, August 2, 2012). Participants consisted of n = 390 undergraduates from a mid-sized Midwestern University. The sample included 136 men and 254 women with a mean age of 22.9 (SD = 6.4). The majority of participants were Caucasian (82%) although 3.3% were African American and 5.5% were Asian. 55.5% of the participants reported their biological parents are married (23.5% divorced, and 10.3% never married). The majority of participants reported both parents being primary care-givers during their childhood (79%). Children who were raised by only their mothers encompassed 8.5% of the sample, and children being raised by mother and step-father were 5.8% of the sample.

Data Collection

After the final data collection was completed (N = 390), a CFA was run on the FSCI instrument to ensure the validity of the factors. After the CFA for each measure was
completed, a second CFA confirming the factors for the structural model was run. Next, the saturated structural equation model was tested. The saturated model consists of three latent constructs addressing family communication patterns (conformity orientation, conversation orientation, and an orthogonalized interaction effect which represents the four family types (see Figure 2)). Each of these three latent constructs is hypothesized to predict the mediating latent construct(s) of family communication about sex. These, in turn, predict three constructs representing sexual behavior (high-risk sexual behaviors, avoiding sexual behaviors and safe-sex behaviors). Separate models were run for predicting sexually active behaviors (high risk sex and safe sex) and avoiding sex behaviors, because participants who avoid sex are not engaging in high risk sex nor in safe sex behaviors. All participants were retained for the avoiding sex model; however, only sexually active participants were retained for the safe sex/high risk sex model.

Measurement

Three instruments were used to measure how family communication patterns and family communication about sex impact three types of sexual behaviors (safe-sex behaviors, abstinence/avoiding sexual behaviors, and high-risk sexual behaviors). For a visual representation of the model see Figure 1. In the following section, each measure will be explained and the results from the CFA are reported.

*Family Communication Patterns*

The first set of variables, conformity orientation and conversation orientation, was measured using Koerner and Fitzpatrick’s (2002) Revised Family Communication Pattern Instrument (Appendix B).
Although the Revised Family Communication Pattern Instrument (RFCP) has been validated in a number of studies, a CFA was run to ensure the validity of the factors. Two factors were confirmed, conversation orientation and conformity orientation. Items for the family communication patterns instrument were parcelled into three indicators to load to the latent construct. Parceling consists of grouping the indicators by thirds and averaging across those groups (Little, Cunningham, Shahar & Widaman, 2002), with these parcels then identifying the latent construct. Each parcel demonstrated significant loadings to the construct and close model fit was observed $\chi^2(12) = 20.931, p < .10$, RMSEA $= .043$ (90% CI: .0-.073), NNFI $= 0.99$, CFI $= 0.99$.

*Family Sexual Communication Instrument*

To control for parental talk about sex, participants were randomly assigned to complete the remainder of the survey with one parent in mind: the parent the child communicates “most” (n = 196) or “least” (n = 194) with. Participants were then asked to report the number of hours spent talking with the parent per week. There was a significant effect for time spent talking to parents $t (388) = 4.09, p < .001$ with more hours being reported for “parent talk most with.” Participants assigned to the parent talked most with condition reported an average of 3.53 hours spent talking to parents ($SD = 3.31$), participants assigned to the parent talked least with condition reported 2.15 hours a week spent talking to the parent ($SD = 3.35$).

The second set of communicative variables was tested using the revised version of the Family Sexual Communication Instrument. The FSCI was tested initially using 240 undergraduates enrolled in communication courses. An exploratory factor analysis (EFA)
was conducted on the FSCI instrument yielding a five factor solution with 21 items (see Chapter 3). Guided by EFA results, the family sexual communication scale was submitted to CFA. Given the chief goal of this portion of the investigation is on scale development, individual items (rather than item parcels; Little et al., 2002) provided latent construct indicators.

Participant responses to the FSCI were tested using a series of CFAs, to ensure the items loaded significantly to the correct latent constructs (modeled empirically by the EFA) and produced acceptable model fit. The first CFA was driven empirically by the five factor solution from the EFA. However, the model would not converge due to poor fit indices. Subsequently, the factor “openness,” with low reliability and low item loadings from the EFA, was dropped. The next iteration of the FSCI CFA consisted of four factors, although the model did converge, the model had poor fit $\chi^2(59) = 501.59$, $p > .05$, RMSEA = .14 (90% CI: .13 - .15), NNFI = 0.80, CFI = 0.85. Large modification indices in the Lambda matrix indicated there was an underlying problem with the model. Of the 21 items retained from the EFA, 13 items loaded significantly to three latent constructs with acceptable model fit $\chi^2(62) = 200.09$, $p < .001$, RMSEA = .07 (90% CI: .06 - .08), NNFI = 0.94, CFI = 0.95. Although this model did produce acceptable model fit, the dwindling number of items along with initial concerns about modification indicies reinforced the idea that there may be an underlying theoretical problem with the model. This evidence suggests, along with research (Kline, 2005), that a CFA does not always replicate an EFA. More importantly, the CFA is the more trustworthy (Little, Cunningham, Shahar & Widaman, 2002) and stringent method. Following the recommendations of Kline (2005)
and Little and colleagues (2002), the model was respecified chiefly on theoretical
grounds, resulting in a three factor solution.

In the initial theoretical confirmatory model, 25 items were retained, and a six
construct structure was explored. Six communicative constructs emerged: culture,
openness, avoidance, deception, conservative values and satisfaction. Satisfaction was
deemed an unusable construct, due to the lack of convergence of the model and two items
were dropped along with the satisfaction latent construct.

The model was re-run with 23 items in a five construct confirmatory factor
analysis. However, three communicative constructs (culture, openness, and avoidance)
were collapsed into one construct “talk with parents” due to Pearson product-moment
correlations exceeding 1.0. Correlations exceeding 1.0 indicate the three constructs were
not independent and were, in fact, measuring the same latent construct. Subsequently, the
latent construct was re-named “talk with parents about sex” and the items were retained
for the final confirmatory factor analysis. All items with non-significant loadings on the
three final constructs (talk with parents, deception and conservative values) were
removed. The final model retained 18 of the 31 original items in the FSCI (see Table 3),
the final model demonstrated acceptable fit, $\chi^2(128) = 428.9, p < .01$, RMSEA = .078 (90%
CI: .07-.08), NNFI = 0.94, CFI = 0.93.
Table 3

Confirmatory Factor Analysis Items for the Family Sexual Communication Instrument

<table>
<thead>
<tr>
<th>Question</th>
<th>Factor1</th>
<th>Factor2</th>
<th>Factor3</th>
</tr>
</thead>
<tbody>
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<td>Talk w/ Parents</td>
<td>Deception</td>
<td>Conservative Values</td>
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<td>.400</td>
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</table>

Confirmatory Factor Analysis. FSCI reliability ($\alpha = .87$)
The third scale is the Safe Sex Behavior Questionnaire (DiLorio, 2011). This scale measures sexual behavior in current and past relationships focusing on different sexual acts, using or not using condoms, number of sexual partners, and avoiding risky sexual behavior (see Appendix C). Reliability and validity for this measure have been established (DiLorio, Duddley, Lehr & Soet, 2000; DiLorio, Parsons, Lehr, Adame & Carlone, 1993) and this measure focuses on the population of interest (i.e., young adults, specifically college age students).

To establish the latent constructs for this instrument a confirmatory factor analysis was employed. A two-factor CFA was run to establish the constructs of safe sex and high risk sex. Items were parceled (Little et al., 2002), and all items were retained. The CFA yielded good model fit, $\chi^2(7) = 12.00, p < .05$, RMSEA $= .04 \ (90\% \ CI: .0 - .09)$, NNFI $= 0.98$, CFI $= 0.97$.

Although this instrument covers both high risk sexual behaviors and safe sex behaviors, abstinence behaviors are not accounted for. Due to the need to account for abstinence/avoiding sex behaviors one demographic question was asked on the final survey. “Are you sexually active?” with a dichotomous answer “yes” or “no”. If participants indicated they were not sexually active they were directed (via electronic survey) past the Safe Sex Behavior Questionnaire to the next instrument.

Of course, asking participants only one question about being abstinent is parsimonious yet perhaps a limited way to assess the construct; for example, these data cannot address whether the participant has been abstinent his/her entire life or just
recently. Subsequently, the construct in the model is labeled “avoiding sex” rather than “abstinence” or “abstaining from sex.” The construct avoiding sex was included in the model CFA for the saturated avoiding sex structural model.

Brief Multidimensional Measure of Religiousness/Spirituality

The fourth and final scale is the Brief Multidimensional Measure of Religiousness/Spirituality: 1999 (BMMRS). The psychometric properties of the BMMRS have been evaluated using a college student sample (Masters et al., 2009). Additionally, the validity and reliability of the BMMRS has been established (Harris, Sherritt, Holder, Kulig, Shrier & Knight, 2008) using an adolescent sample. This scale measures a variety of components of religiosity and spirituality, including daily spiritual experiences, forgiveness, private religious practices, organizational religiousness, and overall self-ranking of religiosity (see Appendix D). Other components are included in the full scale (such as religious and spiritual coping, commitment, meaning, religious support, and religious/spiritual history) but were removed to reduce survey fatigue and focus on the domains of greatest theoretical interest.

Due to the well-established nature of the BMMRS, a CFA was not run on the individual instrument, but the BMMRS was retained and used for a covariate in the final data sets. The BMMRS was included in the confirmatory factor analysis prior to running the structural model (reported in the results chapter). Of the five constructs used from the BMMRS (daily spiritual experience, values/beliefs, forgiveness, private religious practice, and organizational religiousness), three were retained. Due to theoretical a priori judgment by the researcher private religious practice, and organizational religiousness
were removed from the analysis. The remaining three constructs (daily spiritual experience, values/beliefs and forgiveness) were parceled and retained to formulate a single-construct covariate of religiosity.

*Demographic Information*

Other identifying information was collected in the demographic section of the survey (see Appendix E). Specifically, constructs related to family communication guided the demographics section. Those constructs were number of siblings, parents’ marital status, type of family the child was raised in (nuclear, step, blended etc.), and primary caregivers (parents, parent and step-parent, both parents and step-parents etc). Other demographic variables were collected as well: age, biological sex, ethnicity, year in college, full time/part time college status, and education level of participants.

Standard IRB protocol was followed for administering the final survey online. The informed consent form was viewed by all participants (see Appendix F). The participants indicated their consent by clicking the next button to enter the survey.

*Data Analysis*

The relationships between the latent constructs for the final model (see Figure 1) were tested using a structural equation model. The program LISREL 8.80 was utilized; the model was tested and modified based on fit indices, overall variance accounted for, and significant loadings. Initially the saturated model (every available path) was tested. The model was set by fixing the latent construct variance to 1.0 (Kline, 2005), which places the latent construct on a standardized metric.
The orthogonalized interaction term--conversation orientation by conformity orientation (i.e., the four family types)--was created by mean-centering the first order items, multiplying the items and regressing them into the first-order items, which resulted in a standardized residual. This approach to creating an interaction term is advantageous over other approaches (i.e. multiplying centered predictors, and multiplying non-centered predictors) because it reduces multicollinearity between the first order predictors (see Little, Card, Bovaird, Preacher, & Crandall, 2007).

For previously established scales, items were parceled (Little et al., 2002) to create three manifest indicators per construct. The latent constructs for the interaction term and avoiding sex were not parceled because they had one indicator; thus, each was identified by fixing error variance to zero.

For the final CFA analysis (of the family sexual communication instrument) and saturated structural model (Figure 1), four commonly used indices assessed model fit: (1) model chi-square, (2) the root mean square error of approximation (RMSEA), (3) the non-normed fit index (NNFI) and (4) the comparative fit index (CFI). To assess acceptable model fit, NNFI values cannot exceed .90 (with close model fit exceeding .95) and the RMSEA indicator cannot exceed .08 (with close model fit not exceeding .05) (Kline, 2005; MacCallum, Browne & Sugawara, 1996). When appropriate, missing values in the data set will be replaced using the EM imputation algorithm implemented in the SPSS 15.0 Missing Values package (Kline, 2005).
Summary

The purpose of this chapter was to outline the data collection procedures and instruments used in this dissertation. This chapter described how participants were recruited, offered confirmed measures of family communication patterns, family sexual communication, sexual behaviors (avoiding sex, safe sex and high risk sex) as well as religiosity. In the following chapter, results of this research will be reported.
CHAPTER 5: RESULTS

This chapter outlines the results from the study. Specifically, this chapter will describe the saturated structural model, the empirically trimmed model and the findings from each. Each of the hypotheses advanced in Chapter Two will be addressed.

Measurement Models

Structural Equation Modeling is established in a two-step process (Kline, 2005). First a confirmatory factor analysis (CFA) establishes the fit between the manifest indicators (items) and the latent constructs (factors). Prior to undergoing the CFA for the measurement model, each instrument was submitted for an individual CFA to ensure each item loaded to the correct latent construct, and each construct was indeed a factor (results outlined in Chapter Three). Next, the data were divided into two groups: sexually active participants (n = 279) and all participants (n = 390). The sexually active participants were used for the safe sex/high risk sex models; all of the participants were retained to predict the behavior of avoiding (or not avoiding) sex in a separate model. In the following sections the confirmatory factor analysis for each measurement model is described.

Confirmatory Factor Analysis for Avoiding Sex

The first confirmatory factor analysis was run on the avoiding sex participants. All participants (n = 390) were retained for this CFA. The avoiding sex model yielded acceptable fit, $\chi^2(163) = 461.07, p < .05$, RMSEA = .068 (90% CI: .061-.075), NNFI = 0.95, CFI = 0.96. Examination of the model fit indices indicated no alterations needed to be made to the model. All manifest indicators loaded significantly to their latent constructs
(see Table 4), and subsequently all items and constructs were retained for the final structural model.
Table 4

*Estimates for Lambda Loadings, Theta Epsilon Residuals, and Correlation Matrix among Indicators and Latent Constructs. Avoid Sex CFA*

<table>
<thead>
<tr>
<th>Latent Construct</th>
<th>Indicator</th>
<th>Lambda</th>
<th>Theta</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conversation</td>
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</tr>
<tr>
<td>Indicator 1</td>
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</tr>
<tr>
<td>Indicator 3</td>
<td>.93</td>
<td>.13</td>
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<tr>
<td>2. CvXCf</td>
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<tr>
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</tr>
<tr>
<td>Indicator 3</td>
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<td>.20</td>
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<td>8. Relig</td>
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</tr>
<tr>
<td>Indicator 3</td>
<td>.70</td>
<td>.51</td>
<td></td>
</tr>
</tbody>
</table>

Note. All factor loadings and latent correlations estimates are standardized. Excluded from this note are the relationships between the interaction terms and their first-order components, which are listed as .00. Two single-item constructs were identified by fixing error variance to zero: (a) the interaction between conversation and conformity orientations, and (b) avoiding sex.
Confirmatory Factor Analysis for Safe Sex and High Risk Sex

The second confirmatory factor analysis was run on only the sexually active participants. Participants identifying they engaged in sexual behavior (n = 279) were retained for this model. The safe sex/high risk sex model produced acceptable fit, $\chi^2 (264) = 544.40, p < .05$, RMSEA = .062 (90% CI: .054-.069), NNFI = 0.95, CFI = 0.96. Examination of the modification indices indicated no modifications were necessary (see Table 5). Subsequently, all latent constructs and manifest indicators were retained for the final safe sex/high risk sex structural model.
<table>
<thead>
<tr>
<th>Latent Construct</th>
<th>Indicator</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>.13</td>
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<td>2. CvX Cf</td>
<td>Indicator 1</td>
<td>1.0</td>
<td>0.0</td>
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<td>4. TWP</td>
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<td>.32</td>
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<td>Indicator 2</td>
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<tr>
<td></td>
<td>Indicator 3</td>
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<td>5. Deception</td>
<td>Indicator 1</td>
<td>.49</td>
<td>.76</td>
<td>-.62</td>
<td>-.05</td>
<td>.56</td>
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<td>Indicator 3</td>
<td>.68</td>
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<td>6. Conservative</td>
<td>Indicator 1</td>
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<td>.48</td>
<td>-.30</td>
<td>-.08</td>
<td>.44</td>
<td>-.50</td>
<td>.48</td>
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<td>Indicator 2</td>
<td>.77</td>
<td>.41</td>
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<td></td>
<td>Indicator 3</td>
<td>.47</td>
<td>.78</td>
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<td></td>
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<tr>
<td>7. Safe Sex</td>
<td>Indicator 1</td>
<td>.91</td>
<td>.18</td>
<td>-.03</td>
<td>-.02</td>
<td>.08</td>
<td>.06</td>
<td>-.23</td>
<td>-.06</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Indicator 1  .79  .38  .38  .38  .38  .38  .38  .38  .38
Indicator 2  .79  .38  .38  .38  .38  .38  .38  .38  .38
Indicator 3  .74  .46  .46  .46  .46  .46  .46  .46  .46

8. High Risk Sex
   Indicator 1  .87  .25  .25  .25  .25  .25  .25  .25  .25
   Indicator 2  .21  .95  .95  .95  .95  .95  .95  .95  .95
   Indicator 3  .16  .97  .97  .97  .97  .97  .97  .97  .97

9. Religiosity
   Indicator 1  .95  .09  .09  .09  .09  .09  .09  .09  .09
   Indicator 2  .89  .20  .20  .20  .20  .20  .20  .20  .20
   Indicator 3  .67  .55  .55  .55  .55  .55  .55  .55  .55

Note. All factor loadings and latent correlations estimates are standardized. Excluded from this note are the relationships between the interaction terms and their first-order components, which are listed as .00. Two single-item constructs were identified by fixing error variance to zero: (a) the interaction between conversation and conformity orientations, and (b) avoiding sex.
Saturated Structural Model Avoid

The chief goal of this dissertation was to examine the relationship between family communication patterns, family communication about sex and sexual behavior in young adults. To accomplish this task two structural models were hypothesized. After establishing acceptable fit from the measurement model, the saturated structural model produced acceptable fit, $\chi^2(178) = 503.59, p < .05$, RMSEA = .068 (90% CI: .060-.075), NNFI = 0.95, CFI = 0.96. Each available path, both direct and indirect (mediated), was tested. The following Beta coefficients are outlined in Table 6.
**Table 6**

*Beta Coefficients in Saturated Structural Model for Avoiding Sex Completely Standardized Solution*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>TWP</th>
<th>Decep</th>
<th>CSRV</th>
<th>Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversation Orientation</td>
<td>.51**</td>
<td>-.40**</td>
<td>-.08</td>
<td>.00</td>
</tr>
<tr>
<td>CvX Cf</td>
<td>.00</td>
<td>-.08</td>
<td>-.09</td>
<td>.07</td>
</tr>
<tr>
<td>Conformity Orientation</td>
<td>-.11</td>
<td>.31**</td>
<td>.36**</td>
<td>-.05</td>
</tr>
<tr>
<td>Talk with Parents</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.21</td>
</tr>
<tr>
<td>Deception</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.12</td>
</tr>
<tr>
<td>Conservative Values</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.39**</td>
</tr>
</tbody>
</table>

*Note.* All parameter estimates are standardized. CvX Cf = interaction effect, TWP = talk with parents, Decep = deception, Avoid = avoiding sex, CSRV = Conservative Values. *significant at $p < .05$, **significant at $p < .01$
Trimmed Structural Model Avoid

After achieving acceptable model fit for the avoiding sex saturated model, non-significant paths were removed. Each path was removed based on empirical guidance. The paths with the lowest z-scores were removed one, by one, until all paths were significant (see Kline, 2005). The final structural model (Figure 3) demonstrated acceptable fit, $\chi^2(187) = 516.32, p < .05$, RMSEA = .068 (90% CI: .060-.074), NNFI = 0.95, CFI = 0.96, and did not produce a significant decline in the model fit from the saturated model, $\Delta \chi^2 (9) = 12.72, p > .05$, thus indicating a sound model. Sobel tests of indirect effects (estimated using the non-trimmed model) revealed significant effects for the path conformity $\rightarrow$ conservative $\rightarrow$ avoiding sex ($B = .33, z = 4.03, p < .01$).
Figure 3. Trimmed Structural Model of Avoiding Sex (n = 390).

Note. All parameter estimates are standardized. Covariance paths among the FSCI constructs are removed for diagram clarity.

**p < .01
*p < .05

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Structural Model Safe Sex/High Risk Sex

To complete the task of examining the relationship between family communication patterns, family communication about sex, and sexual behavior, a second structural equation model is offered. As with the second measurement model, this structural model aims to predict safe sex and high risk sex behaviors on the part of participants who identified as being sexually active. The safe sex/high risk sex model produced acceptable fit, $\chi^2(283) = 592.14, p < .05$, RMSEA = .062 (90% CI: .055-.069), NNFI = 0.94, CFI = 0.95. Examination of the modification indices indicated no modifications were necessary (see Table 7). Subsequently, all latent constructs and manifest indicators were retained for the final safe sex/high risk sex structural model.
Table 7

*Beta Coefficients in Saturated Structural Model for Safe Sex/High Risk Sex Completely Standardized Solution*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>TWP</th>
<th>Decep</th>
<th>CSRV</th>
<th>Safe</th>
<th>HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversation Orientation</td>
<td>.53**</td>
<td>-.42**</td>
<td>-.16*</td>
<td>-1.1</td>
<td>.09</td>
</tr>
<tr>
<td>CvX Cf</td>
<td>-.01</td>
<td>-.04</td>
<td>-.07</td>
<td>-.05</td>
<td>-.15</td>
</tr>
<tr>
<td>Conformity Orientation</td>
<td>-.10</td>
<td>.33**</td>
<td>.30**</td>
<td>.29**</td>
<td>-.04</td>
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<tr>
<td>Talk with Parents</td>
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<td>Deception</td>
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<td>-.83**</td>
<td>.76**</td>
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<td>Conservative Values</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.16</td>
<td>-.23</td>
</tr>
</tbody>
</table>

*Note.* All parameter estimates are standardized. CvX Cf = interaction effect, TWP = talk with parents, Decep = deception, Safe = safe sex, HR = high risk sex, CSR = conservative values. *significant at p < .05, **significant at p < .01.
Trimmed Structural Model Safe Sex/High Risk Sex

The safe sex/high risk sex saturated model yielded acceptable fit, however, a number of direct and indirect effects were non-significant.Trimming the model occurred in an empirically driven process, where each non-significant path is removed one-by-one beginning with the lowest beta coefficient and continuing until all paths are significant (see Kline, 2005). The final trimmed safe sex/high risk sex model (see Figure 4) yielded acceptable model fit $\chi^2(293) = 601.85$, $p < .05$, RMSEA = .061 (90% CI: .054-.068), NNFI = 0.94, CFI = 0.95, and did not produce a significant decline in the model fit from the saturated model, $\Delta \chi^2(10) = 9.71$, $p > .05$. The lack of decline in model fit indicates the saturated and trimmed model do not differ significantly.
Figure 4. Trimmed Structural Model of Safe Sex/High Risk Sex (n = 279).

Note. All parameter estimates are standardized. Covariance paths for the FSCI are removed for diagram clarity.

**p < .01
*p < .05
Family Communication Patterns Main Effects

The main effects for the dissertation predict the relationships between family communication patterns and sexual behaviors. In other words, main effects predict associations between conformity orientation, conversation orientation and their interaction effect, and avoiding sex, safe sex and high risk sex behaviors. In the following sections results for each of the hypotheses and research questions are offered.

Avoid Model

None of the direct effects from family communication patterns to avoiding sex in the avoid model were significant. Conversation orientation (RQ2) yielded a non-significant path to avoiding sex ($B = .00, \beta = .00, z = 0.00, p > .05$). Conformity orientation and avoiding sex (H9) produced a non-significant path ($B = -.06, \beta = -.05, z = -0.64, p > .05$). The orthogonalized interaction term (RQ3) also produced a non-significant path with avoiding sex behaviors ($B = .08, \beta = .07, z = 1.40, p > .05$). In sum, no direct effects were observed between family communication patterns and avoiding sex behaviors.

Safe Sex/High Risk Sex Model

The direct effects between conversation orientation (H5) and safe sex ($B = -.12, \beta = -.11, z = -1.01, p > .05$), as well as high risk sex (H6) ($B = .10, \beta = .09, z = 0.77, p > .05$), did not produce significant paths. Direct effects between conformity orientation (RQ1) and safe sex did produce a significant result ($B = .32, \beta = .29, z = 2.29, p < .01$). However, the path between conformity orientation (H7) and high risk sex was not significant ($B = -.05, \beta = -.04, z = -0.34, p > .05$). Both conformity orientation and
conversation orientation were not significant predictors of high risk sex. Conversation orientation did not predict safe sex, however, conformity orientation did positively predict safe sex behaviors.

**Decomposition of Conformity and Conversation Interaction Effect.** The orthogonalized interaction term (RQ3) was not a significant predictor of safe sex ($B = -.05, \beta = -.05, z = -0.67, p > .05$), or high risk sex ($B = -.17, \beta = -.15, z = -1.81, p > .05$). However, after the model was trimmed and the additional variance accounted for, a significant path between the orthogonalized interaction term (RQ3) and high risk sex was observed ($B = -.19, \beta = -.17, z = -2.40, p < .01$).

To further probe this connection, a decomposition of the interaction term with both the non-significant (saturated model) and significant (trimmed model) is offered. The decomposition of the interaction term was guided by Cohen, Cohen, West, and Aiken’s (2003) method. Initially, decomposition was guided by plotting high risk sex behaviors and conformity orientation at three levels of conversation orientation (two standard deviations above the mean, two standard deviations below the mean and the mean). Beta values were used from the non-significant saturated model (see Figure 5). To address the nature of model trimming increasing variance flow through the model and thus changing the path from the interaction term to high risk sex from non-significant to significant, a second diagram (Figure 6) is offered.
Figure 5. Decomposition of conformity orientation at different levels of conversation orientation on high risk sex. Non-significant saturated model.
Figure 6. Decomposition of conformity orientation at different levels of conversation orientation on high risk sex. Significant trimmed model.
The interaction effect between conversation orientation and conformity orientation positively predicts high risk sex \((B = -.19, \beta = -.17, z = -2.40, p < .01)\), but only when conformity orientation is high, and conversation orientation is low. Figure 5 represents a non-significant finding for the interaction effect predicting high risk behaviors \((B = .35, \beta = .31, z = 1.84, p > .05)\), however after the model was trimmed the findings are significant \((B = .28, \beta = .26, z = 2.40, p < .01)\). For a visual representation of the trimmed findings see Figure 6. These findings suggest the family type that is driving the significant effect is the pluralistic family type. Pluralistic families (high in conversation orientation and low in conformity orientation) are most likely to produce children who engage in high risk sexual behaviors than any other family type.

Examination of Figure 6, when the component main effects are truly zero, protective families (high in conformity orientation and low in conversation orientation) may also foster a communicative environment that predicts high risk sexual behavior. These two family types are opposite, which indicates families that have high conversation orientation and low conformity orientation (pluralistic) are the most likely to produce a child engaging in high risk sex. Families high conformity orientation paired with low conversation orientation (protective) may also produce a child who engages in high risk sex. However, results indicate pluralistic families are the most likely to produce children who engage in high risk sex behaviors.

*Indirect Effects*

Indirect effects encompassed the relationship between family communication patterns, three constructs from the FSCI: talk with parents about sex, deception and
conservative family values, and how they impact sexual behaviors in young adults. The following sections report the results for the dissertation given the paths from family communication patterns to the FSCI, and, the predictive relationships from FSCI to sexual behaviors. The results of the indirect effects are reported for both the avoiding sex model and the safe sex/high risk sex model in the following sections. Additionally, indirect total effects for each model are reported. Indirect total effects incorporate the total effect of the interaction, including all paths between the independent and dependent variable.

Avoid Model

Indirect effects for the trimmed structural model (see Figure 3) consist of only significant paths. Thus, all indirect paths not reported did not produce significant effects. Conversation orientation positively predicted talk with parents about sex (H13) ($B = .60$, $\beta = .49$, $z = 7.43$, $p < .01$), and negatively predicted children’s deceptive communication with parents (H15) ($B = -.49$, $\beta = -.38$, $z = -5.28$, $p < .01$). Conformity orientation negatively predicted talk with parents about sex (H14) ($B = -.16$, $\beta = -13$, $z = -2.01$, $p < .05$), positively predicted deception (H16) ($B = .41$, $\beta = .32$, $z = 4.35$, $p < .01$), and positively predicted conservative family values (H18) ($B = .50$, $\beta = .41$, $z = 6.51$, $p < .01$). Conservative family values is the only significant indirect path predicting avoiding sex behaviors (H12) ($B = .22$, $\beta = .26$, $z = 4.01$, $p < .01$).

Three indirect total effects were observed in the avoiding sex model. These indirect effects incorporate the total effect of the interaction: all paths between the independent and dependent variable are taken into account. Family communication
patterns and talk with parents about sex produced a non-significant relationship with avoiding sex behaviors ($B = .18, \beta = .21, z = 1.75, p > .05$). Family communication patterns and deception was not a predictor of avoiding sex behaviors ($B = .10, \beta = .12, z = 0.95, p > .05$). However, family communication patterns and conservative values were a positive predictor of avoiding sex behaviors ($B = .22, \beta = .39, z = 4.03, p < .01$).

Moreover, the only predictor of conservative values was conformity orientation ($B = .33, \beta = .41, z = 6.51, p < .01$). Meaning, in the avoiding sex model, the only total effect predictor of avoiding sex was the indirect effect of conformity orientation predicting conservative values. Placing talk with parents, deception and conservative values as mediators in the final structural model accounted for ($R^2 = .08$) of the variance in avoiding sex behaviors. The Sobel tests of indirect effects are reported in Table 8. The direct and indirect effects together accounted for 8% of the variance in avoiding sex behaviors.
Table 8
*Beta Coefficients in Saturated Structural Model for Safe Sex/High Risk Sex Completely Standardized Solution*

<table>
<thead>
<tr>
<th>Indirect Effects</th>
<th>(B)</th>
<th>(\beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversation → Talk with Parents → Avoiding Sex</td>
<td>.12</td>
<td>.11</td>
</tr>
<tr>
<td>Conversation → Deception → Avoiding Sex</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Conversation → Conservative Values → Avoiding Sex</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Conformity → Talk with Parents → Avoiding Sex</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>Conformity → Deception → Avoiding Sex</td>
<td>-.04</td>
<td>-.04</td>
</tr>
<tr>
<td>Conformity → Conservative Values → Avoiding Sex</td>
<td>-.15**</td>
<td>-.14**</td>
</tr>
<tr>
<td>ConvXConf → Talk with Parents → Avoiding Sex</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>ConvXConf → Deception → Avoiding Sex</td>
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<td>.01</td>
</tr>
<tr>
<td>ConvXConf → Conservative Values → Avoiding Sex</td>
<td>.04</td>
<td>.04</td>
</tr>
</tbody>
</table>

Note. **\(p < .01\); *\(p < .05\).
Safe Sex/High Risk Sex Model

The indirect effects for the safe sex/high risk sex model encompass the effects from family communication patterns to the FSCI, and from the FSCI to sexual behaviors. The trimmed model (Figure 4) shows a visual representation of the standardized beta coefficients for the model.

Conversation orientation positively predicts talk with parents about sex (H13) \( (B = .76, \beta = .60, z = 8.79, p < .01) \), negatively predicts deception (H15) \( (B = -.59, \beta = -.46, z = -5.50, p < .01) \), and negatively predicts conservative family values (H17) \( (B = -.23, \beta = -.18, z = -2.17, p < .05) \). Conformity orientation positively predicts deception (H16) \( (B = .36, \beta = .28, z = 3.90, p < .01) \), and positively predicts conservative family values (H18) \( (B = .35, \beta = .28, z = 3.33, p < .01) \).

Talk with parents about sex negatively predicts safe sex behaviors (H10) \( (B = -.34, \beta = -.39, z = -2.11, p < .05) \), and positively predicts high risk sex behaviors (RQ7) \( (B = .38, \beta = .44, z = 2.20, p < .05) \). Deception negatively predicts safe sex behaviors (RQ5) \( (B = -.59, \beta = -.71, z = -3.18, p < .01) \) and positively predicts high risk sex (RQ8) \( (B = .45, \beta = .54, z = 2.53, p < .05) \). It should be noted the associations between talk with parents and sexual behaviors are significant, but should be approached with caution. The talk with parents results are opposite of the theoretically grounded hypotheses. In the following chapter these associations are discussed.

Three indirect total effects were measured in the safe sex and high risk sex model: talk with parents, deception and conservative values. Family communication patterns, along with talk with parents about sex does not predict safe sex \( (B = -.31, \beta = -.35, z = -\)
1.68, \( p > .05 \) or high risk sex \((B = .38, \beta = .43, z = 1.79, p < .01)\). Family communication about sex and deception negatively predict safe sex behaviors \((B = -.68, \beta = -.83, z = -3.18, p < .01)\) and positively predicts high risk sexual behaviors \((B = .64, \beta = .76, z = 2.47, p < .01)\). Meaning the overall indirect effects do not predict safe sex or high risk sex behaviors when talk with parents is taken into account, however deception in the model is negative predictor of safe sex behaviors and a positive predictor of high risk sexual behavior. Family communication patterns with conservative values was not a significant predictor of safe sex \((B = .14, \beta = .16, z = 1.19, p > .05)\) or high risk sex \((B = -.20, \beta = -.23, z = -1.50, p < .01)\). Talk with parents, deception and conservative values functioned as mediators in the final model accounting for \((R^2 = .15)\) safe sex and \((R^2 = .15)\) high risk sex behaviors. Meaning, the final model accounted for 15% of the total variance in both safe sex and high risk sex behaviors. The Sobel test of indirect effects is reported in Table 9.
Table 9

Beta Coefficients in Saturated Structural Model for Safe Sex/High Risk Sex Completely Standardized Solution

<table>
<thead>
<tr>
<th>Indirect Effects</th>
<th>B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversation → Talk with Parents → Safe Sex</td>
<td>-.21</td>
<td>-.19</td>
</tr>
<tr>
<td>Conversation → Deception → Safe Sex</td>
<td>.39**</td>
<td>.35**</td>
</tr>
<tr>
<td>Conversation → Conservative Values → Safe Sex</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Conversation → Talk with Parents → High Risk Sex</td>
<td>.26</td>
<td>.23</td>
</tr>
<tr>
<td>Conversation → Deception → High Risk Sex</td>
<td>-.36*</td>
<td>-.32*</td>
</tr>
<tr>
<td>Conversation → Conservative Values → High Risk Sex</td>
<td>-.04</td>
<td>-.04</td>
</tr>
<tr>
<td>Conformity → Talk with Parents → Safe Sex</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Conformity → Deception → Safe Sex</td>
<td>-.31*</td>
<td>-.28*</td>
</tr>
<tr>
<td>Conformity → Conservative Values → Safe Sex</td>
<td>-.05</td>
<td>-.04</td>
</tr>
<tr>
<td>Conformity → Talk with Parents → High Risk Sex</td>
<td>-.05</td>
<td>-.04</td>
</tr>
<tr>
<td>Conformity → Deception → High Risk Sex</td>
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<td>.25*</td>
</tr>
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<td>.07</td>
</tr>
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<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>ConvXConf → Deception → Safe Sex</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>ConvXConf → Conservative Values → Safe Sex</td>
<td>-.01</td>
<td>-.01</td>
</tr>
<tr>
<td>ConvXConf → Talk with Parents → High Risk Sex</td>
<td>-.01</td>
<td>-.01</td>
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<tr>
<td>ConvXConf → Deception → High Risk Sex</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>ConvXConf → Conservative Values → High Risk Sex</td>
<td>.02</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note. **p < .01; * p < .05.
Covariates

Research questions three and four addressed the amount of variance accounted for by the covariates in the model. The two covariates religiosity and parent talked most/least with are reported in Table 9 (avoiding sex) and Table 10 (safe sex/high risk sex). In the following section beta values for by each covariate is reported.
Table 10

*Variance accounted for by Covariates. Avoid model.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Religiosity</th>
<th></th>
<th></th>
<th>Talk with Parent high/low</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$\beta$</td>
<td>$z$</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$z$</td>
</tr>
<tr>
<td>Talk with Parents</td>
<td>-.01</td>
<td>-.01</td>
<td>-.19</td>
<td>.13*</td>
<td>.11*</td>
<td>2.28</td>
</tr>
<tr>
<td>Deception</td>
<td>-.10</td>
<td>-.08</td>
<td>-1.44</td>
<td>-.12</td>
<td>-.09</td>
<td>-1.77</td>
</tr>
<tr>
<td>Conservative Values</td>
<td>.48**</td>
<td>.39**</td>
<td>6.40</td>
<td>-.18**</td>
<td>.15**</td>
<td>-2.77</td>
</tr>
<tr>
<td>Avoiding Sex</td>
<td>-.00</td>
<td>-.00</td>
<td>-0.03</td>
<td>-.06</td>
<td>-.06</td>
<td>-1.11</td>
</tr>
</tbody>
</table>

*Note.* Beta values from the trimmed model.
Table 11

Variance accounted for by Covariates. Safe Sex/High Risk Sex Model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Religiosity</th>
<th>Talk with Parent high/low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Talk with Parents</td>
<td>-.09</td>
<td>-.07</td>
</tr>
<tr>
<td>Deception</td>
<td>-.04</td>
<td>-.04</td>
</tr>
<tr>
<td>Conservative Values</td>
<td>.57**</td>
<td>.45**</td>
</tr>
<tr>
<td>Safe Sex</td>
<td>-.02</td>
<td>-.02</td>
</tr>
<tr>
<td>High Risk Sex</td>
<td>.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

*Note.* Beta values from the trimmed model.
Summary

This chapter reported the results of the dissertation. Specifically, this chapter described the measurement models for avoiding sex and safe sex/high risk sex as well as the results from the structural models for avoiding sex and safe sex/high risk sex. Through the description of the measurement models and structural models hypotheses and research questions from Chapter Two and Chapter Three were addressed. Interaction effects, direct and indirect effects were discussed. Variance accounted for in the models by covariates was addressed. In the following chapter, a discussion of the findings of this dissertation are placed within extant research and theory.
CHAPTER 6: DISCUSSION

Discussion

This chapter outlines the major findings of this dissertation. Next, the findings are examined within extant theory and research. Practical implications for the findings are offered. After that, this chapter offers limitations and suggestions for future research.

Summary of Findings

The chief goal of this study was to create a model explaining how family communication patterns and family talk about sex predict sexual behaviors in young adults. The results of this study support this model. Both family communication patterns and family talk about sex are used to predict the following sexual behaviors: high risk sex, safe sex, and avoiding sex. In the following section, a summary of the findings for the avoid model and the safe sex/high risk sex model are offered.

Avoid Model

The direct effects, or the paths between family communication patterns (including the interaction term) and avoiding sex behaviors were not significant. However, the mediated/indirect effects did yield a significant path. Although conversation orientation predicted both talk with parents and deception and conformity orientation predicted talk with parents and deception, the paths failed to predict avoiding sex behaviors. In the model the path from conformity orientation to avoiding sex behaviors, as mediated by conservative family values produced a significant path. These findings are consistent with the research indicating avoiding sex behaviors are linked to parents emphasizing
abstinence messages (Elliott, 2010), which might be for moral reasons, or to keep children safe psychologically and physically. The overall model accounted for 8 percent of the overall variance accounted for in avoiding sex behaviors.

Safe Sex/High Risk Sex Model

The direct effects, or the paths between family communication patterns and safe sex and high risk sex, produced two significant results. Conformity orientation positively predicts safe sex behaviors, meaning families that are high in conformity orientation (i.e., families that expect children to act in accordance with familial expectations) (see Koerner & Fitzpatrick, 2002a) are likely to have children who engage in safe sex behaviors.

The second direct effect was from the orthogonalized interaction term predicting high risk sex. When decomposed, this interaction effect indicates that pluralistic families are most likely to have children who engage in high risk sexual behaviors, however some evidence suggests protective families may do so likewise. Pluralistic families are families high in conversation orientation and low in conformity orientation. Protective families are high in conformity orientation and low in conversation orientation.

In this study, children in pluralistic, and also protective families, reported sexual behavior that produced the only direct effect between the four family types (interaction effect) and sexual behaviors. This finding indicates that the relationship between family communication patterns and sexual behaviors is largely indirect. Although these findings do not demonstrate a causal relationship, these results are consistent with the expectation that family communication patterns are more of a distal cause of sexual behaviors, and talk with parents, deception, and conservative values are more of a proximate cause of
sexual behavior. As such, to understand the relationship between family communication patterns and sexual behaviors it is vital to include the mediated relationships of the FSCI: talk with parents, deception and conservative values.

The mediated paths, or paths that include both family communication patterns and family communication about sex as predictors of sexual behaviors, predicted both safe sex behaviors and high risk sex behaviors. Conversation orientation positively predicted talk with parents, but negatively predicted conservative values and deception. In other words, when families are high in conversation orientation, children are likely to report engaging in talk about sex with parents. However, families with high levels of conversation orientation have children who report having low levels of deception and less conservative family values. Conformity orientation positively predicted deception and conservative family values. Thus, families who are high in conformity orientation are likely to have children who report high levels of deception and an emphasis on conservative family values.

Family communication about sex, or the FSCI, predict both safe sex and high risk sex behaviors. Although conservative values was the only predictor of avoiding sex behaviors, conservative values did not predict safe sex or high risk sex behaviors. Talk with parents about sex negatively predicted safe sex behaviors and positively predicted high risk sexual behaviors. It should be noted that talk with parents about sex was comprised of three communicative constructs (culture, openness, and avoidance), which were collapsed to one category due to correlation coefficients exceeding 1.0 (see Chapter Four). In other words, the more a family engages in talk about sex in open dialogue
(openness/avoidance) and accepts a culture of talking about sex, the less likely the child will engage in safe sex behaviors. Additionally, embracing family talk and a culture of talk about sex increases the likelihood that a child will engage in high risk sexual behaviors. These results are counter-intuitive and warrant further investigation. In the theoretical implications section, a discussion of the high correlation between talk with parents and deception is offered. Deception was a negative predictor of safe sex behaviors and a positive predictor of high risk sexual behaviors. In other words, when deception is high, children engage in less safe sex behaviors, and more high risk sex behaviors. But, when deception about sex is low, adult children engage in more safe sex behaviors and less high risk sex behaviors. The overall variance accounted for in the safe sex/high risk sex model was 15 percent.

Theoretical Implications

Communication about sexual behaviors of adolescents and young adults has been studied at length, but the majority of the research focuses on frequency of communication (e.g., Feldman & Rosenthal, 2000; Furstenberg, Herceg-Baron, Shea, & Webb, 1984). Little extant theory exists for how communication, specifically family communication, predicts sexual behavior on the part of young adults. As discussed earlier, the primary goal of this dissertation was to create and test a model in which family communication patterns and family talk about sex are predictors of sexual behaviors in young adults.

Theoretical implications exist for both models: avoiding sex and safe sex/high risk sex. The only significant path in the avoiding sex model was mediated by conservative values. Thus, in this initial research, the other communicative variables in
the study (conversation orientation, conformity orientation, the interaction term, talk with parents and deception) were not significant predictors of avoiding sex behaviors. Although relationships were hypothesized based on extant research, none of the communicative variables in the model had explanatory power. It might be that children who avoid sexual behavior come from families that place great emphasis on conservative values, but little emphasis on communication. These families might have limited, or no talk with children about sex, but simply expect children to conform to familial expectations about avoiding sex. Although little is known about what other variables might predict avoiding sex behaviors, it should be noted that other communicative constructs that were not measured here could provide more insight into how family communication about sex impacts avoiding sex behaviors. Specifically, two communicative constructs could be of interest: affection and parental confirmation. Research surrounding affection (e.g. Floyd, 2001 2006), could be of interest as a mediator from family communication patterns to sexual behaviors. Along these same lines, parental confirmation (see Dailey, 2006) might provide an interesting mediator in predicting sexual behaviors in young adults.

Two direct effects between family communication patterns and safe sex/high risk sex are discussed. The first significant direct path produced a positive effect of conformity on safe sex behaviors. This study has two positive findings for families high in conformity orientation. Families high in conformity orientation positively predict safe sex behaviors, and avoiding sex behaviors (due to concomitant conservative values). Families high in conformity orientation value the traditional family structure. Koerner
and Fitzpatrick (2002b) stated, “in this view, families are cohesive and hierarchical. That is, family members favor their family relationships over relationships that are external to the family...” (p. 86). As such, it might be that children who report high levels of conformity in their family, place an emphasis on adhering to familial expectations, particularly adhering to parental expectations. Moreover, children in families that are high in conformity orientation might be expected to “subordinate personal interests to those of the family” (Koerner & Fitzpatrick, 2002b, p. 86). Children in these families might place an emphasis on the relationship they have with their parents over the relationship they have with their romantic/sexual partner(s). Due to the emphasis on the family relationship, children who come from families high in conformity orientation might hold tightly to communicative rules of abstaining/avoiding sex or engaging in safe sex practices. Parents in high conformity families are “expected to make the decisions for the family, and the children are expected to act according to their parents’ wishes” (Koerner & Fitzpatrick, 2002b, p. 86). Subsequently, when these children do engage in sexual behavior they might adhere to family expectations for engaging in safe sex behavior (i.e., using a condom at every sexual interaction).

The other direct effect was observed between the interaction effect and high risk sexual behaviors. When the interaction effect was decomposed (see Chapter Five), the results indicated pluralistic and protective families were fueling the relationship. Pluralistic families are high in conversation orientation and low in conformity orientation. Koerner and Fitzpatrick (2002a) stated, “communication in pluralistic families is characterized by open, unconstrained discussions that are open to and involve all family
members” (p. 44). Protective families, on the other hand, are high in conformity orientation and low in conversation orientation. Protective families emphasize parental authority and do not encourage open discussions (Koerner & Fitzpatrick, 2002a). Pluralistic families and protective families are opposite; yet, results indicate pluralistic families are the most likely to have children who engage in high risk sexual behavior, and protective families are also linked (but not as strongly) to having children who engage in high risk sexual behavior. Because these two families produce children who report engaging in risky sexual behavior, placing this finding within the extant research is of utmost importance.

Koerner and Fitzpatrick (2002b) explain, pluralistic families engage in:

Family discussions where opinions are evaluated on the merit of the arguments that support them rather than on which family members support them. That is, parents are willing to accept their children’s opinions and to let them participate equally in family decision making. (p. 87)

Given what we know about pluralistic families, it is likely these families would engage in conversations about sex and sexuality, but unlikely that parents in these families would explicitly state (or infer) their expectations about children’s sexual behavior. Parents in these families would not set rigid boundaries for familial expectations about sexual behavior or lay out expectations for how children are to adhere to expectations about sexual behavior. As such, it could be that children in these families feel they have license to engage in sexual behaviors regardless of family approval/acceptance. Subsequently, although these families might talk openly about sex and sexuality, it is unlikely that
parents would insist their children conform to rules, such as wearing a condom, limiting sexual partners, or avoiding sex. Instead, these families are more likely to talk openly about sex, but do not set guidelines for children about appropriate behavior.

Protective families are the opposite of pluralistic families. Protective families emphasize obedience to parents, and set parents apart from children as decision makers (see Koerner & Fitzpatrick, 2002b). These families are characterized as having low conversation orientation and high conformity orientation. Subsequently, these families would be unlikely to engage openly in conversations about sex and sexuality. However, parents might have rigid expectations for children to conform to their ideologies of what appropriate sexual behavior should (or should not) occur. As such, children in these families would be unlikely hear many messages about sex and sexuality, and parents might assume that children will adhere to parental rules/expectations about sex, even if the expectations are not explicitly stated. It should be noted that this finding is especially important when examining the findings from the overall model. Conformity orientation has positive outcomes for this model, except when it is accompanied by low conversation orientation (such as in the protective family type). Perhaps children in this family type cannot talk with parents openly about the complex issues surrounding sex and sexuality and therefore make poorer sexual choices than children from high conformity orientation families. These findings suggest pluralistic and protective families provide a communicative climate that has a negative impact (i.e., engaging in high risk sexual behaviors) on sexual behaviors for their young adult children. In the following sections,
practical implications of this relationship as well as directions for future research are discussed.

Families high in conformity orientation have generally, although not exclusively, been associated with negative outcomes (e.g., Dumlao & Botta, 2000; Koerner & Fitzpatrick, 1997). However, for this study a positive outcome (engaging in safe sex behavior) was associated with high conformity orientation. Clearly, then, conformity orientation is not simply good or bad, desirable or not desirable. Instead, families high in conformity orientation don’t always benefit from this communicative pattern, but when it comes to protecting children from the unsafe sexual behaviors, high conformity orientation seems to benefit children in doing so. However, there is one exception to this rule: the protective family. Protective families are high in conformity orientation and low in conversation orientation. As discussed earlier, these families predict high risk sexual behavior. It appears that conformity orientation should be fostered in families to help safe-guard against high risk sexual behavior, except in the case that the family has low conversation orientation.

What emerges, then, is a complex picture of how FCP predicts sexual behaviors. This study demonstrates a different way of looking at families high in conformity orientation (i.e. high conformity orientation is associated with the positive outcome of safe sex). Fostering a communicative climate which increases conformity orientation over time can not only safe-guard against negative outcomes, but also increase the likelihood of a child choosing to engage in safe sex behaviors. However, conformity orientation should be fostered in concert with conversation orientation. That is,
communicative patterns in the family should be examined holistically, rather than simply emphasizing conformity or conversation orientation. Although this is more complex, it provides families and researchers a foundation for understanding how communicative patterns over time influence the sexual behaviors of young adult children.

The mediated path between FSCI and safe sex/high risk sex behaviors produced significant results through talk with parents and deception. Talk with parents (operationalized as openness and frequency) negatively predicts safe sex behaviors and positively predicts high risk sexual behaviors, which is contradictory to extant research (see, for example, Kirkman, Rosenthal & Feldman, 2005; Warren & Neer, 1986). Deception with parents negatively predicts safe sex behaviors and positively predicts high risk sexual behaviors. These findings make intuitive sense: the more a child deceives parents about sexual behavior, the less safe sex and more high risk sex she/he will engage in.

It might be that the relationship between talk with parents and sexual behaviors is accounting for talk about sex that makes family members uncomfortable. In this model, deception is a controlled variable. What remains of the variance accounted for in the talk with parents construct might be composed of “taboo” or “inappropriate” talk about sex. As such, an inverse relationship would be expected (i.e., inappropriate talk about sex negatively predicts safe sex and positively predicts high risk sex). When taking into consideration talk with parents about sex and deception, it is possible that these constructs are not adequately measured by the FSCI, or a spurious effect could be occurring. This possibility is discussed further in the suggestions for future research.
Although it is not known with this initial study why a counter-intuitive finding is occurring between talk with parents and sexual behaviors, the results of this study should be approached with caution.

Extant research suggests parental talk is extremely important to teens who are thinking of, or engaging in, sexual activity. Tanner and colleagues (2008) pointed to parents as the “single most influential agent when making decisions about having sex” (p. 140). Other researchers reinforce this claim (Mitchell, Tanner & Raymond, 2004; Moore, Raymond, Mittlestaedt & Tanner, 2002). Moreover, parental talk about sex leads to more safe sex outcomes (e.g., Troth & Peterson, 2000; Weinman, Small, Buzi & Smith, 2008). These outcomes include condom use and consistent use of birth control (Weinman, Small, Buzi & Smith, 2000). Parent-child conversations about sex might also delay intercourse (e.g., Starkman & Rajani, 2002). Given the aforementioned evidence, talk with parents about sex is an important construct to understand, and should not be disregarded. In the practical implications specific suggestions for parents are offered.

The total variance accounted for in both models reflects small overall effects sizes. The avoid model was eight percent and the safe sex/high risk sex model was fifteen percent. In other communicative research looking at family communication patterns, effects are small but meaningful. Schrod, Witt and Messersmith (2008), in their meta-analysis of family communication patterns research, reported an overall effect size of $r = .28$; clearly this value is somewhat larger than the effect sizes for behavior obtained in this study. However, in health communication research, effect sizes are generally smaller than in other areas of research. In fact, according to Snyder (2007), the anticipated effect
sizes for health communication campaigns are often five percent, but vary widely based
on the specific behavior that is being promoted in the health campaign. Snyder (2007)
suggested topics related to this dissertation have much lower R square values than this
study, e.g., family planning (r = .06) and sexual risk taking (r = .04). Thus, these effects
are double to triple the effect sizes anticipated in research predicting sexual behaviors.
Not only does this highlight the need for future research on the extent to which family
communication predicts sexual behavior, but also might encourage parents who do not
believe their messages about sex make a difference; to the contrary, parental messages
seem more potent than those promoted through mass media health campaigns.

A secondary goal for this project was to establish and test an instrument that
addresses family communication about sex. The FSCI was created to capture
communicative constructs not yet explored in this context. Specifically, the FSCI
captured three communicative constructs: talk with parents about sex, deceiving parents
about sex, and conservative family values. It should be noted that the intention of the
FSCI was to capture communicative constructs in addition to frequency of
communication, which has been studied at length as a variable for predicting sexual
behavior (e.g., Feldman & Rosenthal, 2000; Furstenberg, Herceg-Baron, Shea, & Webb,
1984).

Although the FSCI will be revised in future research (see limitations and future
research sections), it provides an exploratory examination of some of the communicative
constructs that should be incorporated in research involving communication and sexual
behaviors of young adults, adolescents, and teens. The communicative constructs in the
FSCI encompassed talk with parents (communicative culture, openness, and avoiding), deception, and conservative family values. Because communication is a multifaceted and complex process, the FSCI constructs help to provide clarity and supply an initial foundation for communicative constructs other than frequency of communication. It is my hope that this research will open the dialogue about other communicative constructs to explore that might predict sexual behavior. To date, this is the only research available that incorporates this complex understanding of communication in a measurement model predicting sexual behaviors in young adults.

*Practical and Family Implications*

Although practical implications were not the primary goal of this research, the findings suggest several practical implications of note. Sexual behaviors can be of particular interest for parents of adolescents and young adults. Namely, parents might be trying to encourage abstinence behaviors or safe sex behaviors. To reify these goals several practical implications are outlined.

Findings in this dissertation suggest, if parents would like to encourage avoiding sex behaviors, encouraging conservative values and conformity orientation in the family would increase the likelihood of having an adult child who reports avoiding sexual activity. Specifically, the Sobel test for indirect effects produced the one significant effect for the avoiding sex model. The path Conformity → Conservative Values → Avoiding Sex was statically significant ($\beta = -.14$). In other words, families who foster a communicative climate which encourages children to adhere to family norms and
expectations, and encourage conservative values in the family are the most likely to have adult children who report avoiding sex behaviors.

For the safe sex/high risk sex model, several findings have implications for families. The first significant direct path from family communication patterns to sexual behavior was the positive path from conformity orientation to safe sex behaviors. This finding indicates families high in conformity orientation are likely to have children who engage in safer sex behaviors. As such, it might be ideal to increase conformity orientation in families. Parents wanting to increase conformity orientation in their family might be explicit with children about familial expectations about sex and sexuality. Messages reifying conformity—“that is not the way our family does it,” or “that is exactly what I expect”—might provide children with clear boundaries on expectations of sexual behavior and how to conform to those expectations in the family. Although these scripts are simple, and only two suggestions of a plethora of options, providing interpersonal scripts is one way Koener and Fitzpatrick (2002b) suggested to link “cognition about the self, other and the relationship” (p. 82). In other words, interpersonal scripts are contained in how the family communicates over time, and these scripts serve to foster or change that communicative pattern. It should be noted that increasing conformity orientation does not necessarily involve increasing conversation orientation (i.e., explicit conversations about sex do not need to occur). Instead of increasing conversation orientation within the family, reinforcing messages through the aforementioned scripts provides children with a roadmap for familial conformity expectations and how to conform to those expectations.
The second direct path was from the interaction term to high risk sexual behaviors. When decomposed, this interaction indicates pluralistic and protective families are fueling the relationship. These findings have major implications for parents. Communicative patterns are established over time in a family; however, these patterns are subject to change. Pluralistic families (high in conversation orientation, but low in conformity orientation) are the family type most likely to produce children who engage in high risk sexual behaviors. Koerner and Fitzpatrick (2002b) state:

Parents in these families do not feel the need to be in control of their children or make all the decisions for them… parents are willing to accept their children’s opinions and to let them participate equally in family decision making. (p. 87)

As such, pluralistic families could modify their communication to perhaps mitigate the relationship with high risk sex. These families could either decrease their conversation orientation, or increase their conformity orientation. An increase in conformity orientation, specifically about sexual issues, might move these families closer to a consensual family type.

Although a shift in family communication patterns is possible, it is unlikely. Koerner and Fitzpatrick (2002b) stated, “relationship knowledge contained in family relationship schemas is relatively stable and likely to change only after repeated similar experience with all the family members” (p. 82). This finding indicates families are likely to maintain their communicative patterns over time rather than change them, even if one family member is cognizant of a necessary change. A more realistic goal for these families would be to increase conformity orientation surrounding sexual issues. Namely,
parents increasing conformity orientation about sexuality (coupled with the finding that conformity orientation positively predicts safe sex behaviors) might provide a communicative steppingstone toward healthier sexual behaviors in adult children. Parents are of chief interest for this goal because it is far easier to focus on a communicative change parent-child dyadic relationship, rather than shifting the family type as a whole. Koerner and Fitzpatrick (2002b) stated, “… family member will always try to first access their relationship-specific [in this case parent-child dyad] schemas before accessing their family relationship [in this case the family type] schema” (p. 82). Subsequently, the best suggestion is parents should shift their communicative choices to increase conformity orientation in the family.

Protective families (who have high conformity orientation and low conversation orientation) could increase their conversation orientation (perhaps about sex and sexuality) to combat the relationship with high risk sexual behavior. Or, protective families could decrease their conformity orientation, thus valuing autonomous decisions (specifically linked to sex and sexuality) to address the concern that this family communicative pattern is predicting high risk sex. This shift would move protective families to the laissez-faire family type. Laissez-faire families are generally associated with negative outcomes, largely because such families lack the benefits arising from high conversation orientation. As such, protective families might be better served to increase conversation orientation. It should be noted that, if familial communicative patterns change, that change does not increase the chances of the child engaging in safe sex behaviors, but might mitigate the relationship between pluralistic/protective families and
high risk sexual behaviors. Coupled with the finding that conformity orientation positively predicts safe sex behaviors, the best course of action for parents in protective families to take would be to increase conversation orientation. Although families will unlikely change their family type, simply increasing conversation orientation about a specific issue, namely, sexuality, could provide a safeguard against high risk sexual behavior for young adult children raised in protective families. Subsequently, both pluralistic and protective families could make communicative choices to shift their patterns of communication to mitigate the relationship with high risk sexual behaviors.

The mediated paths from talk with parents about sex and deception, to safe sex and high risk sex behaviors should be approached with caution. The first finding is that talk with parents about sex negatively predicts safe sex behaviors and positively predicts high risk behaviors. This finding is counter-intuitive and, as discussed previously, in opposition to extant research. The finding that deceiving parents about sex negatively predicts safe sex behaviors and positively predicts high risk sex behaviors could provide a lens into understanding the talk with parents relationship. Although the deception findings are intuitive, the talk with parents findings are not. It could be that when deception is controlled for in the model, what is left is “inappropriate” or “taboo” talk about sex. As such, this taboo talk could be fueling the inverse of the hypothesized relationship with safe sex and high risk sex. These findings are not to be approached as a direct impact on how parents should interact with children (i.e., parents still should talk to children about sex and sexuality); instead, parents should be cautious of the kind of talk they engage in with their children.
High conformity orientation has overwhelming positive repercussions for children in the models; however, two exceptions exist. One exception is protective families (as discussed earlier) predict high risk sex behaviors. The other exception is the indirect negative effect to safe sex mediated by deception. In other words, the path conformity $\rightarrow$ deception $\rightarrow$ safe sex has a negative relationship. Meaning, when conformity is high, deception is also high, and children are unlikely to engage in safe sex behaviors. As established earlier in the study, conformity orientation positively predicts safe sex behaviors. These two findings, together, suggest that conformity orientation increases a child’s likelihood of safe sex, except to the extent that it also increases deception. Subsequently, high conformity orientation families should establish clear, open lines of communication between parents and children about sex.

Encouraging children to decrease deception and engage in open and honest talk about sex and sexuality should be encouraged within the family unit. Increasing an ongoing dialogue about sex and sexuality with young adult children provides children with an outlet to discuss questions and issues surrounding sexuality. However, parents should be cautious of encouraging all talk about sex. Some talk about sex with parents could increase harmful outcomes for adult children. These results should provide a foundation for further discourse within the research community what kinds of sexual talk are harmful verses beneficial for adult children.

Limitations and Future Research

Two statistical limitations should be noted for this study. First, there are high standardized regression coefficients between deception and safe sex, and deception and
high risk sex. However, moderate regression coefficients exist for the dependent
variables (see Table 7). Thus, it is likely that the paths are inflated due to
multicollinearity with talk with parents. Such multicollinearity is not necessarily
problematic but does raise questions about the conceptual overlap between talk with
parents and deception.

Second, a high correlation is reported in both structural models between
conversation orientation and conformity orientation (see Figure 3 and Figure 4). The
negative correlation (-.58) is higher than the small to moderate correlation Koerner and
Fitzpatrick (2002a) suggested is expected. This might point to a large number of
protective and pluralistic families, but a limited number of laissez-faire and consensual
families, in the sample.

Several survey limitations should be noted for this study. First, as discussed in
Chapter Two, operationalizing avoiding sex behaviors could have had multiple
indicators. For this study, avoiding sex behavior was operationalized as one question:
“are you currently sexually active?” Participants had a dichotomous choice of yes, or no.
This construct does not encompass the potentially multidimensional nature of avoiding
sex behaviors; however, it provides a parsimonious understanding of avoiding sexual
activity at the time of the survey. Future research should address the multiple ways in
which avoiding sex behaviors can be understood, and perhaps, include additional survey
items to have multiple indicators for the construct avoiding sex. Specifically, items could
include: “have you ever been sexually active,” and “at what age did you become sexually
active?”
Second, in the survey participants were asked to imagine the parent they talked “most” or “least” with when answering questions about communicating with a parent. This part of the survey was randomly assigned. In addition to this information, participants were asked to estimate the number of hours he/she spent talking to the parent. However, what wasn’t accounted for was the biological sex of the parent. In hindsight, and given the body of literature emphasizing mothers as chief agents in communication with children about sex (DiIorio et al., 1999; Nolin & Peterson, 1992; Warren & Neer, 1986), parental biological sex should be addressed in subsequent research.

Model complexity prohibited analyzing for sex differences, although that clearly is theoretically relevant. Future research should examine how biological sex of participants impacts the overall models. Although I am, at this time, not prepared statistically to examine the models for sex differences, advanced study in SEM may provide insights into complex familial relationships based on the biological sex of the child.

The FSCI needs to be examined in future research for validity. Although an argument can be made for the validity of the constructs captured by the FSCI, future research should include other communicative constructs to capture additional variance, as well as a clearer picture of the complex and multifaceted nature of communication. Specifically, satisfaction (which I attempted to capture, but did not do so effectively), frequency of communication (again I attempted to account for this variable, but the FSCI was not effective), and privacy could be future avenues for refining the measure.
Certainly these are not the only communicative constructs that could be addressed in future research, but they could help to capture additional concepts in the FSCI.

One of the three constructs of the FSCI, conservative values, is more of a sociological construct than a communicative construct. However, sexual behaviors may be understood as inherent sociological constructs, and therefore it may be important to acknowledge that communication is related to sociology. Although the intention of the FSCI was not to measure a sociological construct, conservative family values are the only predictor of avoiding sex behavior (and demonstrated close affinity with the communicative/schematic construct of conformity orientation) and, therefore, are essential for understanding how communicative constructs work together in the models to predict sexual behaviors in young adults.

Several items were not retained from the FSCI in this study, in spite of the items performing well in the EFA pilot work. Namely, the siblings constructs were not retained for this study due to the focus on the parent-child dyad. Although these items were not used in this study they are retained in the FSCI (see Appendix A). Future researchers may find the siblings construct, explored in the EFA (see Chapter Four), useful.

Future researchers studying sexual behaviors should address social desirability to avoid sexual behavior, and elaborate on the operationalization of sexual behaviors offered in this dissertation. Social desirability to remain abstinent or engage in safe sex behavior may have played a role in how participants responded to this question. Specifically, participants may have indicated he/she is avoiding sexual behavior when he/she is actually engaging in sexual behavior. For this study, there was no way to account for
participants answering questions in a socially desirable way. Future research could address social desirability by using an instrument constructed to control for consistency among participant responses. Future research should continue to employ methodology which enables participants to respond anonymously, to avoid stigma associated with sexual activity and high risk sexual behaviors.

Although it is not the goal of this dissertation to define what sexual behavior constitutes avoiding sex, safe sex and high risk sex, it is important to note that operationalization of these terms is difficult and not without consequence. Through this study I chose to define sexual behaviors in three categories and create consistent boundaries around each definition. However, future research should address how these constructs are defined and used throughout the extant research and applied specifically to different age groups (i.e. teens, adolescents, young adults, adults and senior citizens). Specifically, future research should problematize definitions across age spectrums and offer clear operationalization of these terms.

Pluralistic (high conversation orientation, low conformity orientation) and protective (high conformity orientation, low conversation orientation) families are opposite in FCP valence, yet have similar outcomes for children. Specifically, children in pluralistic and protective families are more likely to engage in high risk sexual behavior. Future research should address this finding and further probe the connection between opposite valence and the connection to high risk sexual behaviors in college students. This relationship can be tested by examining whether parental rebellion mediates the association between FCP and high risk sex in protective families but not pluralistic
families. In other words, although both families may predict high risk sex, the mechanisms underlying that association likely differ across family types.

**Conclusion**

The purpose of this chapter was to outline the findings for the measurement and structural models, provide theoretical and practical implications and directions for future research. Specifically, major findings were discussed for both the avoiding sex model and the safe sex/high risk sex model. Next, theoretical implications for family communication patterns and family communication about sex were offered. After that, practical and family implications were discussed. Finally, limitations and directions for future research were offered.
REFERENCES


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APPENDIX A: FAMILY SEXUAL COMMUNICATION INSTRUMENT

1. My parent’s cultural background shapes how we talk about sex/sexuality.
2. My parent is open with me about sex/sexuality.
3. *My parent doesn’t talk to me about sex/sexuality.
4. *Sex is a topic my parent avoids.
5. I talk to my siblings about sex/sexuality.
6. I am open with my siblings about sex/sexuality.
7. *My parent’s culture explains why we don’t talk about sex/sexuality.
8. My siblings are open with me about sex/sexuality.
9. It is normal to avoid talking about sex with a parent.
10. I ask my parent questions about sex/sexuality.
11. I ask my siblings questions about sex/sexuality.
12. My parent asks me questions about sex/sexuality.
13. My siblings ask me questions sex/sexuality.
14. *I am dishonest with my siblings about sex/sexuality.
15. *I am dishonest with my parent about sex/sexuality.
16. My parent talks about sex/sexuality more than my friends’ parents.
17. My parent is honest with me about sex/sexuality.
18. My parent uses slang terms when talking about sex/sexuality.
19. My parent told me when I was old enough to date.
20. My parent has positive attitudes about sex/sexuality.
21. My parent’s beliefs are conservative.
22. I am happy with how my parent talks to me about sex/sexuality.
23. My parent trusts me to tell the truth about sex/sexuality.
24. *My parent shares too much information with me about sex/sexuality.
25. *Talking about sex/sexuality with my parent makes me uncomfortable.
26. I wish my parent would talk to me about sex/sexuality more often.
27. My parent is more honest with me about sex/sexuality than my friends’ parents.
28. In my culture it is appropriate to talk to my parent about sex/sexuality.
29. In my culture it is appropriate to ask my parent questions about sex/sexuality.
30. *My parent thinks it is appropriate to have sex before marriage.
31. I think it is appropriate for to have sex before marriage.

All items are measured on a five point Likert-type scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree).
APPENDIX B: RFCP INSTRUMENT

The Revised Family Communication Pattern Instrument (Children’s Version) (Koerner & Fitzpatrick 2002a).

*Conversation Orientation*

1. In our family we often talk about topics like politics and religion where some persons disagree with others.

2. My parents often say something like “Every member of the family should have some say in family decisions.”

3. My parents often ask my opinion when the family is talking about something.

4. My parents encourage me to challenge their ideas and beliefs.

5. My parents often say something like “you should always look at both sides of an issue.”

6. I usually tell my parents what I am thinking about things.

7. I can tell my parents almost anything.

8. In our family we often talk about our feelings and emotions.

9. My parents and I often have long, relaxed conversations about nothing in particular.

10. I really enjoy talking with my parents, even when we disagree.

11. My parents encourage me to express my feelings.

12. My parents tend to be very open about their emotions.

13. We often talk as a family about things we have done during the day.

14. In our family, we often talk about our plans and hopes for the future.
15. My parents like to hear my opinion, even when I don’t agree with them.

Conformity Orientation

16. When anything important is involved, my parents expect me to obey without question.

17. In our home, my parents usually have the last word.

18. My parents feel that it is important to be the boss.

19. My parents sometimes become irritated with my views if they are different from theirs.

20. If my parents don’t approve of it, they don’t want to know about it.

21. When I am at home, I am expected to obey my parents’ rules.

22. My parents often say things like “You’ll know better when you grow up.”

23. My parents often say things like “My ideas are right and you should not question them.”

24. My parents often say things like “There are some things that just shouldn’t be talked about.”

25. My parents often say things like “You should give in on arguments rather than risk making people mad.”
APPENDIX C: SAFE SEX BEHAVIOR QUESTIONNAIRE

(Dilorio, 2011)

1. I insist on condom use when I have sexual intercourse
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

2. *I use cocaine or other drugs prior to or during sexual intercourse.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

3. I stop foreplay long enough to put on a condom (or for my partner to put on a condom).
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

4. I ask potential sexual partners about their sexual histories.
   a. Never
   b. Sometimes
   c. Most of the Time
5. I avoid direct contact with my sexual partner’s semen or vaginal secretions.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

6. I ask my potential sexual partners about a history of bisexuality/homosexual practices.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

7. *I engage in sexual intercourse on a first date.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

8. I abstain from sexual intercourse when I do not know my partner’s sexual history.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
9. I avoid sexual intercourse when I have sores or irritation in my genital area.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
10. If I know an encounter may lead to sexual intercourse, I carry a condom with me.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always
11. I insist on examining my sexual partner for sores, cuts or abrasions in the genital area.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always
12. If I disagree with information that my partner presents on safer sex practices, I state my point of view.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always
13. *I engage in oral sex without using protective barriers such as a condom or rubber
dam.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

14. *If swept away in the passion of the moment, I have sexual intercourse without
    using a condom.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always

15. *I engage in anal intercourse.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always

16. I ask my potential sexual partners about a history of IV drug use.
    a. Never
    b. Sometimes
    c. Most of the Time
    d. Always
17. If I know an encounter may lead to sexual intercourse, I have a mental plan to practice safer sex.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

18. If my partner insists on sexual intercourse without a condom, I refuse to have sexual intercourse.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

19. I avoid direct contact with my sexual partner’s blood.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always

20. *It is difficult for me to discuss sexual issues with my sexual partners.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
21. I initiate the topic of safer sex with my potential sexual partner.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
22. *I have sexual intercourse with someone who I know is a bisexual or gay person.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
23. *I engage in anal intercourse without using a condom.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
24. *I drink alcoholic beverages prior to or during sexual intercourse.
   a. Never
   b. Sometimes
   c. Most of the Time
   d. Always
APPENDIX D: BRIEF MULTIDIMENSIONAL MEASURE OF RELIGIOUSNESS/SPIRITUALITY: 1999

(Masters et. al, 2009)

Daily Spiritual Experiences

The following questions deal with possible spiritual experiences. To what extent can you say you experience the following:

1. I feel God’s presence
   1. Many times a day
   2. Every day
   3. Most days
   4. Some days
   5. Once in a while
   6. Never or almost never

1. I find Strength and Comfort in my religion
   1. Many times a day
   2. Every day
   3. Most days
   4. Some days
   5. Once in a while
   6. Never or almost never

2. I feel deep inner peace or harmony.
   1. Many times a day
2. Every day
3. Most days
4. Some days
5. Once in a while
6. Never or almost never

3. I desire to be closer to or in union with God.
   1. Many times a day
   2. Every day
   3. Most days
   4. Some days
   5. Once in a while
   6. Never or almost never

4. I feel God’s love for me, directly or through others.
   1. Many times a day
   2. Every day
   3. Most days
   4. Some days
   5. Once in a while
   6. Never or almost never

5. I am spiritually touched by the beauty of creation.
   1. Many times a day
   2. Every day
3. Most days
4. Some days
5. Once in a while
6. Never or almost never

Values/Beliefs

6. I believe in a God who watches over me.
   1. Strongly agree
   2. Agree
   3. Disagree
   4. Strongly Disagree

7. I feel a deep sense of responsibility for reducing pain and suffering in the world.
   1. Strongly agree
   2. Agree
   3. Disagree
   4. Strongly Disagree

Forgiveness

8. I have forgiven myself for the things that I have done wrong.
   1. Always or almost always
   2. Often
   3. Seldom
   4. Never

9. I have forgiven those who hurt me.
1. Always or almost always

2. Often

3. Seldom

4. Never

10. I know that God forgives me.

1. Always or almost always

2. Often

3. Seldom

4. Never

**Private Religious Practices**

11. How often do you pray privately in places other than at church or synagogue?

1. More than once a day

2. Once a day

3. A few times a week

4. Once a week

5. A few times a month

6. Once a month

7. Less than once a month

8. Never

12. Within your religious or spiritual tradition, how often do you meditate?

1. More than once a day

2. Once a day
3. A few times a week
4. Once a week
5. A few times a month
6. Once a month
7. Less than once a month
8. Never

13. How often do you watch or listen to religious programs on TV or radio?
   1. More than once a day
   2. Once a day
   3. A few times a week
   4. Once a week
   5. A few times a month
   6. Once a month
   7. Less than once a month
   8. Never

14. How often do you read the Bible or other religious literature?
   1. More than once a day
   2. Once a day
   3. A few times a week
   4. Once a week
   5. A few times a month
   6. Once a month
7. Less than once a month
8. Never

15. How often do you say prayers or grace before or after a meal?
   1. At all meals
   2. Once a day
   3. At least once a week
   4. Only on special occasions
   5. Never

Organizational Religiousness

16. How often do you go to religious services?
   1. More than once a week
   2. Every week or more often
   3. Once or twice a month
   4. Every month or so
   5. Once or twice a year
   6. Never

17. Besides religious services, how often do you take part in activities at a place of worship?
   1. More than once a week
   2. Every week or more often
   3. Once or twice a month
   4. Every month or so
5. Once or twice a year

6. Never

**Religious Preference**

18. What is your current religious preference? _____________________

19. (If protestant) Which denomination is that? ____________________

**Overall Self-Ranking**

20. To what extent do you consider yourself a religious person?

21. To what extent do you consider yourself a spiritual person?
APPENDIX E: DEMOGRAPHIC INFORMATION

1. What is your age?

2. What is your sex? (male/female)

3. What is your ethnicity? (African American/Asian/Caucasian/Hispanic/Native American/Other)

4. What is your year in school? (Freshman/Sophomore/Junior/Senior)

5. Are your biological parents… (married/divorced/separated/never married/ one or more deceased).

6. Who were your primary caregivers during the majority of your childhood?
   (mother and father, just mother, just father, mother and step-father, father and step-mother, an extended family member, other).
APPENDIX F: INFORMED CONSENT

Ohio University Consent Form

Title of Research: Family Communication patterns and Family Communication about Sex as Predictors of Sexual Behavior.

Researchers: Ms. Tennley A. Vik, M.A. and Dr. B. Scott Titsworth, Ph.D.

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to participate in this study. You should receive a copy of this document to take with you.

**Explanation of Study**

This study is being done to understand the relationship between how families communicate about sex/sexuality and sexual behaviors in young adults. This study aims to understand what kinds of communication result in high risk, safe-sex and avoiding sex, behaviors in college students.

If you agree to participate, you will be asked to complete a short online survey.

You should not participate in this study if you are under the age of 18 or not currently enrolled at Ohio University.

Your participation in the study will last approximately 15 minutes

**Risks and Discomforts**

Risks or discomforts that you might experience are feeling uncomfortable disclosing about sexual history and sexual behaviors. If at any time you feel uncomfortable with a question you may skip the question or stop participation in the study.

**Benefits**

This study is important to science/society because it will help researchers understand communicative messages sent between parents and children that help to predict sexual behaviors in young adulthood. Given the outcomes of this study families will be able to modify their communication to help adult age children to engage in safer sex practices.

You may not benefit, personally by participating in this study.
Confidentiality and Records
Your study information will be kept confidential by names and email addresses being removed from the data prior to analysis. Names and any identifying information will simply be used to contact the winner of the lottery for the Amazon gift cards.

Additionally, while every effort will be made to keep your study-related information confidential, there may be circumstances where this information must be shared with:
* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU;

Compensation
As compensation for your time/effort, you will receive the opportunity to win one of two $20.00 Amazon gift cards. Your name will be placed in a drawing, along with approximately 500 other participants for the gift cards giving you 1/250 chance of winning.

Contact Information
If you have any questions regarding this study, please contact Tennley Vik (tv294807@ohio.edu) or Dr. Scott Titsworth (titsworth@ohio.edu)

If you have any questions regarding your rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

By agreeing to participate in this study, you are agreeing that:
- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered
- you have been informed of potential risks and they have been explained to your satisfaction.
- you understand Ohio University has no funds set aside for any injuries you might receive as a result of participating in this study
- you are 18 years of age or older
- your participation in this research is completely voluntary
- you may leave the study at any time. If you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled.

To indicate your consent please advance to the following page.
APPENDIX G: FAMILY SEXUAL COMMUNICATION INSTRUMENT REVISED

Talk with Parents (TWP)

1. *My parent’s culture explains why we don’t talk about sex/sexuality. (Q7)
2. In my culture it is appropriate to ask my parent questions about sex/sexuality. (Q29)
3. My parent is open with me about sex/sexuality. (Q2)
4. I ask my parent questions about sex/sexuality. (Q10)
5. My parent asks me questions about sex/sexuality. (Q12)
6. *I am dishonest with my parent about sex/sexuality. (Q15)
7. *My parent doesn’t talk to me about sex/sexuality. (Q3)
8. *Sex is a topic my parent avoids. (Q4)
9. *It is normal to avoid talking about sex with a parent. (Q9)
10. I ask my parent questions about sex/sexuality. (Q24)
11. *Talking about sex/sexuality with my parent makes me uncomfortable. (Q11)

Deception with Parents (Deception)

12. I am dishonest with my parent about sex/sexuality. (Q15)
13. *My parent is honest with me about sex/sexuality. (Q17)
14. *My parent trusts me to tell the truth about sex/sexuality. (Q23)
15. *My parent is more honest with me about sex/sexuality than my friends’ parents. (Q27)

Conservative Family Values (Conservative)

16. My parent’s beliefs are conservative. (Q21)
17. *My parent thinks it is appropriate to have sex before marriage. (Q30)

18. *I think it is appropriate for to have sex before marriage. (Q31)