The Association of Interpersonal Relationships to Adolescent Women's Sexual Self-Efficacy

A Dissertation

SUBMITTED TO THE FACULTY OF THE

UNIVERSITY OF MINNESOTA

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

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JULY 2019

Acknowledgements Page

Many people have supported me directly and indirectly in writing this dissertation. I want to first thank my advisor, Dr. Jodi Dworkin, for her tireless support throughout this arduous process. Her expertise in adolescent development and family process have been invaluable. I want to next thank Dr. Sonya Brady for her methodological expertise. I also want to thank Dr. Jenifer McGuire for her generous support and Dr. Martha Rueter for her steady encouragement.

I also want to thank Amitabh, Hannah, and Kabeer for their unwavering support throughout this long process.

Abstract

Due to proper contraception use, the rates of unplanned pregnancy among adolescents has decreased since the early 1990's. However, the US still has the highest adolescent pregnancy rate among countries that track these data. In addition, there is concern about increasing rates of STIs among adolescents. Self-efficacy is a key construct to understanding adolescent women's capacity to use condoms to prevent unplanned pregnancies and STIs. The Human Ecological Theory lays the foundation for seeing individuals within the context of their environments, particularly the most proximal contexts, that of their family and romantic partners. Two studies were proposed.

The first study examined the relationship between family factors and adolescent women's self-efficacy to refuse sex without condoms and self-efficacy to use condoms. The results of multinomial logistic regressions indicated that 1) family connection predicted 2.31 greater odds of being in the constant high self-efficacy category to refuse sex without condoms compared to the constant low self-efficacy category and 2) family contraception communication predicted 2.26 greater odds of being in the fluctuating high self-efficacy to use condoms category compared to the fluctuating low category.

The second study examined the relationship between partner factors and adolescent women's self-efficacy to refuse sex without condoms and self-efficacy to use condoms. The results indicated that 1) both women's belief that condoms interfere with pleasure and *perceived* partner belief that condoms interfere with pleasure were individually associated with women's sexual self-efficacy and 2) the interaction between the two variables was not significant.

In alignment with the theoretical assumptions of self-efficacy and Human Ecological Theory, the findings of the current studies suggest that interpersonal factors influence adolescent women's sexual self-efficacy. Family members, sexual educators, and primary care providers may influence condom use by addressing adolescent women's potential beliefs that condoms interfere with pleasure and their partners' belief that condoms interfere with pleasure. Adolescents may benefit from education around ways to reduce discomfort and increase pleasure when using condoms. Also, adolescent women who experience low levels of family connection may need additional support to develop their sexual self-efficacy compared to their peers who report high levels of family connection.

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General Introduction

The United States has seen a steady decline in unmarried adolescent pregnancies since its peak in the early 1990's, when the rate was 118 pregnancies per 1,000 women aged 15-19 (Boonstra, 2014). Much of this decline has been attributed to proper contraceptive use (Boonstra, 2014; Lindberg, Santelli, & Desai, 2016; Santelli, Lindberg, Finer, & Singh, 2007). However, the US still has the highest adolescent pregnancy rate, 57 pregnancies per 1,000 women aged 15-19 years, among 21 countries that track pregnancies, abortions, and births (Sedgh, Finer, Bankole, Eilers, & Singh, 2015). In 2011, 75% of pregnancies among adolescents 15-19 years old were reported as unplanned (Finer & Zolna, 2016). Thus, prevention of pregnancy among adolescents remains a concern. In addition, adolescents and young adults make up half of all new sexually transmitted infections (STIs) in the United States (Satterwhite et al., 2013), with 37.7% of sexually experienced adolescent females testing positive for at least one of the most prevalent STIs (HPV, chlamydia, gonorrhea, herpes, and Trichomonas; Forhan et al., 2009). Research suggests that sexually active adolescents have suboptimal rates of STI screening (Cuffe, Newton-Levinson, Gift, McFarlane, & Leichliter, 2016; Goyal, Witt, Hayes, Zaoutis, & Gerber, 2014; Masonbrink et al., 2018), leading to delays in treatment (Chaco et al., 2008; Tilson et al., 2004).

Sexually active adolescent women are at greater risk of experiencing challenges associated with sex without condoms than adolescent men, making them a vulnerable population. Adolescent mothers bear a disproportionate burden of the caregiving demands after an unplanned pregnancy than adolescent fathers (e.g., females carry the

pregnancy; social norms dictate that females care for infants; adolescent fathers' support may be insufficient). A second challenge involves socioeconomic outcomes. Adolescent parenthood is associated with poor educational attainment and higher rates of poverty for mothers and their children (for a review, see Klein, 2005). A third challenge involves biologically-based risks, since women's sexual anatomy makes them more vulnerable to acquiring STIs than their male counterparts. Compared to the relatively thick skin of the penis, the vagina is covered by a thin, delicate mucous membrane that more easily allows viruses and bacteria to pass through and cause infections (CDC, 2011). Symptoms of an STI may not be as visually apparent for women as for men, which may lead to a delay in identification and treatment. In women, an untreated STI can lead to pelvic inflammatory disease, which can result in infertility and ectopic pregnancy. Further, STIs can pass from the mother to child during pregnancy and delivery, posing a number of serious health risks to the child (CDC, 2011).

In addition to biologically based risks, another factor associated with increased risk of acquiring an STI among adolescents is failing to use condoms consistently and correctly (CDC, 2014). Patriarchal gender roles and relationship power imbalance limit adolescent women's initiative in negotiating condom use with male partners who are reluctant, making women more vulnerable to risky sexual behaviors (for a systematic review, see Marston & King, 2006). In addition, both women and men report that condoms interfere with sexual pleasure (Higgins & Wang, 2015; Hingson, Strunin, Berlin, & Heeren, 1990). Thus, both relationship power imbalance and sexual pleasure beliefs can encumber condom use.

Self-efficacy is a key construct to understanding adolescent women's ability to use condoms to prevent unplanned pregnancies and STIs. Self-efficacy, a component of Social Cognitive Theory, is defined as an individual's belief in his or her ability to perform a behavior (Bandura, 1977, 1997). Self-efficacy is described as the process that mediates the relationships between knowledge and skills, and actual behavior (Bandura, 1977). Some of the most prominent health behavior theories that attempt to predict individual behavior include self-efficacy as a key determinant of behavior (e.g., Health Belief Model, Social Cognitive Theory, extensions of the Theory of Planned Behavior; Schwarzer & Luszczynska, 2006). Self-efficacy is specific to domain, context, and task, which requires an alignment between the manner in which self-efficacy and behavior are measured (Zimmerman & Cleary, 2006). For example, in the domain of sexual health, an adolescents' self-efficacy to use condoms (task) in long-term relationships (context) would correspond to their actual condom use behavior in long-term relationships.

Although self-efficacy is most strongly influenced by practice of a behavior, adolescents' self-efficacy can be greatly influenced by the feedback of significant individuals in their lives (e.g., parents, romantic partners; Zimmerman & Cleary, 2006). The social context in the form of interpersonal relationships are known to significantly influence adolescent development. Bronfenbrenner's Human Ecological Theory describes the significant role of ecological context in shaping individual development (Bronfenbrenner, 1986). The individual's environments are described as proximal contexts (e.g., family) nested within distal ones (e.g., culture), which interact with one another to influence development (Bronfenbrenner, 1986).

Two studies were proposed to better understand how adolescent sexual self-efficacy is influenced by family and partner factors. The studies were based on the theoretical assumptions of self-efficacy, a component of social cognitive theory, and Human Ecological Theory. The first study examined the influence of family factors (i.e., family connectedness and family contraception communication) at baseline on sexual self-efficacy over a period of six months. The second study examined the association of partner factor (i.e., perceived partner belief that condoms interfere with pleasure) and sexual self-efficacy at one time point (i.e., baseline).

Study 1: The Influential Role of Family Connectedness and Contraception Communication on Adolescent Women's Self-Efficacy

Reducing pregnancy and STIs by increasing condom use among sexually active adolescents is a health priority for the United States. Among adolescents, unintended pregnancies and STIs are two well-documented consequences of inconsistent and inaccurate use of condoms. In the United States, 75% of pregnancies among adolescents are unplanned (Finer & Zolna, 2016) and adolescents make up half of all new STI cases (Forhan et al., 2009; Satterwhite et al., 2013). Among sexually active adolescents in the United States, 46% report not using a condom during their last sexual experience (CDC, 2018). Condoms are important because they are the only contraception that provides protection against both pregnancy and STIs (for a review, see Holmes, Levine, & Weaver, 2004). Sexually active adolescent women face both intrapersonal and interpersonal challenges in using condoms and refusing sex without condoms (Higgins & Wang, 2015; for a systematic review see, Marston & King, 2006). It is important to

understand those challenges in order to develop strategies for strengthening adolescent women's self-efficacy to refuse sex without condoms and to use condoms.

Sexual Self-Efficacy

Sexual self-efficacy is a broad concept that captures the confidence individuals have in their ability to perform different behaviors in the context of sexual situations (Bowleg, Belgrave, & Reisen, 2000; Reissing, Laliberté, & Davis, 2005; Rostosky, Dekhtyar, Cupp, & Anderman 2008; Seal, Minichiello, & Omodei, 1997; Sieving et al., 2012, 2013; Smith, et al., 1996). These behaviors include refusal of sexual behaviors, initiation of sexual behaviors, refusal of sex without condoms, negotiation of condom use, use of condoms, sexual risk communication, and negotiation of sexual pleasure. In his influential work on the topic of self-efficacy, Bandura (1990, 1992, 1994, 2004) did not use the term "sexual" self-efficacy; however, he clearly identified the significance of self-efficacy in managing risky sexual behaviors. He proposed that the link between knowledge of a behavior and performance of the behavior may lie in an individual's belief that they have the ability to perform the desired behavior (Bandura, 1986). Thus, weak self-efficacy in the context of sexual behaviors can increase the likelihood of engaging in risky sexual behaviors because the individual is unable to manage intrapersonal, interpersonal, and social factors that promote risky sexual behaviors (Bandura, 1990). This makes studying sexual self-efficacy important; a small but consistent body of research has demonstrated that sexual self-efficacy is closely linked to sexual behaviors (Boone, Cherenack, & Wilson, 2015; Katz & Schneider, 2015; Wulfert & Wan, 1993; Wulfert, Wan, & Backus, 1996).

Self-efficacy to refuse sex without condoms is particularly applicable to the goals of preventing unplanned pregnancies and STIs among adolescent women, because women have less physical control over the acts of putting on and taking off condoms than do men. Among a group of predominantly African American HIV positive sexually active adolescent and young adult females, those with high self-efficacy to refuse sex without condoms reported fewer episodes of sex without condoms compared to those women who reported low self-efficacy to refuse (Boone et al., 2015). Self-efficacy to refuse sex also appears to be protective against some forms of sexual assault. In a primarily white non-Hispanic young adult sample, participants who reported higher sexual refusal self-efficacy, also reported fewer episodes of "consensual unwanted sex" (i.e., defined by the authors as sex that was not forced, but was also not desired) in comparison to those with low sexual refusal self-efficacy (Katz & Schneider, 2015).

In addition to refusal self-efficacy, condom use self-efficacy is also closely linked to sexual behaviors (Baele, Dusseldorp, & Maes, 2001; Crosby et al., 2013; Sieving et al., 1997; Wulfert, Safren, Brown, & Wan, 1999; Wulfert & Wan, 1993; Wulfert et al., 1996). For example, Crosby and colleagues (2013) found that African American sexually active adolescent and young adult women with higher levels of self-efficacy to negotiate condom use with partners were 1.9 times more likely to report consistent condom use than women with lower levels of self-efficacy. A study of predominantly white adolescents found that female adolescents with the highest level of condom use self-efficacy at baseline reported the lowest level of STI risk behaviors (e.g., condom use inconsistency) one year later (Sieving et al., 1997).

These studies demonstrate that sexual self-efficacy is associated with corresponding sexual behaviors. However, there is limited research on the development of sexual self-efficacy and in particular, the role of interpersonal relationships on the development of sexual self-efficacy. Parents and families are one primary source of influence; they have the earliest, most frequent, and longest socializing influence on an individual's development, and play a crucial role in shaping adolescents' general self-efficacy (Bandura, 2006; Schunk & Meece 2006; Schunk & Miller, 2002) and participation in sexual behaviors (Krauss & Miller, 2011).

Family Influence on Adolescent Sexual Behaviors and Sexual Self-Efficacy

Bronfenbrenner's Human Ecological Theory describes the significant role of context in shaping individual development. The most proximal influential factors on human development are identified as those in which the individual is situated (Bronfenbrenner, 1986, 1994). Over a period of time, through intimate interactions with parents and other family members, the individual develops a sense of self. During adolescence, parents and other family members support self-efficacy development by providing an atmosphere of developmentally appropriate challenges along with ample encouragement (Schunk & Meece, 2006; Schunk & Miller, 2002). This type of atmosphere provides adolescents opportunities to both experience success and troubleshoot challenges with family members.

Family influence on adolescent sexual behaviors. When adolescents report feeling connected to parents and other family members, they also report delayed sexual debut (Resnick et al., 1997; Sieving, McNeely, & Blum, 2000) and higher rates of

condom and contraception use (Deptula, Henry, & Schoeny, 2010; Markham et al., 2003). Feelings of connection are often assessed in terms of the extent to which adolescents perceive warmth, love, and care from parents and family members (Markham et al., 2003; Resnick et al., 1997; Resnick, Harris, & Blum, 1993). Having warm relationships with family members may facilitate conversations about sensitive topics such as sex, which may in turn motivate adolescents to adhere to the values, beliefs, and expectations of their families. In support of this idea, Kao and Manczak (2013) reported a positive association between family connectedness at baseline (e.g., how close do you feel with your mother/father, how much do you feel your mother/father cares about you, how satisfied are you with your relationships with parents/family) and both condom use and hormonal contraceptive use six years later. It is possible that when adolescents feel loved and valued by their parents and family members, they may respect and adopt their family's beliefs, which likely include the beliefs that young people should refrain from sex or prevent pregnancy and STIs if they choose to become sexually active. It is also possible that a greater sense of connection may encourage adolescents to seek out parental support during periods of doubt or failure in performing a healthy sexual behavior.

In comparison to family connectedness, which may indirectly promote sexual health through an adolescent's receptivity to family beliefs, adolescents' sexual communication with family members may directly promote sexual health. Parent-adolescent sexual communication (e.g., discussions about condom use, pregnancy, and STIs) is associated with delayed sexual initiation (Aspy et al., 2007; McNeely et al.,

2002), use of condoms (for a meta-analysis, see Widman, Choukas-Bradley, Noar, Nesi, & Garrett, 2016), refusal of unwanted sex (Sionéan et al., 2002) and refusal of sex without condoms (Hutchinson, Jemmott, Jemmott, Braverman, & Fong, 2003; Hutchinson & Montgomery, 2007; Rich, Robertson, & Wilson, 2014). For example, Hutchinson and colleagues (2003) found that higher levels of mother-daughter sexual risk communication at baseline was associated with fewer episodes of sex without a condom three-months later among African American adolescent women. Among these women, parental explicit endorsement of condom use and other contraception may have established a norm for these behaviors. In addition, parental contraceptive communication can serve as a model of communication behaviors that adolescents in turn can use with sexual partners. Adolescents may learn language and negotiating skills through sexual communication with parents and other family members, and also come away with the understanding that explicit sexual communication is common and not taboo.

While family influences on adolescent sexual behaviors are clearly important, they account for modest amounts of the variance in adolescent condom use (Widman et al., 2016). For this reason, researchers have called for an examination of the influence of family and parenting factors on proximal determinants of behavior (Widman et al., 2016), such as self-efficacy (Bandura, 1977, 1990, 1997; Schwarzer & Luszczynska, 2006). Consistent with Widman and colleagues' (2016) recommendation, examining sexual self-efficacy as an outcome of parenting will begin to fill the gap in understanding the relationship between parenting and adolescent sexual behaviors.

Family influence on adolescent sexual self-efficacy. Parents and other family members may contribute to the development of adolescent sexual self-efficacy by providing encouragement of acceptable sexual behaviors and discouragement of undesirable ones (e.g., lack of condom use). This might happen as families communicate sexual health information, family expectations in relation to sexual behaviors, and solutions to unexpected sexual outcomes (e.g., acquiring STIs; Bandura, 1990; Gosselin & Maddux, 2003; Schunk & Meece, 2006). Sexual communication with family members might provide an opportunity for adolescents to clarify sexual misinformation, reflect on the types of sexual behaviors they are ready to engage in, and learn where to obtain contraception and sexual health services.

Six studies have examined the relationships between family/parent factors and sexual self-efficacy among adolescents (Hutchinson et al., 2003; Kao & Manczak, 2013; Mahat, Scoloveno, & Scoloveno, 2016; Ritchwood, Penn, Peasant, Albritton, & Corbie-Smith, 2017; Somers & Ali, 2011; Van Campen & Romero, 2012). Of those, five studies examined the relationships with a cross-sectional study design and one study with a longitudinal study design. The family/parent factors included maternal sexual communication, parental sexual communication, family connectedness, family involvement, and parental monitoring of adolescents' activities. The results of the six studies are mixed. Van Campen and Romero (2012) did not find an association between family involvement (i.e., monitoring, closeness, communication about substance use and risky sex) and sexual self-efficacy (i.e., ability to refuse sexual intimacy, refuse unprotected sex, and communicate about sexual topics with one's partner) among

Mexican American adolescents. Similarly, Mahat and colleagues (2016) did not find an association between parental monitoring and sexual self-efficacy among an ethnically diverse adolescent sample (e.g., "how sure are you about talking to partners about sex").

Two studies reported a positive relationship between family/parent factors and sexual self-efficacy. In a study of ethnic minority adolescent females and their mothers, Hutchinson and colleagues (2003) found a positive association between mother-daughter sexual risk communication (e.g., hormonal contraception, condoms, and STIs) and daughters' condom use self-efficacy. A study of African American early adolescents indicated that adolescents who were open to engaging in sexual conversations with parents and those who engaged in actual sexual conversations with their parents reported higher condom use self-efficacy than those who were not open to conversations and did not engage in conversations, respectively (Ritchwood et al., 2017).

One study reported both a positive and negative association between family/parent factors and sexual self-efficacy (Somers & Ali, 2011). Among ethnic minority adolescents, family support and maternal approval of sex before marriage were associated with greater levels of sexual self-efficacy (e.g., refusing unwanted sex). In contrast, maternal and paternal approval of sex in high school were associated with lower levels of sexual self-efficacy. This contrast may speak to a difference in those families who approve of premarital sex among young adults versus those who approve of sex among high school adolescents. Those who approve of premarital sex might emphasize greater academic achievement than those who approve of sex in high school with the former group instilling greater confidence in youth to refuse unwanted sex. The only

longitudinal study, conducted with a large nationally representative sample of adolescents, revealed that family connectedness (e.g., feelings of closeness to each parent, satisfaction with relationship to parents/family) and mother-adolescent sexual communication (e.g., discussions about sex, pregnancy) were associated with greater sexual self-efficacy one year later (i.e., confidence in one's ability to pause sexual behavior to use condoms, plan on using hormonal contraception and condoms, and resist sexual intercourse in the absence of condoms; Kao & Manczak, 2012). Taken together, these six studies support the idea that particular family factors such as, connectedness, support, and sexual communication, are predictive of sexual self-efficacy, whereas family involvement and parental monitoring are not predictive of sexual self-efficacy and may influence adolescent sexual behaviors through other mechanisms.

Of note, the reviewed studies predominantly used general sexual self-efficacy measures (e.g., a composite of confidence in one's ability to refuse sex, refuse sex without condoms, and negotiate condom use) and general sexual communication measures (e.g., parental communication about timing of sex, STIs, AIDS, condoms, pregnancy, hormonal contraception). Having a domain specific sexual self-efficacy measure (e.g., refuse sex without condoms) would provide more precision and accuracy to testing the relationship between predictors and self-efficacy outcomes, as an individual might feel efficacious in one sexual domain (e.g., refusing sex without condoms) but not in another related, but distinct domain (e.g., using condoms; Bandura, 2006). Studies utilized predominantly cross-sectional designs to examine the relationship between family/parent factors and sexual self-efficacy. In addition, few studies included family

members other than parents, neglecting other sources of sexual communication and family relationship quality that adolescents experience. Adolescents in diverse family contexts might engage in sexual communication with older siblings and cousins, aunts and uncles, grandparents, and other parental figures. Researchers have shown that extended family members can and do play a significant role in providing sexuality related information to adolescents (Cornelius, LeGrand & Jemmott, 2008; Grossman, Richer, Charmaraman, Ceder, & Erkut, 2018; Wisnieski, Sieving, & Garwick, 2015). Expanding the assessment of parental influence to family influence would capture the natural experience of adolescents growing up in unique family configurations. Furthermore, none of the studies on family/parent factors and sexual self-efficacy have focused on refusal of sex without condoms. For sexually active adolescent females using hormonal contraceptives, being able to refuse sex without condoms or negotiate condom use may be especially challenging because requests for condom use may be interpreted as distrust of one's sexual partner (Wingood, Hunter-Gamble, & DiClemente, 1993; Woodsong & Koo, 1999).

The current study examined the relationships of family connectedness and contraception communication to both self-efficacy to refuse sex without condoms and use condoms, over time, among a sample of sexually active adolescent women aged 14-18 years. In the current study, the relationship between family factors at Time 1 and sexual self-efficacy across a 6-month period was examined. It was hypothesized that family connectedness and family contraception communication at Time 1 would predict higher

levels of and increases in self-efficacy to refuse sex without condoms and self-efficacy to use condoms over 6 months (see Figure 1).

Method

Sample

The present study is a secondary analysis of data collected from 128 sexually active adolescent females who participated in a pilot study of *Teens TalkHealth,* an interactive online intervention focused on promoting condom use and healthy romantic relationships among adolescents (Brady et al., 2015). Five community clinics and 17 schools in Minnesota were approached as potential recruitment partners. Three community clinics and three schools served as recruitment partners between January and October 2011. Clinic staff distributed and collected recruitment flyers from all adolescents aged 14 to 18 years seeking services. At two school sites, research staff gave presentations about healthy relationships or sexual health during classes, briefly described the study, and distributed flyers immediately afterwards. The third school site distributed flyers to age-eligible students through email. Flyers contained a brief description of the study, including the potential to earn up to US $140 across a 6-month period. Adolescents were asked to fill out non-identifying demographic information on flyers (age, sex, race/ethnicity). Those who were interested in the study were asked to add contact information.

A total of 1226 flyers were collected across the 10-month recruitment period. Of those, 682 adolescents indicated interest in participating in the study; 438 of the 682

adolescents were fully screened by telephone and 313 were determined to be eligible (see Figure 2). Participant inclusion criteria were: (1) aged between 14-18 years, (2) having engaged in vaginal or anal sex at least once in the past three months, and (3) typically used the Internet at least twice a week for at least two hours. Exclusion criteria were (1) having graduated from high school prior to spring 2011, and (2) being pregnant at the time of screening. Adolescents between 14-17 years were informed that parental consent was required for their participation. Study staff offered to speak directly with parents and guardians or to send a letter of introduction if the adolescent desired. *Teens TalkHealth* was described as a program focused on promoting "healthy decision making about relationships and sexual health." Adolescents who continued to show interest (n=194) were invited for an enrollment meeting. Parents were required to attend for adolescents under the age of 18 years. Thirty-seven adolescents were not enrolled due to missed appointments, cancellations, and/or a decision not to participate.

Enrollment meetings were held in public places with 157 adolescents. Staff described the study in detail and answered questions, obtained assent and/or consent, and requested privacy (if parents attended) for adolescents to create a nonidentifying username and password. Parental consent and participant assent was obtained for adolescents 14 to 17 years; consent was obtained for adolescents aged 18. Following the enrollment meeting, research staff only interacted with adolescents via the *Teens TalkHealth* website and private channels of communication (e.g., cell phone, email, letter).

The study consisted of three phases, a pre-intervention phase (i.e. time between enrollment and the start of the next month), a 4-month intervention phase, and a 2-month follow-up. All study participants were asked to complete a baseline (Time 1) survey and six additional private monthly surveys online (Time 2-Time 7). The University of Minnesota Institutional Review Board approved all study procedures.

The present study is a secondary analysis of data collected from monthly surveys and does not focus on intervention processes or outcomes. Study condition (intervention versus no-intervention control) is included as a covariate in analyses and is not discussed further.

Participants

After enrollment, 147 participants (90% female) completed the baseline (Time 1) survey. Because young women experience greater challenges than men with unplanned pregnancies and STIs, the current study is limited to a subsample of sexually active adolescent females (n=128), who reported being sexually attracted to only males (80.5%) or both males and females (19.5%). The percentage of the subsample who completed each survey administration was as follows: Time 1, 100%; Time 2, 89.8%; Time 3, 83.6%; Time 4, 83.6%; Time 5, 77.3%; Time 6, 78.9%; Time 7, 79.7% (see Figure 2 for analytic sample size at each time point).

Participants were between the ages of 14 and 18 years at baseline (*Mean* = 16.95 years; see Table 1). Most participants (62.5%) identified as White/Caucasian, 18.0% identified as more than one race/ethnicity, 10.2% identified as Black/African American,

6.3% identified as Asian/Asian American/Pacific Islander, 2.3% identified as Hispanic, and 0.8% identified as Native American/American Indian. Of the 128 participants, 60.2% were randomly assigned to the intervention and 39.8% to the control group.

Measures

Family connectedness was assessed at Time 1 with seven questions adapted from a questionnaire originally designed to understand reasons for living among adolescents who were experiencing emotional difficulties and at risk for suicide (Osman et al., 1998). Statements were adjusted by removing reference to suicide. The Likert scale range was also reduced from 6 points to 5 points. These questions were judged to assess the type of connectedness that promotes healthy development among adolescents. Sample items include "My family cares a lot about what happens to me" and "I feel emotionally close to my family." Participants were asked to rate each statement on a five-point Likert scale (from 1 = "Not at all" to 5 = "Very much"). The responses for items were averaged to create a family connectedness composite score (see Table 2; $\alpha = .93$).

Family-adolescent contraception communication was assessed at Time 1 with one question, "In the last 3 months, how often have you and someone in your family talked about reasons to use condoms or birth control if you have sex?" (see Table 2). Participants were asked to rate each statement on a four-point Likert scale (from 1 = "Not at all" to 4 = "A lot").

Self-efficacy to refuse sex without condoms was assessed at Times 1, 3, 5, 6, and 7 with seven questions (Cecil & Pinkerton, 1998). Two questions measuring

confidence in one's ability to refuse sex without condoms under the influence of drugs and alcohol were removed from the original scale because these items were deemed conceptually distinct from the other seven items. The seven included items began with the introduction, "Imagine yourself wanting to use condoms in the following situations. Some of these might be hypothetical or pretend. How sure are you that you would be able to say "no" to having sex without using a condom," and included the following contexts: (1) With someone you have known for a short time, (2) With someone you have known for a long time, (3) With someone you are casual about, (4) With someone you are serious about, (5) With someone you want to fall in love with you, (6) With someone you already had sex with, but didn't use a condom, and (7) With someone who is pressuring you to have sex. These 7 items emphasize interpersonal barriers to self-efficacy, as opposed to substance-induced barriers. Participants responded to each item using a five-point Likert scale (from 1 = "Not at all sure" to 5 = "Very sure"). Responses at each time point were averaged to form composites (see Table 2; Range α = .80 to .88).

Self-efficacy to use condoms was assessed at Times 1, 2, 3, 4, 5, 6, and 7 with one question, "I could stop to use a condom even if we were getting really 'turned on'." Participants responded to this item using a four-point Likert scale (from 1 = "Strongly disagree" to 4 = "Strongly agree"). At each time point, participants responded separately for up to three partners with whom the participant had sex during the previous month. The focus of this study was on participants' most recent sexual partner at each time point, as experiences with this partner may have been most salient to the participant as they completed the survey (see Table 2).

Covariates of age, race/ethnicity, hormonal/IUD contraception use, and study condition were adjusted for in the main analyses. Covariates were identified based on previous literature. Research suggests that sexual activity increases with adolescent age (Carver, Joyner, & Udry, 2003) making it a variable that can confound the relationship between the predictor and outcome variables of interest. Therefore, age was controlled for in the analyses. Similarly, race and ethnicity may be a proxy for social and cultural factors that impact family processes and self-efficacy to engage in health protective behaviors. Youth of color are at greater risk for teen pregnancy and STIs in comparison to their white, non-Hispanic peers (Newman & Berman, 2008; Vidourek & King, 2018) therefore the analyses controlled for race/ethnicity. Due to the relatively small sub-samples of ethnic minority groups, race/ethnicity was included as a dichotomous variable to indicate White/Caucasian race. A value of 0 was assigned for participants of color and Hispanics and 1 for those who solely identified as White/Caucasian. Hormonal/IUD contraception was included because it has been shown to impact consistency of condom use and may similarly impact other sexuality-related outcomes (Ott, Adler, Millstein, Tschann, & Ellen 2002; Sayegh, Fortenberry, Shew, & Orr, 2006; Woods et al., 2006). For use of hormonal/IUD contraception within the month preceding an assessment, a value of 0 was assigned for non-use and a value of 1 was assigned for use. As the study intervention focused on promoting condom use, it is reasonable to anticipate that the treatment conditions would influence the related self-efficacy outcomes over time. For study condition, a value of 0 was assigned to the control group and a value of 1 was assigned to the intervention group.

Data analytic plan

To test the relationship of family factors with categories of adolescent sexual self-efficacy, the following analyses were conducted using SPSS 23 software. First, frequencies and descriptive statistics for all variables were examined. Second, correlations were examined to understand bivariate relationships between predictors of interest and self-efficacy outcomes, as well as to assess for multicollinearity among predictor variables. Third, trajectories of individual sexual self-efficacy (i.e., self-efficacy to refuse sex without condoms and self-efficacy to use condoms) were plotted and visually examined to categorize individuals in groups. Median split was used to establish low versus high sexual self-efficacy categories with those with an overall mean at or above the median being placed in the high category and those below in the low category. An increase/decrease or fluctuation was established with changes of 1 SD over all time points. The standard deviation from Time 1 was used to assess change. Constant low remained below 1 SD from median and constant high above 1 SD above median over all time points. Finally, once categories were established, multinomial logistic regression analyses were conducted to examine the influential role of both family connectedness and contraception communication on sexual self-efficacy category membership while controlling for covariates (i.e., age, race/ethnicity, hormonal/IUD contraception use, and study condition).

Multinomial logistic regression can be used to study dependent variables that are polychotomous where the categories are discrete, nominal, and unordered. In the present study, the two dependent variables were both the categories of self-efficacy to refuse sex

without condoms and self-efficacy to use condoms. A reference category was established to contrast all other categories. Multinomial logistic regression uses maximum likelihood estimators (MLE), an extension of the simple logit model for dichotomous dependent variables to estimate coefficients for the independent variables.

There were no missing data for the two family factors, the key predictor variables in all analyses. For the outcome variable, self-efficacy to refuse sex without condoms, missing data ranged from 0% to 22% across six months, reflecting the fact that some participants did not complete all of the surveys after baseline. For the outcome variable, self-efficacy to use condoms, missing data ranged from 11% to 48% across six months. This reflects the fact that some participants did not report sexual partners each month, as well as a failure to complete all surveys after baseline. Self-efficacy to use condoms was assessed only when participants reported at least one sexual partner in the past month. For both outcomes, a minimum of three time points were required to establish trajectories. Participants with less than three time points of available data were excluded from the study. For self-efficacy to refuse sex without condoms, those with a single time point of data (n=12) and two time points (n=8) were excluded. For self-efficacy to use condoms those with a single time point (n=11) and two time points (n=14) were excluded.

Results

Distributions of demographic variables are presented in Table 1. Means and standard deviations of study variables are presented, as well as values corresponding to the minimum, 25th percentile, median, 75th percentile, and maximum (see Table 2). The

mean for self-efficacy to refuse sex without condoms ranged from 3.79 to 4.22 over six months. The mean for self-efficacy to use condoms ranged from 3.10 to 3.25 over six months. Correlations of family variables with both self-efficacy to refuse sex without condoms and self-efficacy to use condoms are presented in Table 3 and Table 4, respectively.

Five categories for self-efficacy to refuse sex without condoms emerged (see Table 2). The largest category (n=33) was constant high. These participants reported having a high level of self-efficacy over time. High was determined to be above the median, with fluctuations of less than 1 SD. The second largest category (n=27) was increasing self-efficacy. A substantial increase was identified as an increase of at least 1 SD over all time points. The third largest category (n=18) was constant low self-efficacy. Low was determined to be an overall mean below the median, with fluctuations of less than 1 SD over all time points. The fourth largest category (n=16) was fluctuating high. These participants reported having self-efficacy that fluctuated over all time points with an overall mean above the median. Fluctuations were determined substantial if they were at least 1 SD. The smallest category (n=14) was fluctuating low. These participants reported having self-efficacy that fluctuated over all time points with an overall mean below the median. Fluctuations were determined substantial if they were at least 1 SD.

Similarly, five categories of self-efficacy to use condoms emerged (see Table 2). The largest category (n=28) was fluctuating high. These participants reported having self-efficacy that fluctuated over a period of time with an overall mean above the median. Fluctuations were determined substantial if they were at least 1 SD. The second largest

category (n=27) was fluctuating low. These participants reported having self-efficacy that fluctuated with an overall mean below the median. Fluctuations were determined substantial if they were at least 1 SD. The third largest group (n=18) was increasing. These participants reported having an increasing level of self-efficacy over all time points. A substantial increase was identified as an increase of at least 1 SD. The fourth largest category (n=16) was constant high. These participants reported having a high level of self-efficacy over time. High was determined to be an overall mean above the median, with fluctuations of less than 1 SD. The smallest category (n=11) was decreasing over time. These participants reported decreasing self-efficacy over time. A substantial decrease was identified as a decrease of at least 1 SD.

Controlling for covariates, the multinomial logistic regression for self-efficacy to refuse sex without condoms indicated that the full model was not significant $\chi^2 = 18.32$, p = .787; overall the predictors together did not explain a significant amount of the variance in the outcome. However, family connection was independently associated with the outcome variable. Family connection predicted 2.31 greater odds of being in the constant high self-efficacy category compared to the constant low self-efficacy category (see Table 5). The category of constant low self-efficacy was used as the reference group as it represented participants with the weakest confidence and possibly most vulnerable to engaging in risky sexual behaviors. For self-efficacy to use condoms, the multinomial logistic regression indicated that the full model was not significant $\chi^2 = 25.96$, p = .355. However, family contraception communication predicted 2.26 greater odds of being in the fluctuating high self-efficacy category compared to the fluctuating low category (see

Table 6). The fluctuating low category was selected as the reference group because they were assessed to be the most vulnerable to engaging in risky sexual behaviors. The fluctuating low category was selected over the decreasing group because the decreasing group was deemed statistically too small. There were no other significant findings.

Discussion

The current study examined the effects of both family connectedness and contraception communication on adolescent women's self-efficacy to refuse sex without condoms and self-efficacy to use condoms over time. Sexual self-efficacy is closely linked to sexual behaviors (Boone, Cherenack, & Wilson, 2015; Katz & Schneider, 2015; Wulfert & Wan, 1993; Wulfert, Wan, & Backus, 1996), making it an important factor in better understanding sexual behaviors among adolescents. Although self-efficacy develops most strongly by practice of a behavior (Bandura, 1977), adolescent self-efficacy can be influenced by significant relationships such as family (Gosselin & Maddux, 2003; Schunk & Meece, 2006).

On average, the current sample of sexually active adolescent women reported relatively high levels of sexual self-efficacy over time. On a scale of 1 to 5, the average self-efficacy to refuse sex without condoms ranged from 3.79 to 4.22 over a period of six months. On a scale of 1 to 4, the average self-efficacy to use condoms ranged from 3.10 to 3.25 over a period of six months.

To better understand within group differences over time, trajectories of sexual self-efficacy were used to create five categories for each self-efficacy variable. For self-

efficacy to refuse sex without condoms, the largest category was made up of adolescent women who reported constantly high levels of confidence over time. These women reported feeling very confident in their ability to refuse sex without condoms over a six-month period. The largest category for self-efficacy to use condoms was made up of those adolescent women who reported high, fluctuating confidence. Although their confidence fluctuated, on average these women reported high confidence in pausing sexual intimacy to use condoms. These results are encouraging and indicate that a large proportion of the sexually active women in the study were highly confident in their ability to engage in low-risk sexual behaviors.

Women in the constant high category of self-efficacy to refuse sex without condoms reported twice as much family connectedness as those in the constant low category. Family connectedness, feeling loved and wanted by family, relates to a sense of belonging and is associated with less risky behaviors among adolescents (Dornbusch, Erickson, Laired, & Wong 2001; Markham et al., 2003; Resnick et al., 1997). For adolescents, having a high connection to family provides a secure base from which to explore new areas of interest such as romantic relationships. Adolescents can return to this secure base for comfort and guidance when and if they experience stress and ambiguity in those romantic relationships. Consistent with the present study's finding, researchers Kao and Manczak (2012) found that family connectedness at baseline was predictive of self-efficacy for safe sex (i.e., interrupt sex for birth control, plan to use birth control, and resist sex in absence of birth control) one year after baseline assessment of family connectedness, among a nationally representative sample of adolescents.

There was not a significant relationship between family contraception communication and self-efficacy to refuse sex without condoms. A previous study by Kao and Manczak (2012) did find a positive relationship between mother-adolescent sexual communications and adolescents' self-efficacy for safe sex, but because their measure of self-efficacy contained both refusal of sex without contraceptives and use of contraceptives, a differentiation between refusal and use cannot be made. Literature on parent-adolescent sexual communication indicates that it is the quality and frequency of communication that influences adolescent sexual behaviors (Dutra, Miller, & Forehand, 1999; Whitaker, Miller, May, & Levin, 1999). Perhaps the lack of a significant finding points to a weakness in the measurement of family contraception communication, which was limited to one item that assessed frequency, and not quality of communication. High quality communication is described as open, friendly, and free of judgment (Dutra, Miller, & Forehand, 1999; Whitaker, Miller, May, & Levin, 1999) which may be as important as frequency of communication as the former assesses the quality of sexual conversations between family and adolescents whereas as the latter may be limited to assessing number of communications.

In the present study, talking to family about contraception was predictive of a greater likelihood of being in the fluctuating high category of self-efficacy in using condoms than in the fluctuating low category. This finding extends previous research that reported a positive association between family-adolescent sexual communication and self-efficacy to use condoms (Hutchinson et al., 2003; Ritchwood et al., 2017). Communicating with family about contraception might provide language that can be used

in the event that a romantic partner declines the use of condoms. Communication with family might also provide opportunities to practice negotiating condom use, thus building confidence in engaging a romantic partner in similar conversations.

Although we know sexual communication leads to greater self-efficacy it may also be important to understand the context of these communication. It is feasible that when family members learn that their adolescent is sexually active, they might increase communication about sexual risks (e.g., STIs, unplanned pregnancies) thus promoting condom use confidence. Previous research on adolescent sexual behavior indicates that parents generally initiate or increase sexual communication when they perceive their adolescent is in need of it (e.g., in a romantic relationship, peers having sex; Eisenberg, Sieving, Bearinger, Swain, & Resnick, 2006; Fox & Inazu 1980; Miller & Whitaker, 2001). In addition to increased communication about condoms and STIs, when family members perceive the adolescent is sexually active, they may be more direct and inform the adolescent on how and where to procure condoms (Eisenberg et al., 2006). These conversations may further bolster adolescent women's sexual self-efficacy.

Finally, it may be possible that having discussions about contraceptives and sexual risks also leads to discussions about the adolescents' future endeavors. Family members might take the opportunity to remind their adolescent about their future goals (e.g., education, job, financial independence) and how STIs and unplanned pregnancies might derail those ambitions (see process review Flores & Barroso, 2017). Sexual health conversations, enhanced with discussions about future ambitions, may also strengthen

adolescent women's self-efficacy to use condoms. This would further build the case for assessing quality of sexual health conversations along with frequency.

Most research on condom use indicates that this health protective behavior wanes as monogamy is established by the couple (Bauman & Berman, 2005; Bolton, Mckay, & Schneider, 2010; Matson, Adler, Milstein, Tschann, & Ellen 2011). This is particularly true for adolescent women who are using hormonal contraception to manage pregnancy. However, studies indicate that sexual activity is often initiated prior to the establishment of monogamy (Garcia & Reiber, 2008) or testing for STIs (Glauser, 2011).

It is notable that for a significant proportion of the women in this study, sexual self-efficacy changed substantially month to month. In addition, a significant minority of adolescent women had low or decreasing sexual self-efficacy. This was particularly true for self-efficacy to use condoms. These findings may indicate that 1) sexually active adolescent women are not a homogeneous group and differ significantly in their level of sexual self-efficacy, and 2) self-efficacy to use condoms may be dependent on partner factors, and not just family factors, especially given that condom use requires cooperation of a partner. Building self-efficacy of an individual alone might be limited in its effectiveness to influence a behavior if it requires the cooperation of a partner.

Limitations and Future Directions

There are several limitations to the current study that need to be mentioned. First, the sample size was relatively small. Due to this limitation, it is possible that the full range of categories could not be detected. Those categories that did emerge were small

and there may have been insufficient power to detect associations between family factors and the self-efficacy trajectories. Future studies would benefit from a larger sample size with greater ethnic diversity. Second, although there is not a clear cut-off between mid and late adolescence, the age range of the sample was relatively broad (i.e., 14 to 18 years), blurring the transition between mid and late adolescence. Considering that the average age of sexual initiation among adolescent women in the US is 17 years (Finer & Philbin, 2014), it may be possible that the impact of family relationships on sexual self-efficacy among sexually active 14 and 15 year olds is significantly different from relationships among 17 and 18 year old women. A larger sample would have allowed for examining differences between mid and late adolescents. Third, the sample was recruited from schools and clinics and required parental consent, which may have limited participation by a more diverse group of adolescents, including those who had relatively poor-quality relationships with family members. In addition, women who are receiving sexual health services from clinics may be a different subgroup of adolescent from those who are not receiving such services. Most of the current sample of adolescents was classified into the higher self-efficacy categories; this may have been a function of the fact that many women were receiving sexual health information – and potentially skills-building counseling – from health clinics. Fourth, a single item was used to measure family contraception communication and self-efficacy to use condoms, and the item for communication assessed frequency of communication. Literature on parent-adolescent sexual communication indicates that both quality and frequency of communication is related to sexual behaviors among adolescents (Dutra, Miller, & Forehand, 1999; Whitaker, Miller, May, & Levin, 1999). Future research will benefit from having more

comprehensive measurement of family contraception communication and self-efficacy to use condoms. Finally, examining sexual self-efficacy over a longer period would allow greater clarity in how the construct develops and is influenced by family factors over time.

Conclusion

The findings of the current study indicate that family connectedness and family contraception communication play a significant role in the sexual self-efficacy of adolescent women. Intuitively it makes sense that when adolescent women feel wanted and loved by their families, they express greater confidence in practicing healthy sexual behaviors. Families can be encouraged to build greater connection through a variety of processes such as time spent together in shared activity. In addition, family members should be encouraged to engage in frequent contraception conversations, free of judgement, to support adolescent women's developing sexual self-efficacy. Further families can potentially enhance their contraception communication with adolescents by discussing topics of academic and personal ambitions. These discussions would allow families to support healthy sexual behaviors and discourage unhealthy ones thereby building sexual self-efficacy of adolescent women. Sexual educators and primary care providers can use the study findings to inform their work with adolescent women and their families. Sexual educators and primary care providers need to be aware that adolescent women exist in the context of their families whose support can be harnessed to influence women's sexual self-efficacy. In contrast, adolescent women who experience low levels of family connection may be more vulnerable and experience less confidence

in sexual relationships than peers with high levels of family connection. These vulnerable women may need additional support to buffer the lack of family connection and contraception communication.

Study 2: Beliefs that Condoms Interfere with Pleasure in Relation to Her Self-Efficacy to Refuse Sex without Condoms and Use Condoms

Adolescent risky sexual beliefs and behaviors continue to be a public health concern in the United States. Although the US has seen a steady decline in adolescent pregnancies since its peak in the early 1990's (Boonstra, 2014), the US still has the highest adolescent pregnancy rate among 21 countries where reliable data are available (Sedgh et al., 2015). Seventy-five percent of pregnancies among 15-19 year olds in the US are unplanned (Finer & Zolna, 2016). In addition, adolescents bear a significant burden of STIs and begin to acquire them soon after sexual initiation (Forhan et al., 2009; Satterwhite et al., 2013). Among sexually active adolescents in the United States, 46% reported not using a condom during their last sexual experience (CDC, 2018). Condoms are important because they are the only contraception, when used properly, that provide protection against both pregnancy and STIs (for a review, see Holmes, Levine, & Weaver, 2004).

Sexually active adolescent women are particularly at risk, compared to their male counterparts, because they are more vulnerable to the challenges associated with unplanned pregnancies and STIs. Adolescent mothers bear a disproportionate burden of the caregiving demands after an unplanned pregnancy than adolescent fathers (e.g., females carry the pregnancy; social norms dictate that females care for infants; adolescent

fathers' support may be insufficient). A second challenge involves socioeconomic outcomes. Adolescent parenthood is associated with poor educational attainment and higher rates of poverty for mothers and their children (see review, Klein, 2005). A third challenge involves biologically-based risks, since women's sexual anatomy makes them more vulnerable to acquiring STIs than their male counterparts. Compared to the relatively thick skin of the penis, the vagina is covered by a thin, delicate mucous membrane that more easily allows viruses and bacteria to pass through and cause infections (CDC, 2011). Symptoms of an STI may not be as visually apparent for women as for men, which may lead to a delay in identification and treatment. In women, an untreated STI can lead to pelvic inflammatory disease, which can result in infertility and ectopic pregnancy. Further, STIs can pass from the mother to child during pregnancy and delivery, posing a number of serious health risks to the child (CDC, 2011).

Sexually active adolescent women face both intrapersonal and interpersonal challenges in using condoms and refusing sex without condoms (Higgins & Wang, 2015; for a systematic review see, Marston & King, 2006). It is important to understand those challenges in order to strengthen adolescent women's confidence in using condoms and refusing sex without condoms. Self-efficacy is a measure that attends to a key intrapersonal challenge, an individual's confidence in performing a particular behavior. A component of Social Cognitive Theory, self-efficacy is defined as an individual's belief in his or her ability to perform a behavior (Bandura, 1977, 1997).

Sexual Self-Efficacy

Bandura (1990, 1992, 1994, 2004) clearly identified the importance of self-efficacy in negotiating a variety of behaviors, including sexual behaviors. He proposed that weak self-efficacy would increase the likelihood of engaging in risky sexual behaviors because the individual would be unable to resist factors that promote risky sexual behaviors (e.g., partner reluctance to use condoms; Bandura, 1990). He posited that the link between knowledge of a behavior and performance of the behavior lies in an individual's belief that they have the ability to perform the desired behavior (Bandura, 1986). This makes studying sexual self-efficacy important, as it may be a developmental precursor to actual sexual behaviors. Sexual self-efficacy is a general concept that encompasses the confidence individuals perceive to have in sexual situations (Bowleg et al., 2000; Reissing et al., 2005; Rostosky et al., 2008; Seal et al., 1997; Sieving et al., 2012, 2013; Smith et al., 1996). Sexual self-efficacy includes behaviors such as refusal of sexual behaviors, initiation of sexual behaviors, refusal of sex without condoms, negotiation of condom use, use of condoms, sexual risk communication with partners, and negotiation of sexual pleasure.

A small but consistent body of research demonstrates that sexual self-efficacy is closely linked to sexual behaviors (Baele et al., 2001; Boone et al., 2015; Crosby et al., 2013; Katz & Schneider, 2015; Parsons, Halkitis, Bimbi, & Borkowski, 2000; Salazar et al., 2004; Sieving et al., 1997; Wulfert, Safren, Brown, & Wan, 1999; Wulfert & Wan, 1993; Wulfert et al., 1996). Crosby and colleagues (2013) found that among their sample of African American adolescent women, those high in self-efficacy for refusing sex

without condoms were significantly more likely to use condoms consistently than those who were low in self-efficacy. Self-efficacy to refuse sex also appears to be protective against some forms of sexual assault. In a primarily white non-Hispanic young adult sample, participants who reported higher sexual refusal self-efficacy also reported fewer episodes of "consensual unwanted sex" (i.e., sex that was not forced, but was also not desired) in comparison to those with low sexual refusal self-efficacy (Katz & Schneider, 2015). Self-efficacy to refuse sex without condoms is particularly relevant to the goals of preventing unplanned pregnancies and STIs among adolescent women because women have less physical control over the acts of putting on and taking off condoms than do men.

In addition to refusal self-efficacy, condom use self-efficacy is also closely linked to sexual behaviors (Baele et al., 2001; Crosby et al., 2013; Sieving et al., 1997; Wulfert et al., 1999; Wulfert & Wan, 1993; Wulfert et al., 1996). For example, Baele and colleagues (2001) found that among sexually experienced Flemish high school students, those with higher levels of condom use self-efficacy also reported more consistent condom use compared to those with lower condom use self-efficacy. Similarly, Crosby and colleagues (2013) found that African American sexually active adolescent and young adult women with higher levels of self-efficacy to negotiate condom use with partners were 1.9 times more likely to report consistent condom use than women with lower levels of self-efficacy.

Research has demonstrated that sexual self-efficacy is associated with corresponding sexual behaviors. However, there is limited research on the development

of sexual self-efficacy and the influential role of intimate partners on self-efficacy. Most sexual exploration takes place in dyadic relationships, making sexual partners a significant influence on individual sexual development (see systematic review, Marston & King, 2006).

Adolescence, Sexual Partnerships, and Sexual Self-efficacy

Adolescence is a period of rapid physical, cognitive, and emotional development on the path to adulthood (Arnett, 2016). It is during this developmental stage that individuals start to form meaningful relationships outside the family unit with peers and romantic partners (Furman & Shaffer, 2003). More specifically, with increasing age, adolescents become exceedingly more interested in establishing romantic and sexual partnerships (Halpern, 2003); these partnerships are associated with both positive (e.g., support seeking and giving, intimate disclosure) and negative (e.g., depression, anxiety) developmental outcomes (Collins, Welsh, & Furman, 2009; Furman & Shaffer, 2003).

Urie Bronfenbrenner's Human Ecological Theory describes the significant role of context in influencing individual development (Bronfenbrenner, 1979). Specifically, Bronfenbrenner proposed that individual behaviors evolve through interactions between the individual and their environment. The dyad, in this case the romantic partnership, is one of the most important environmental factors for individual development (Bronfenbrenner, 1979). During adolescence, as youth renegotiate relationships with parents and seek greater freedom, dyadic relationships with romantic partners become a significant influence on individual development (Furman & Shaffer, 2003). Specifically, adolescent self-efficacy can be influenced by their peers and romantic partners (Schunk

& Meece, 2006). Sionean and colleagues (2002) found that among their sample of African American adolescent females, those who reported high levels of safer sex self-efficacy and low levels of perceived partner related barriers (e.g., if I asked my partner to use a condom, he would think I was accusing him of cheating) were 2.5 times more likely to refuse unwanted sex compared to those who reported low levels of safer sex self-efficacy and high levels of perceived partner related barriers. However, little research has examined the influential role of sexual partners on the adolescent women's sexual self-efficacy.

Condoms, Sexual Pleasure, and Sexual Self-Efficacy

One of the reasons adolescents engage in sexual intimacy is for sexual pleasure (Bralock & Koniak-Griffin, 2009; Ott, Millstein, Ofner, & Halpern-Felsher, 2006). Factors that inhibit pleasure may be avoided or accepted unwillingly. Sexually active adolescents and young adults report that condoms interfere with sexual pleasure (Bralock & Koniak-Griffin, 2009; Brown et al., 2008; Fennell, 2014; Gilmore, Morrison, Lowery, & Baker, 1994; Higgins & Wang, 2015; Mullinax et al., 2017; Parsons et al., 2000; Randolph, Pinkerton, Bogart, Cecil, & Abramson, 2007). For example, Randolph and colleagues (2007) found that college students rated sex without condoms more pleasurable than with condoms. A qualitative study with African American adolescents and young adults found that women forgo using condoms to enhance both personal and partners' experience of pleasure (Bralock & Koniak-Griffin, 2009).

Perceptions that condoms interfere with pleasure are associated with inconsistent condom use (Bralock & Koniak-Griffin, 2009; Parsons et al., 2000; Randolph et al.,

2007) and condom non-use (Bralock & Koniak-Griffin, 2009; Brown et al., 2008; Randolph et al., 2007). Objections to condom use include a perceived lack of comfort, unpleasant smell, and absence of feeling (Fennell, 2014; Graham et al., 2006, Higgins, Tanner, & Janssen, 2009). For example, Brown and colleagues (2008) found that among a diverse sample of adolescent and young adults, those who reported high compared to low unpleasurable expectations with condom use had greater odds of not using a condom during their most recent sexual experience.

However, adolescents also report knowing that condoms protect against STIs (Bralock & Koniak-Griffin, 2009; Gilmore et al., 1994; Goodman & Cohall, 1989; Hingson et al., 1990; Parsons et al., 2000) and pregnancy (Bralock & Koniak-Griffin, 2009). Conflicting attitudes towards condom use, created from valuing both sexual pleasure and safety, may be one factor that hinders condom use. In addition, since women have to rely on willing partners to use condoms, their partners' beliefs may be of equal or greater importance to their own with respect to determining condom use behavior. It is reasonable to assume that women's and perceived partner beliefs that condoms interfere with pleasure would impact a woman's self-efficacy to use condoms. For example, adolescent women who both believe that condoms do not interfere with pleasure and that condoms protect against STIs and pregnancies may report high self-efficacy to use condoms and refuse sex without condoms. Her confidence would be reinforced by a partner who held similar beliefs. However, adolescent women who have conflicting beliefs (e.g., although condoms protect against STIs and pregnancy, they also interfere with pleasure) may experience low self-efficacy to engage in protective behaviors. When

paired with a partner who holds similar beliefs, women's confidence may be deflated further. In both scenarios, the association between woman's own pleasure beliefs and her self-efficacy to use condoms and refuse sex without condoms will be impacted by the beliefs of her partner.

As self-efficacy both precedes and is informed by behavior it is worthwhile to examine the influential role of intrapersonal factors (e.g., an adolescent woman's belief that condoms interfere with pleasure) and interpersonal factors (e.g., perceived partner belief that condoms interfere with pleasure) on adolescent women's sexual self-efficacy. The current study examined the relationship between the participant's own belief that condoms interfere with pleasure, her perception of partners' belief that condoms interfere with pleasure, and both self-efficacy to refuse sex without condoms and use condoms. It was hypothesized that the relationship between adolescent women's belief that condoms interfere with pleasure and their sexual self-efficacy would be moderated by women's *perception* of their partners belief that condoms interfere with pleasure. It was proposed that the negative association between women's belief that condoms interfere with pleasure and her sexual self-efficacy would be further strengthened by her *perception* of partners' belief that condoms interfere with pleasure (see Figure 3). Analyses were conducted using a cross-sectional sample of sexually active adolescent women aged 14-18 years.

Method

Sample

The present study is a secondary analysis of data collected from 128 sexually active adolescent women who participated in a pilot study of *Teens TalkHealth*, an interactive online intervention focused on promoting condom use and healthy romantic relationships among adolescents (Brady et al., 2015). Five community clinics and 17 schools in the Twin Cities region were approached as potential recruitment partners. Three community clinics and 3 schools served as recruitment partners between January and October 2011. Clinic staff were requested to distribute and collect recruitment flyers from all adolescents aged 14 to 18 years seeking services. At 2 school sites, research staff gave presentations about healthy relationships or sexual health during class, briefly described the study, and distributed and collected flyers immediately afterwards. The third school site distributed flyers to age-eligible students through email. Flyers contained a brief description of the study, including the potential to earn up to US $140 across a 6-month period. Adolescents were asked to fill out non-identifying demographic information on flyers (age, sex, race/ethnicity). Those who were interested in the study were asked to add contact information.

A total of 1226 flyers were collected across the period of recruitment. Of collected flyers, 682 indicated that an adolescent had interest in the study; 438 of the 682 adolescents were fully screened by telephone and 313 were determined to be eligible (see Figure 2). Participant inclusion criteria were: (1) aged between 14-18 years, (2) having engaged in oral or vaginal sex at least once in the past three months, and (3) typically

used the Internet at least twice a week for at least two hours. Exclusion criteria were (1) having graduated from high school prior to spring, 2011 and (2) being pregnant at the time of screening. Adolescents between 14-17 years were informed that parental consent was required for their participation. Study staff offered to speak directly with parents and guardians or to send a letter of introduction if the adolescent desired. *Teens TalkHealth* was described as a program focused on promoting "healthy decision making about relationships and sexual health." Adolescents who continued to show interest (n=194) were invited for an enrollment meeting. Parents were required to attend with adolescents who were below the age of 18 years. Thirty-seven adolescents were eventually not enrolled due to missed appointments, cancellations, and/or a decision not to participate.

Enrollment meetings were held in public places with 157 participants. Staff described the study in detail and answered questions, obtained assent and/or consent, and requested privacy (if parents attended) for adolescents to create a non-identifying username and password. Parental consent and participant assent was obtained for adolescents 14 to 17 years; consent was obtained for adolescents aged 18. Following the enrollment meeting, research staff only interacted with adolescents via the *Teens TalkHealth* website and private channels of communication (e.g., cell phone, email, letter).

The study consisted of three phases, a pre-intervention phase (i.e., time between enrollment and the start of the next moth), a 4-month intervention phase, and a 2-month follow-up. All study participants were asked to complete 7 private monthly surveys

online (Time 1-Time 7), including the baseline (Time 1) survey. The University of Minnesota Institutional Review Board approved all study procedures.

The present study did not focus on intervention processes or outcomes; analyses were limited to the baseline (Time 1) survey. Participants reported on self-efficacy to refuse sex without condoms, self-efficacy to use condoms, personal beliefs that condoms interfere with pleasure and *perceived* partner beliefs that condoms interfere with pleasure. Participants reported partner-specific variables for up to three sexual partners during the month preceding each survey. To protect the privacy of participants' sexual partners, they were asked to only provide the initials of their partners. Only Time 1 data are utilized for the present study because the limited identification of sexual partners (i.e., through initials) made it difficult to ascertain if the same partnerships continued over time, particularly if participants reported more than one partner during the study period. Data corresponding to the most recent sexual partner from Time 1 is utilized for the present study because this may be the most salient partner to the participant at the time of survey completion.

Participants

After enrollment, 147 participants (90% female) completed the baseline (Time 1) survey. Because young women experience greater challenges than men with unplanned pregnancies and STIs, the current study is limited to a subsample of sexually active adolescent females (n=128), who reported being sexually attracted to only males (80.5%) or both males and females (19.5%). Participants were between the ages of 14 and 18 years (*Mean* = 16.95 years). The sample was predominantly White or Caucasian (62.5%),

with the remaining participants identifying as more than one race or ethnicity (18.0%); Black or African American (10.2%); Asian, Asian American, or Pacific Islander (6.3%); Hispanic (2.3%); or Native American or American Indian (0.8%). Twenty-two participants reported having multiple partners at Time 1.

Measures

Participant belief that condoms interfere with pleasure was assessed with two items: (1) "It's sometimes hard to use condoms because I enjoy sex more without a condom," and (2) "It's sometimes hard to use condoms because sex is more exciting without a condom" (Shah, Thornton, & Burgess, 1997). Participants were asked to rate the questions on a five-point scale Likert scale (from 1 = "Strongly disagree" to 5 = "Strongly agree"). The two questions were summed to form a composite score of her belief that condoms interfere with pleasure (see Table 7).

Perceived partner belief that condoms interfere with pleasure was assessed with one item: "If you told (partner) that you wanted to use a condom the next time you have sex, how likely is it that he would say he would enjoy sex less with a condom?" Participants were asked to rate the statement on a five-point Likert scale (from 1 = "Not at all likely" to 5 = "Very likely" (see Table 7)).

Self-efficacy to refuse sex without condoms was assessed with seven questions (Cecil & Pinkerton, 1998). Two questions assessing confidence in one's ability to refuse sex without condoms under the influence of drugs and alcohol were removed from the original scale because these items were deemed conceptually distinct from the other

seven items and not relevant for the current study. The seven items began with the introduction, “Imagine yourself wanting to use condoms in the following situations. Some of these might be hypothetical or pretend. How sure are you that you would be able to say “no” to having sex without using a condom,” and included the following contexts: (1) With someone you have known for a short time, (2) With someone you have known for a long time, (3) With someone you are casual about, (4) With someone you are serious about, (5) With someone you want to fall in love with you, (6) With someone you already had sex with, but didn’t use a condom, and (7) With someone who is pressuring you to have sex. These 7 items emphasize interpersonal barriers to self-efficacy, as opposed to substance-induced barriers. Participants responded to each item using a five-point Likert scale (from 1 = “Not at all sure” to 5 = “Very sure”). Responses were averaged to form a composite (see Table 7; $\alpha = .83$).

Self-efficacy to use condoms was assessed with one item: “I could stop to use a condom even if we were getting really ‘turned on’.” Participants responded to this item using a four-point Likert scale (from 1 = “Strongly disagree” to 4 = “Strongly agree” (see Table 7)).

Covariates were adjusted for in the main analyses. Covariates included age, race/ethnicity, hormonal/IUD contraception, and multiple partners (see Table 1). Research suggests that sexual activity increases with adolescent age (Carver et al., 2003) making it a variable that can confound the relationship between the predictor and outcome variables of interest. Therefore, age was controlled for in the analyses. Similarly, race and ethnicity may be a proxy for social and cultural factors that impact

interpersonal processes and self-efficacy to engage in health protective behaviors. Youth of color are at greater risk for teen pregnancy and STIs in comparison to their white, non-Hispanic peers (Newman & Berman, 2008; Vidourek & King, 2018) therefor the analyses controlled for race/ethnicity. Due to the relatively small sub-samples of ethnic minority groups, race/ethnicity was included as a dichotomous covariate. A value of 0 was assigned for participants of color and 1 for those who solely identified as White/Caucasian. Research also indicates that hormonal/IUD contraception and having multiple partners impact consistency of condom use (Beadnell et al., 2005; Brady, Gruber, & Wolfson, 2016; Fortenberry, Tu, Harezlak, Katz, & Orr, 2002; Manning, Flanigan, Giordano, & Longmore, 2009; Ott, et al., 2002), and may similarly impact other sexuality-related outcomes. For use of hormonal/IUD contraception, a value of 0 was assigned for non-use and a value of 1 was assigned for use. Finally, for multiple partners, a value of 0 was assigned to those who did not report more than 1 sexual partner within the preceding month and 1 was assigned to those who did.

Data analytic plan

Analyses were performed using the statistical package for the social sciences (SPSS) 23. To test whether adolescent women's *perception* of their partners' belief moderates the effect of adolescent women's belief that condoms interfere with pleasure on adolescent women's sexual self-efficacy, the following analyses were conducted. First, frequencies and descriptive statistics for all variables were examined. Second, correlations were conducted to understand bivariate relationships between variables of interest and to assess for multicollinearity among predictor variables. Next, two series of

regression analyses were conducted to examine main effects of predictors on sexual self-efficacy, as well as the hypothesized interaction between participants' and partners' beliefs that condoms interfere with pleasure. Separate regression analyses were conducted for self-efficacy to refuse sex without condoms and self-efficacy to use condoms. Within each set of regression analyses, Model 1 included covariates (age, race/ethnicity, hormonal/IUD contraception, and multiple partners). Model 2 included covariates and the main effects of both participants' and partners' belief that condoms interfere with pleasure. Model 3 included an interaction term between participants' and partners' beliefs that condoms interfere with pleasure. This model tested the paper's hypothesis. For all models R^2 was examined, and the change in R^2 from the previous model was examined. By identifying potential effect modifiers, research can help identify the conditions under which an association may be true (Hayes, 2013).

There was little missing data; for self-efficacy to refuse sex without condoms and self-efficacy to use condoms, missing data ranged from 0% to 11%. Self-efficacy to use condoms was assessed only when participants reported at least one sexual partner in the past month. Those who did not report having a partner the previous month were removed from the analysis of self-efficacy to use condoms.

Results

Distributions of demographic variables are presented in Table 1. Means and standard deviations of study variables, as well as values corresponding to the minimum, 25^{th} percentile, median, 75^{th} percentile, and maximum are presented in Table 7. Descriptive statistics (i.e., statistics shown in Table 7; boxplots not shown) revealed that

the measure of participant belief that condoms interfere with pleasure, participant *perception* that partner believes condoms interfere with pleasure, and self-efficacy to refuse sex without condoms were all normally distributed. The boxplots for self-efficacy to use condoms revealed 10 participants who were identified as extreme outliers, whose observations were outside the outer fences of the boxplot. However, since these 10 participants made up the lower end of the self-efficacy scale, they were not deemed true outliers and were included in analyses.

For self-efficacy to refuse sex without condoms, participants reported an average of 3.79 on a scale from 1 = "Not at all sure" to 5 = "Very sure" and an average of 3.10 on a scale of 1 = "Strongly disagree" to 4 = "Strongly agree" for self-efficacy to use condoms. Chi-Square tests revealed that adolescent women who identified as white, non-Hispanic were significantly more likely to be on hormonal birth control than other adolescents $\chi^2(1, N= 114) = 4.51$, $p = .03$. Adolescent women on hormonal birth control reported significantly stronger agreement that condoms interfere with pleasure ($M= 6.59$, $SD=2.46$) compared to those not on hormonal birth control ($M= 5.03$, $SD= 2.63$; $t(112)= -2.92$, $p= .004$). Adolescent women who identified as white/non-Hispanic reported significantly higher beliefs that condoms interfere with pleasure ($M= 6.42$, $SD= 2.50$) compared to other adolescent women ($M= 5.50$, SD= 2.71; $t(126)= -1.95$, $p= .052$). Adolescent women who reported a single partner the previous month reported higher self-efficacy to refuse sex without condoms ($M= 3.86$, $SD= .74$) than women who reported multiple partners ($M= 3.28$, $SD= .95$; $t(114)= 2.63$, $p= .01$). Bivariate correlations indicated that both participant belief and *perceived* partner belief that

condoms interfere with sexual pleasure were negatively associated with both self-efficacy to refuse sex without condoms and self-efficacy to use condoms (see Table 8).

Controlling for age, race/ethnicity, use of hormonal/IUD contraception, and multiple partners, two moderation analyses were conducted (see Table 9 and 10). For the first moderation analysis, the covariates in Model 1 explained 5% of the variance (R^2 = .05, $F(4, 109)= 2.50$, p = .05) in self-efficacy to refuse sex without condoms (see Table 9). With the addition of the predictor variables (i.e., participants belief that condoms interfere with pleasure and partner's perception that condoms interfere with pleasure), Model 2 explained 12% of the variance in self-efficacy to refuse sex without condoms (R^2 = .12, $F(6, 107)= 3.57$, p = .003). With the addition of the interaction term, Model 3 still explained 12% of the variance in self-efficacy to refuse sex without condoms (R^2 = .12, $F(7, 106)= 3.26$, p= .004). The interaction between women's belief and her *perception* of partners' belief that condoms interfere with pleasure was not significant (β = .11, p = .25; see Table 9).

The second moderation analysis assessed the relationship between the predictor variables (i.e., participant belief that condoms interfere with sex and participant *perception* of partner belief that condoms interfere with sex) and self-efficacy to use condoms (see Table 10). In Model 1, the covariates age, race/ethnicity, use of hormonal/IUD contraception, and multiple partners, explained none of the variance in self-efficacy to use condoms (R^2 = .00, $F(4, 108)= 1.15$, p = .34). With the addition of the predictor variables, Model 2 explained 8.2% of the variance in self-efficacy to use condoms (R^2 = .08, $F(6, 106)= 2.68$, p = .02). With the addition of the interaction

variable, Model 3 explained 7.4% of the variance in self-efficacy to use condoms (R^2 = .07, $F(7, 105)= 2.27$, $p = .03$). The interaction between women's belief and her *perception* of partners' belief that condoms interfere with pleasure was not significant (β = -.00, $p = .10$).

Additional analyses were conducted to examine whether participants' (model 4) and partners' belief (model 5) that condoms interfere with pleasure were associated with self-efficacy outcomes when entered separately as predictors along with the covariates. Controlling for age, race/ethnicity, use of hormonal/IUD contraception, and multiple partners two multiple regressions were conducted (see Table 9 and Table 10). For self-efficacy to refuse sex without condoms (see Table 9), in model 4, the relationship between women's belief that condoms interfere with pleasure and her self-efficacy to refuse sex without condoms was examined; results indicated that women's belief that condoms interfere with sexual pleasure was significantly associated with her self-efficacy to refuse sex without condoms (β = -.24, $p = .01$). In model 5, the relationship between women's *perception* of partners' belief that condoms interfere with pleasure and her self-efficacy to refuse sex without condoms was examined; results indicated that women's *perception* of partners' belief that condoms interfere with pleasure was significantly associated with her self-efficacy to refuse sex without condoms (β = -.24, $p = .01$). Having multiple sexual partners the previous month was negatively associated with self-efficacy in all models.

For self-efficacy to use condoms (see Table 10), in model 4, the relationship between women's belief that condoms interfere with pleasure and her self-efficacy to use

condoms was examined; results indicated that participant belief that condoms interfere with sexual pleasure was significantly associated with her self-efficacy to use condoms (β = -.27, p = .01). In model 5, the relationship between women's *perception* of partners' belief that condoms interfere with pleasure and her self-efficacy to use condoms was examined; results indicated that participants' *perception* of partners' belief that condoms interfere with pleasure was significantly associated with her self-efficacy to use condoms (β = -.24, p = .01).

Discussion

In the current study, the relationship between personal and partner belief that condoms interfere with pleasure and sexual self-efficacy among sexually active adolescent women was examined. The hypothesized interaction between women's belief that condoms interfere with sexual pleasure and her *perception* of partners' belief that condoms interfere with sexual pleasure was not significantly associated with participants' sexual self-efficacy. However, individually both her belief that condoms interfere with pleasure and her *perception* of partners' belief that condoms interfere with pleasure were significantly associated with both outcomes.

When adolescent women believed that condoms interfered with pleasure, they also reported less confidence in both refusing sex without condoms and using condoms. These findings highlight the significance of pleasure beliefs in relation to sexual self-efficacy. Consistent with Social Cognitive Theory which posits that self-efficacy, an influential factor of individual behavior, is informed by previous experience (Bandura, 1977); sexually experienced adolescent women's belief that condoms hinder sexual

pleasure may be informed from previous experiences using condoms. Hence, when adolescent women believe condoms interfere with pleasure, they are less confident about both refusing sex without condoms and using condoms. These findings align with previous literature on sexual behaviors among adolescents and young adults which indicates that when individuals find condoms to interfere with sexual pleasure, they also report less condom use (Bralock & Koniak-Griffin, 2009; Brown et al., 2008; Randolph et al., 2007). Condoms are the most commonly used form of contraception among adolescents, with 68% percent of females and 80% of males reporting condom use the first time they had sex (Martinez, Copen, & Abma, 2011). However, adolescents also report that condoms interfere with pleasure thereby making adolescents less likely to use condoms.

Similarly, the regression model testing just the relationship between perceived partner belief that condoms interfere with pleasure and sexual self-efficacy showed significant relationships. When adolescent women perceived their partners to believe that condoms interfered with pleasure women also reported less confidence in both refusing sex without condoms and using condoms. These findings align with Social Cognitive Theory which posits that self-efficacy is informed by verbal persuasion of significant others (e.g., sexual partner; Schunk & Meece, 2006). As sexual relations take place within dyadic relationships, we can assume that sexual partners influence adolescent women's sexual self-efficacy. This might be particularly true for sexual pleasure as couples engage in sexual intimacy to experience pleasure and adolescent women describe ensuring partner pleasure as important (Saliares, Wilkerson, Sieving, & Brady, 2017).

When a male partner expresses his dislike of condoms because it hinders his pleasure it is likely that women would be less confident in both refusing sex without condoms and using condoms.

When both participant belief and *perception* of partner belief that condoms interfere with pleasure were added simultaneously in the model, neither was significantly related to self-efficacy to refuse sex without condoms. It is possible that because the variables were correlated at .37, there was overlap in the explained variance, thereby diminishing the individual contribution of each. Perhaps in a larger data set, a moderate correlation of .37 would not have had this impact. In the analysis predicting self-efficacy to use condoms, where both predictors were entered simultaneously without the interaction term, only women's belief that condoms interfere with pleasure approached significance.

Another interesting finding to emerge was the significant relationship between having multiple sexual partners the previous month and sexual self-efficacy; women who reported multiple sexual partners the previous month also reported less confidence in refusing sex without condoms and using condoms. Having multiple partners was significantly associated with sexual self-efficacy of adolescent women. As these are cross-sectional analyses it is important to remember that these are not causal relationships. It is unclear whether multiple partners lead to having lower self-efficacy, lower sexual self-efficacy leads to having multiple partners, or a combination of both. It is possible that women's self-efficacy fluctuates as she moves from one partner to the next. In addition, it is possible that a third variable such as substance use, mental health,

or family connectedness may be influencing sexual self-efficacy and having multiple sexual partners. Previous studies report that substance abuse among adolescent women is associated with risky sexual behaviors including having multiple sexual partners (Connell, Gilreath, & Hansen, 2009; Tapert, Aarons, Sedlar, & Brown 2001). Adolescents with mental health concerns (e.g., depression, anxiety) also report higher rates of multiple partners compared to peers not reporting mental health concerns (Ethier, Kershaw, Lweis, Milan, Niccolai, & Ickovics, 2006; Vasilenko & Lanza, 2014). In addition, although family factors are more distal to adolescent sexual behaviors than personal or partner factors, family connectedness has shown to be a, direct and indirect, protective factor for a number of risky sexual behaviors (see review, Markham et al., 2010). It is feasible that having a warm and loving relationship with family members could influence the number of sexual partners of adolescent women indirectly through factors such as substance use and mental health concerns.

Limitation and Future Directions

There are a number of limitations to the current study that must be acknowledged. First, this is a cross-sectional study and unable to identify causal relationships. Second, the sample size was relatively small. Future studies would benefit from a larger sample size with greater ethnic diversity. Finally, two items were used to measure participant belief that condoms interfere with pleasure, while a single item was used to measure both *perception* of partner belief that condoms interfere with pleasure and self-efficacy to use condoms. Future research will benefit from having more comprehensive measurements of these constructs to assure that they are measured with greater precision and accurately

reflect the construct. The current findings of partner influence on adolescent women's sexual self-efficacy were preliminary; in addition to pleasure beliefs, future research may benefit from examining relationship factors such as power inequality, length of relationship, and sexual communication which may shed more light on adolescent sexual self-efficacy. Previous research on sexual behaviors indicates that these factors influence adolescent women's sexual behaviors (Fortenberry et al., 2005; Marston & King, 2006; Saliares et al., 2017). For example, researchers Marston and King (2006) reviewed 268 international qualitative studies on sexual behavior among youth (ages 10 to 25 years) and some of their findings indicate that 1) a significant number of women report fear of physical violence if they refuse sex; 2) particularly in long-term relationships, requesting a male partner use condoms can be perceived as a lack of trust; and 3) gender roles can inhibit women from openly communicating about sexual matters because they may be seen as too eager to engage in sexual activity. In addition, a closer examination of how adolescents understand, define, and experience sexual pleasure is necessary to better understand its influence on sexual behaviors.

Conclusion

The findings of the current study indicate that both adolescent women's belief that condoms interfere with pleasure and their *perception* of partner's belief that condoms interfere with pleasure are negatively associated with women's sexual self-efficacy to both refuse sex without condoms and use condoms. Sexual pleasure is a complex concept that is understudied among adolescents. Researchers know little about how adolescents' experience and define sexual pleasure and how this construct influences sexual behaviors

(e.g., to initiate sex, use condoms, abstain from sex). The complexity of conceptualizing sexual pleasure is perhaps greater for heterosexual women compared to heterosexual men, as sexual pleasure weaves in the politics of power and privilege. Peggy Orenstein's book *Girls and Sex* (2016) provides a glimpse into the adolescent woman's sexual double bind between social narratives that promote a celebration of female sexuality alongside those that warn women of being viewed as promiscuous. This double bind may stem from the traditional double standard where men have been encouraged to seek out sexual experiences and hence sexual pleasure whereas women are admonished for the same behavior (Jonason & Marks, 2009; Kreager & Staff, 2009; Orenstein, 2016). The sexual double bind and double standard might play a role in how adolescent women define and experience sexual pleasure as well as their sexual self-efficacy particularly in relation to male partners.

The narrative in popular culture is that sexual intercourse should be pleasurable, exciting, and fun (Attwood & Smith, 2013; Barker, Gill, & Harvey, 2018; Orenstein, 2016). However, most sexual education programs for adolescents focus exclusively on health and safety with little attention to sexual pleasure (Ingham, 2005; Philpott, Knerr, & Boydell, 2006). Parents, sexual educators and primary care service providers who engage directly with adolescents should assess their beliefs and romantic partners' belief about condoms and pleasure. For adolescent women, male partners play a significant role in informing women's confidence in protective sexual behaviors. In addition, sex education that attends to skills in using condoms in ways that reduce discomfort and increase enjoyment are recommended.

General Conclusion

Due to proper contraception use, the rates of unplanned pregnancy among adolescents has decreased since the early 1990's (Boonstra, 2014; Lindberg et al., 2016; Santelli et al., 2007). However, the US still has the highest adolescent pregnancy rate among countries that track these data (Sedgh et al., 2015). In addition, there is concern about increasing rates of STIs among adolescents (Forhan et al., 2009). Self-efficacy, a component of Social Cognitive Theory, is a key determinant of individual behavior included in some of the most prominent health behavior theories (e.g., Health Belief Model, Social Cognitive Theory, extensions of the Theory of Planned Behavior; Schwarzer & Luszczynska, 2006). Specifically, sexual self-efficacy is a broad concept that includes confidence individuals have in performing protective sexual behaviors (e.g., refusing sex without condoms, using condoms; Bowleg et al., 2000; Reissing et al., 2005; Rostosky et al., 2008; Seal et al., 1997; Sieving et al., 2012, 2013; Smith, et al., 1996). An individual's self-efficacy can be developed by persuasion and feedback from significant others (e.g., family and romantic partners; Schunk & Meece, 2005; Zimmerman & Cleary, 2006). Confidence in performing a behavior is closely linked to actual performance of that behavior (Bandura, 1977).

The current studies examined the influential role of family and partner factors in relation to sexually active adolescent women's self-efficacy to both refuse sex without condoms and use condoms. Together, the studies indicate that both family and partner factors are associated with sexual self-efficacy of sexually active adolescent women. These findings align with the assumptions of both Social Cognitive Theory and Human

Ecological Theory. The Human Ecological Theory lays the foundation for seeing individuals within the context of their environments, particularly the most proximal contexts, that of their family, peers, and romantic partners.

The first study makes a unique contribution to the literature as it examined sexual self-efficacy over time and identified distinct sexual self-efficacy groups. Family connectedness was predictive of women belonging to the group with constant high self-efficacy to refuse sex without condoms; family contraception communication was predictive of women belonging to the group with fluctuating high self-efficacy to use condoms. These findings highlight that 1) family factors are influential in adolescent women's sexual self-efficacy and 2) family connectedness and family contraceptive communication uniquely influence sexual self-efficacy. In addition, the findings highlight that sexually active adolescent women are not a homogenous group and can vary significantly in their confidence related to sexual situations. For instance, more women were identified as belonging in the constant categories (high and low) of self-efficacy to refuse sex without condoms, whereas for self-efficacy to use condoms, more women were identified as belonging in the fluctuating categories (high and low). The findings indicate that generally women experience greater uncertainty in their confidence to use condoms than refusing sex without condoms. This is not surprising as using condoms entails the cooperation of a sexual partner.

The second study was unique as it examined the association of adolescent women's belief that condoms interfere with pleasure and their *perception* of their partners' belief that condoms interfere with pleasure in relation to women's sexual self-

efficacy. In the adolescent sexual health literature, few studies have examined the role of sexual pleasure beliefs, and no known study has examined pleasure beliefs in relation to sexual self-efficacy. The present study's findings highlight that 1) partners significantly influence sexual self-efficacy of adolescent women and 2) beliefs that condoms interfere with pleasure may diminish adolescent women's confidence in using them.

There were several limitations to the current studies, which were conducted with the same study sample. The sample size was small with limited ethnic diversity. As parental consent was required for participation by adolescents under 18, it is possible that participation of younger adolescents was limited. Second, the measurements of family contraception communication, adolescent women's self-efficacy to use condoms, *perception* of partners' belief that condoms interfere with pleasure were all limited to one item each. Future research would benefit from having more comprehensive measurements to assure that they are measured with greater precision and accurately reflect the construct. In addition, research would benefit from examining other factors such as substance use, mental health, or family connectedness in relation to sexual self-efficacy. In addition, having other romantic relationship factors such as power inequality, length of relationship, and sexual communication in relation to sexual self-efficacy would further the field of research.

The current studies indicate that interpersonal factors are significantly associated with sexually active adolescent women's sexual self-efficacy. Family members, sexual educators, and primary care providers who are directly engaged with adolescents should inquire about both personal and partners belief that condoms interfere with sexual

pleasure. Adolescents need information and education around ways to reduce discomfort and increase pleasure when using condoms. In addition, feeling close to family and talking to family about contraception can support the development of sexual self-efficacy. Family members can expand their sexual risk communication to involve conversations about how to effectively use condoms to reduce discomfort and potentially increase enjoyment.

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Table 1. Demographic Information Time 1 (*N* = 128)

Demographic Characteristics	**N**	**%**
Age at Screening		
14	2	1.6%
15	13	10.2%
16	26	20.3%
17	37	28.9%
18	50	39.1%
Race/Ethnicity		
White or Caucasian	80	62.5%
More Than One Race	23	18.0%
Black or African American	13	10.2%
Asian or Asian American or Pacific Islander	8	6.3%
Hispanic	3	2.3%
Native American or American Indian	1	0.8%
Hormonal/IUD contraception use	84	65.6%
Multiple partners	22	17.2%
Intervention Status		
Intervention	77	60.1%
Control	51	39.8%
Females Attracted to Male, or Male and Female		
All Male	103	80.5%
Both Male and Female	25	19.5%

Table 2. Distribution of Study Variables (Study 1)

		Mean	SD	Min	25th	Median	75th	Max
Predictors, Time 1 only								
Family Connectedness		3.68	1.00	1.00	2.86	3.78	4.57	5.00
Family Contraception Communication		1.84	1.00	1.00	1.00	1.50	3.00	4.00
Outcomes								
Self-Efficacy to Refuse Sex without Condoms								
Time 1		3.79	0.80	2.00	3.28	3.85	4.43	5.00
Time 3		4.09	0.75	1.29	3.57	4.29	4.71	5.00
Time 5		4.11	0.75	1.86	3.71	4.29	4.71	5.00
Time 6		4.14	0.80	1.57	3.71	4.43	4.86	5.00
Time 7		4.22	0.64	2.29	3.86	4.43	4.71	5.00
Self-Efficacy to Use Condoms								
Time 1		3.10	0.93	1.00	3.00	3.00	4.00	4.00
Time 2		3.11	0.92	1.00	3.00	3.00	4.00	4.00
Time 3		3.18	0.87	1.00	3.00	3.00	4.00	4.00
Time 4		3.20	0.91	1.00	3.00	3.00	4.00	4.00
Time 5		3.20	0.89	1.00	3.00	3.00	4.00	4.00
Time 6		3.12	0.84	1.00	3.00	3.00	4.00	4.00
Time 7		3.25	0.73	1.00	3.00	3.00	4.00	4.00
Outcome Category	N (%)							
Self-Efficacy to Refuse Sex without Condoms Category								
Constant high	33 (30.8%)							
Increasing	27 (25.0%)							
Constant low	18 (16.8%)							
Fluctuating high	16 (14.9%)							
Fluctuating low	14 (13.0%)							
Self-Efficacy to Use Condoms Category								
Fluctuating high	28 (28.0%)							
Fluctuating low	27 (27.0%)							
Increasing	18 (18.0%)							
Constant	16 (16.0%)							
Decrease	11 (11.0%)							

Table 3. Correlations of Predictors with Self-Efficacy to Refuse Sex Without Condoms (Study 1)

	1	2	3	4	5	6	7
1. Family Connectedness, Time 1	1						
2. Family Contraception Communication, Time 1	.290**	1					
3. Self-Efficacy to Refuse Time 1	.185*	-.057	1				
4. Self-Efficacy to Refuse Time 3	.130	.079	.500**	1			
5. Self-Efficacy to Refuse Time 5	.139	.072	.491**	.619**	1		
6. Self-Efficacy to Refuse Time 6	.082	.046	.415**	.664**	.718**	1	
7. Self-Efficacy to Refuse Time 7	.214*	.045	.465**	.631**	.697**	.792**	1

Note: *p < .05, **p < .001.

Table 4. Correlations of Predictors and Covariates with Self-Efficacy to Use Condoms (Study 1)

	1	2	3	4	5	6	7	8	9
1. Family Connectedness, Time1	1								
2. Family Contraception Communication, Time1	.290**	1							
3. Self-Efficacy Condom Use, Time1	-.043	.047	1						
4. Self-Efficacy Condom Use, Time2	.199	.088	.251*	1					
5. Self-Efficacy Condom Use, Time3	.325**	.157	.317**	.443**	1				
6. Self-Efficacy Condom Use, Time4	.200	.223*	.428**	.264*	.672**	1			
7. Self-Efficacy Condom Use, Time5	.126	.010	.200	.329**	.517**	.451**	1		
8. Self-Efficacy Condom Use, Time6	.123	.182	.477**	.420**	.538**	.484**	.731**	1	
9. Self-Efficacy Condom Use, Time7	.103	-.015	.352**	.171	.334**	.540**	.569**	.677**	1

Note: *p < .05, **p < .001.

Table 5. Parameter Estimates Contrasting the Constant Low Group versus Each of the Other Groups for Self-Efficacy to Refuse Sex Without Condoms (N= 97; Study 1)

Predictor	Low vs.	*B*	*OR*	*P*
Family Connectedness	Constant high	.836	2.31	.04
	Increasing	.182	1.20	.62
	Fluctuating high	.432	1.54	.33
	Fluctuating low	.135	1.15	.75
Family Contraception Communication	Constant high	-.352	0.70	.32
	Increasing	-.085	0.92	.80
	Fluctuating high	.090	1.09	.82
	Fluctuating low	-.207	0.81	.62

Table 6. Parameter Estimates Contrasting the Fluctuating Low Group versus Each of the Other Groups for Self-Efficacy to Use Condoms (N= 93; Study 1)

Predictor	Low vs.	*B*	*OR*	*P*
Family Connectedness	Fluctuating high	-.127	0.88	.71
	Increasing	.135	1.14	.74
	Constant high	.764	2.14	.08
	Decreasing	.206	1.22	.70
Family Contraception Communication	Fluctuating high	.818	2.26	.04
	Increasing	.796	2.21	.06
	Constant high	.316	1.37	.47
	Decreasing	.767	2.15	.12

Table 7. Distribution of Study Variables (Study 2)

	Mean	SD	Min	25th	Median	75th	Max
Predictors							
Participant Belief that Condoms Interfere with Pleasure	6.07	2.62	2.00	4.00	6.00	8.00	10.00
Perceived Partner Belief that Condoms Interfere with Pleasure	2.43	1.44	1.00	1.00	2.00	4.00	5.00
Outcomes							
Self-Efficacy to Refuse Sex without Condoms	3.79	0.80	2.00	3.28	3.85	4.43	5.00
Self-Efficacy to Use Condoms	3.10	0.93	1.00	3.00	3.00	4.00	4.00

Table 8. Correlations Between Predictors and Outcome Variables (Study 2)

Measure	1	2	3	4
1. Participant Belief that Condoms Interfere with Pleasure	1			
2. Perceived Partner Belief that Condoms interfere with Pleasure	.373**	1		
3. Self-Efficacy to Refuse Sex without Condoms	-.241**	-.246**	1	
4. Self-Efficacy to Use Condoms	-.243**	-.242**	.239*	1

Note: *p < .05, **p < .001.

Table 9. Predicting Self-Efficacy to Refuse Sex without Condoms

	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Age	.01	.07	.01	.00	.07	.00	.02	.07	.01	.01	.07	.01	.01	.07	.01
Race/Ethnicity	.10	.16	.06	.11	.15	.06	.09	.16	.05	.13	.16	.07	.08	.16	.05
Hormonal/IUD contraception	-.11	.18	-.06	-.00	.18	-.00	.04	.18	.02	.00	.18	.00	-.08	.17	-.04
Multiple partners	-.58	.19	-.28**	-.60	.18	-.30**	-.57	.19	-.28**	-.60	.19	-30**	-.60	.19	-.29**
Her belief that condoms interfere with pleasure				-.06	.03	-.18	-.06	.03	-.18	-.08	.03	-.24*			
Perception of partners belief that condoms interfere with pleasure				-.10	.05	-.18	-.11	.06	-.20*				-.14	.05	-.24**
Her * His belief that condoms interfere with pleasure							.02	.02	.11						
R^2		.05			.12			.12			.10			.10	
F for change in R^2		2.50			3.57			3.26			3.49			3.59	

Note: *p < .05, **p < .001.

Table 10. Predicting Self-Efficacy to Use Condoms

	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Age	-.11	.08	-.12	-.11	.08	-.12	-.11	.08	-.12	-.11	.08	-.12	-.11	.08	-.12
Race/Ethnicity	.01	.19	.01	.04	.18	.02	.04	.19	.02	.06	.19	.03	-.01	.19	-.00
Hormonal/IUD contraception	-.07	.21	-.03	.05	.21	.02	.04	.21	.02	.06	.21	.03	-.04	.20	-.02
Multiple partners	-.40	.23	-.17	-.44	.22	-.18*	-.44	.22	-.18^{+}	-.44	.22	-.18^{+}	-.41	.22	-.17
Her belief that condoms interfere with pleasure				-.07	.04	-.20^{+}	.07	.04	-.20^{+}	-10	.04	-.27**			
Perception of partners belief that condoms interfere with pleasure				-.11	.06	-.17	-.11	.07	-.17				-.16	.07	-.24**
Her * His belief that condoms interfere with pleasure							.00	.02	-.00						
R^2		.00			.08			.07			.06			.06	
F for change in R^2		1.15			2.68			2.27			2.53			2.38	

Note: $^{+}p < .055$, $*p < .05$, $**p < .001$.

Figure 1. Conceptual Model of Study 1

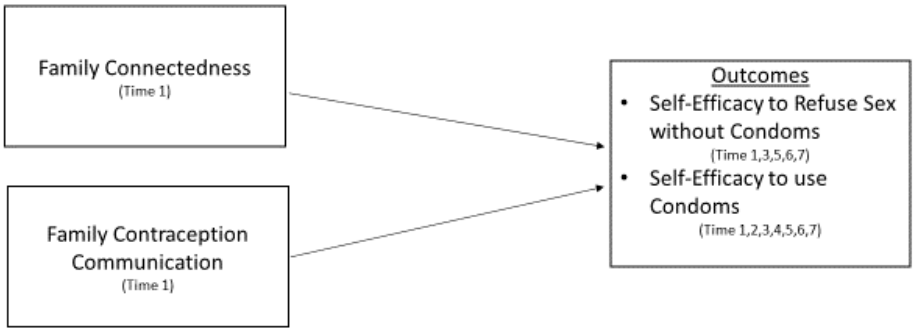

Figure 2. Numbers of Adolescents at different stages of recruitment, screening, and enrollment

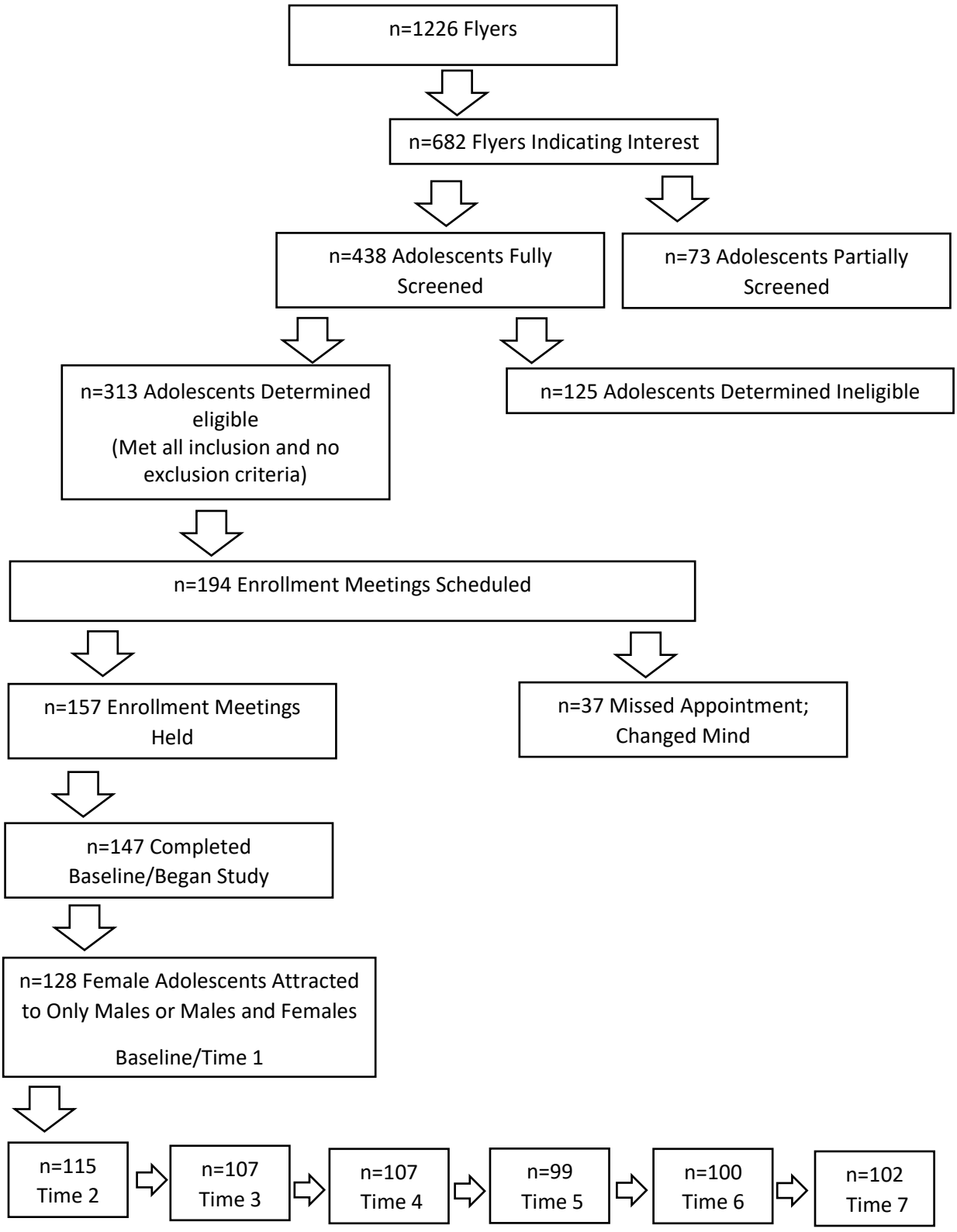

Figure 3. Conceptual Model of Study 2