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Do Beliefs About Sex Behaviors Mediate the Link Between Parent-Adolescent Communication About Sex and Risky Sexual Behaviors?

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DO BELIEFS ABOUT SEX BEHAVIORS MEDIATE THE LINK BETWEEN PARENT-ADOLESCENT COMMUNICATION ABOUT SEX AND RISKY SEXUAL BEHAVIORS?

THESIS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in the College of Agriculture, Food and Environment at the University of Kentucky

By

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2016

ABSTRACT OF THESIS

DO BELIEFS ABOUT SEX BEHAVIORS MEDIATE THE LINK BETWEEN PARENT-ADOLESCENT COMMUNICATION ABOUT SEX AND RISKY SEXUAL BEHAVIORS?

The current study examined the protective effect of parenting-adolescent communication about sex on four risky sexual behaviors (age of onset of sex, number of sex partners, condom use, and STDs) among youth, framed by the Theory of Planned Behavior. It also tested for potential mediation effects between parent-adolescent communication and risky sex measures by sexual cues, date rape attitudes, and acceptance of dating violence in a sample of 2,245 college students from Japan, Slovenia, Spain, and the United States. Results provided evidence of a weak effect of parent-adolescent communication about sex on risky sexual behaviors across samples. A number of cultural influences were also found in the effects by mediators: sexual cues predicted risky sexual behaviors only in the Japanese sample; date rape attitudes was a predictor in the American and Slovenian samples; acceptance of dating violence predicted more risky sexual behaviors only in the American sample; and no significant effects were found in the Spanish sample. Several competing explanations were examined in the discussion to better understand the complex and dynamic interaction between parents and their adolescents as well as the role of culture. More studies are needed to better understand the associations between parent-adolescent communication about sex and risky sexual behaviors.

KEYWORDS: Parenting-Adolescent Communication, Risky Sexual Behaviors, Adolescent, Mediation, Cross-Cultural Study

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August, 23rd, 2016

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This thesis is dedicated to those in the helping professions who, despite the difficult nature of their work, continue to persevere in order to help those around them.

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Do Beliefs about Sex Behaviors Mediate the Link between Parent-Adolescent Communication about Sex and Risky Sexual Behaviors?

In United States, adolescent risky sexual behaviors remain a serious public health concern. According to the national statistics provided by Centers for Disease Control and Prevention (CDC, 2008), it is estimated that approximately 20% of all new cases of HIV occur in persons aged between 13 and 24 years. There has been a steady decline in the rate of teen pregnancy, childbearing, and abortions; there has also been a drop in the percentage of adolescents engaging in sexual activity (54% to 47% from 1991 to 2013; YRBS, 2013). Nevertheless, the United States tops developed countries with the highest rate of teen pregnancy, teenage mothers, STD infections, and other risky sexual behaviors among adolescents. The 2013 national Youth Risk Behavior Survey indicates that among U.S. high school students (9^{th} to 12^{th} grade), 47% report having had sexual intercourse, 6% report having had sexual intercourse for the first time before age 13, and 15% had sexual intercourse with four or more persons during their lifetime. Among sexually active high school students surveyed, 41% did not use a condom during the last sexual intercourse, and 14% did not use any method of contraception during last sexual intercourse (YRBS, 2013).

A large number of studies on adolescent sexual behaviors have focused on the family or parenting as sources that protect youth from risky sexual behaviors (Kahn, Holmes, Farley, & Kim-Spoon, 2015; Scaramella, Conger, Simons, & Whitbeck, 1998; Simons, Burt, & Tambling, 2013; Somers & Paulson, 2000). The current study examines parent-adolescent communication about sex and how it places youth at risk or protects youth from risky sexual behaviors. While previous studies have concluded that parental factors exert a direct effect on adolescent sexual behaviors, the current study seeks to examine potential mediating effects between parenting and risk sexual

behaviors, namely by adolescents' attitudes and intentions about engaging in risky behaviors. Framed by the Theory of Planned Behaviors, it was hypothesized that the effects of parent-adolescent communication about sex are mediated by sexual cues, acceptance of dating violence, and date rape attitudes.

Scholars in the area of adolescent sexual behaviors have reached a consensus that Western European countries have done a much better job than the US in protecting youth from risky sexual behaviors and in promoting healthy attitudes towards sexuality which in turn reduce the chance of youth engaging in health-compromising sexual behaviors (Schalet & Santelli, 2009). In the following section, the relevant literature is reviewed, including normalization of adolescent sexual activities, openness about sex, as well as the prevalence of comprehensive sex education (Boonstra, 2011; Schalet & Santelli, 2009).

Literature Review

The Comprehensive Theoretical Framework of Behaviors

Jaccard, Dodge, and Dittus (2002) contend that few comprehensive theoretical frameworks existing focused on adolescent sexuality, resulting in at times contradictory evidence and arguments about the importance of parent-adolescent communication in adolescent sexual behaviors. To address this issue, they developed an integrative theoretical framework based on a small set of influential theories in social and developmental psychology. Based on theories such as the Theory of Reasoned Action (TRA), Social Learning Theory, the Health Belief Model, and the theory of subjective culture, this integrative model posits five principle factors that contribute to individual behaviors: Intention or decision to perform a behavior, knowledge and skills for behavioral performance, environmental constraints, the salience of the behavior, as well as habit and automatic processes (see Jaccard, Dodge,

& Dittus, Figure 1.1, p.16). They focus in particular on behavioral intentions. By dissecting behavioral intentions and willingness towards a behavior, six major factors were identified as the immediate psychological determinants of the intention to engage in a behavior: Attitudes toward behavior, social norms, beliefs and expectancies, self-concept, affect and emotions, and self-efficacy (see Jaccard, Dodge, & Dittus, Figure 1.2, p.18). The current study focused on three determinants based on Theory of Reasoned Action, namely attitudes, social norms, and beliefs and expectancies. However, instead of using the original TRA, an updated version, namely the Theory of Planned Behaviors (TPB) was used to guide the thinking and hypotheses in the current study.

The Theory of ReasonedAction and the Theory of Planned Behaviors

The Theory of Planned Behavior (TPB), an empirically supported theory capable of explaining behaviors in a variety of behavioral domains, was used as the theoretical framework in the present study. The TPB was developed on the basis of the Theory of Reasoned Action by adding a new element, namely the perceived behavioral control to the structure in the TRA. This theory explains human behaviors based on the theoretical premise that people act mainly following their intentions towards some behaviors, while they also feel constrained by the environment.

The Theory of Planned Behaviors was first proposed by Ajzen (1985), in his book, *From intentions to actions: A theory of planned behavior*. As introduced, the TPB is rooted deeply in the Theory of Reasoned Action that was first proposed by Fishbein with Ajzen (1975). The basic principle of TRA is that people carry out a specific behavior primarily because they have the intention to do so at first which results from the product of attitudes (evaluation and decision whether this behavior is positive and worth doing) and subjective norms (perception of others' opinions on this

behavior). Even though behavioral intentions do not lead to certain behavioral outcomes all the time, they are reported to be highly correlated with the behavior they are pointing to. The original Theory of Reasoned Action was devoted to explaining behavioral intentions using internal/subjective factors (attitudes and social norms), and it was criticized mostly because it ignored external/objective constraints from the environment outside of individuals. Embracing this criticism, Ajzen (1985) addressed this importance of external constraints and developed the Theory of Planned Behavior by bringing in the concept of perceived behavioral control, a concept that represents synthesized constraint from the environment. Ajzen briefly summarized the main rationale of TPB as follow,

> Human behavior is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (control beliefs; Ajzen, 2006, p. 1)

The addition of perceived behavioral control was guided by the idea that it would allow prediction of behaviors that were not under complete volitional control.

Evidence from meta-analyses has shown that the updated Theory of Planned Behaviors performs better than the TRA in predicting behaviors and behavioral intentions. Three meta-analyses reviewed 42 studies (Albarracin, Johnson, Fishbein, & Muellerleile, 2001), 185 independent studies (Armitage & Conner, 2001), and 56 studies (Sheeran & Taylor, 1999), respectively. They compared the two-dimensional structure of TRA to the three-dimensional structure of TPB with the additional

element as perceived behavioral control. The results from meta-analyses suggested that the addition of perceived behavioral control explained significant incremental variance in behaviors and behavioral intentions even when the TRA structure had accounted for substantial variance in behaviors and behavioral intentions. This outstanding performance of the TPB structure indicated that the TPB has a more mature theoretical structure that has passed the tests of validation through empirical studies.

Applying TPB to Studies on Adolescent Sexual Behaviors

Unlike scholarship which identified direct links between parental or familial factors and adolescent risky sexual behaviors (this will be discussed more below), the Theory of Planned Behaviors views external variables (e.g., parenting, family processes, peer groups or effect in the community) as distal factors, and thus, in effect "removed" from adolescent behaviors. The argument is that these variables can only affect individual behaviors through behavioral intentions and attitudes. It is argued that distal factors, such as parent-adolescent communication about sex, will have a weaker effect on adolescence risky sexual behavior because there are other factors that mediate the relationship in-between. According to the TPB structure, it was hypothesized that adolescent deviant attitudes toward sexuality would mediate the relationship between parent-adolescent communication about sex and adolescent risky sexual behaviors. Using the International Study of Adolescent Development and Problem Behaviors (ISAD; Vazsonyi, Hibbert, & Snider, 2003; Vazsonyi, Pickering, Junger, & Hessing, 2001) dataset, three constructs focusing on attitudes toward sexuality were identified as mediators for the current study, namely sexual cues, acceptance of dating violence norms, and date rape attitudes.

There exists a small amount of research providing evidence to support the

Theory of Planned Behaviors in explaining adolescent sexual risk taking. In a study done with a sample of inner-city adolescent girls, Hutchinson and her colleagues (2003) found that condom use self-efficacy mediated the relationship between mother-daughter communication about sex and unprotected intercourse. The mediators were all conceptually derived from both the Theory of Planned Behavior and Social Cognitive Theory. Although two other constructs that were tested in this study, attitudes toward condom use and perceived maternal approval of condom use, did not mediate the relationship between mother–daughter sexual risk communication and the frequency of unprotected sexual intercourse, this study serves as a good example and precedent; it integrated the Theory of Planned Behaviors into explanations of unprotected sexual behaviors by inspecting mediation effects of attitudinal factors pertaining to sex (e.g. condom use self-efficacy, attitudes toward condom use/contraceptive method, and attitudes toward dating violence etc.).

Parent-Adolescent Communication about Sex

Researchers have been trying to approach the issue of adolescent risky sexual behaviors by exploring characteristics of parents. Numerous characteristics of parents and parenting process have been identified as key predictors of risky sexual behaviors among youth, such as parental involvement (Scaramella, Conger, Simons, & Whitbeck, 1998), parent monitoring (East, Khoo, & Reyes, 2006; Miller, McCoy, Olson & Wallace, 1986), parent-adolescent relationship and closeness (Deptula, Henry, & Schoeny, 2010; Dittus & Jaccard, 2000; van de Bongardt, de Graaf, Reitz, & Deković, 2014), parental modeling of sexual behaviors (Whitbeck, Simmons, Kao, 1994), to name a few. The underlying assumption behind all these studies is that the family provides the first and primary environment for individuals to be socialized, along with roles of parents being central to the individual's earliest development.

Among all the parental factors, parent-adolescent communication about sex has been found to have a unique contribution in predicting adolescent risky sexual behaviors (Jaccard, Dodge, & Dittus, 2002), because it is believed that ethics and values related to sexuality will be conveyed by parent through direct conversation with their children (Schouten, van den Putte, Pasmans, & Meeuwesen, 2007).

Parent-adolescent talk about sex helps to increase adolescents' resistance to risky sexual activities and delay first sexual intercourse. For those adolescents who can openly talk about sex-related topics with their parents, the chance of them to get into risky sexual behaviors is lower than those who do not talk with their parents; they tend to start to have sex late (van de Bongardt, de Graaf, Reitz, & Deković, 2014; Clawson & Reese−Weber, 2003) and use birth control more often (Cederbaum, Hutchinson, Duan, & Jemmott, 2013; DiClemente et al., 2001; Malcolm et al., 2013; Teitelman, Ratcliffe, & Cederbaum, 2008). This protective effect has been confirmed in subsequent studies and found to be supported across different adolescent populations (Hutchinson et al., 2003; Trejos-Castillo & Vazsonyi, 2009). For instance, Hutchinson et al. (2003) conducted a study of mother-daughter sexual risk communication with an inner-city sample of youth and found evidence supporting a protective effect by mother-daughter communication about sex against sexual intercourse and unprotected intercourse. In another study which examined adolescent risky sexual behaviors among 1st and 2nd generation Hispanic immigrant youth (Trejos-Castillo & Vazsonyi, 2009), a strong negative correlation was found between communication about sex and risky sexual behaviors. Communication about sex along with other maternal factors accounted for a significant amount of variance in risky sexual behaviors.

Besides studies about general features of communication on sex (frequency, gender of the parent they talk to, etc.), there are a few studies extending the focus to

more specific features of communication about sex. Teitelman, Ratcliffe and Cederbaum (2008) chose parent-adolescent communication on sexual pressure from dating partners as a predictor of abstinence and consistent condom use. Teens were twice as likely to practice STD/HIV prevention behaviors if they reported greater communication with their mother about sexual pressure.

Parent-adolescent communication about sex can also affect adolescents indirectly. DiClemente and colleagues' work (2001) reported findings based on a sample of African American adolescent females that demonstrated a positive relationship between parent-adolescent communication about sex and the frequency of condom use. In the same study, it was also evident that the more parent-adolescent communication about sex contributed to a better self-efficacy in negotiating openly on safer sex practice or refusing sex. This may involve both the negotiation with a resistant sex partner and the negotiation with a sex partner who had never used condoms. Van de Bongardt, de Graaf, Reitz and Deković's study (2014) and Whitaker and Miller's study (2002) found significant moderation effects by communication about sex with parents on peer sexual norms and risky sexual behaviors. When adolescents talk more about sex in the family with their parents, their resistance against peer pressure to have sexual intercourse is stronger, and they do not easily follow peer norms about sex (van de Bongardt et al., 2014); in addition, the evidence shows that condom use rates among youth are higher when they talk more with their parents (Whitaker & Miller, 2000). Lack of communication with parents, on the other hand, may cause teens to turn to their peers for knowledge and information, and we know they are less knowledgeable about sexual matters. When teens do turn to peers, then adolescent sexual behaviors were more likely to be influenced by peer norms, toward having sex or having sex without condoms (Whitaker & Miller, 2000).

Limitations in Previous Studies of Parent-adolescent Communication about Sex

Despite the growing body of literature in this area, there are several issues concerning research on parent-adolescent communication about sex that require additional discussion and further study. For instance, Fisher (2004) expressed concern over the turbid state of research on parent-adolescent communication about sex. He pointed out several shortcomings in the area, including but not limited to the inconsistency in findings of the effect of parent-adolescent communication about sex, ignorance of the multifaceted nature of parent-adolescent communication about sex. The effect of mother-daughter sexual risk communication was found to be unrelated to the number of sexual partners among inner-city sexually active teen girls (Hutchinson, et al., 2003). In Thoma and Huebner's (2014) paper, the effect of parental talk about sex was studied in a sample of young men who have sex with men (YMSM). Their findings indicated that parent-adolescent communication about sex may not be generalized to the LGBT community since the data revealed that in the YMSM sample, more parental talk about sex was significantly associated with more unprotected anal intercourse and less condom use. Although there are many intervention/prevention programs aiming at reducing adolescents' risky sexual behaviors by promoting the talk on sex between parent and adolescents, studies that did evaluate these programs have not found them to be highly effective. Even when they worked well to increase communication about sex between parents and adolescents, it is not a sure thing that adolescent risky sexual behaviors do not take place or are lessened.

Jaccard and colleagues argue (2001) that these contradictory results can partly be explained by the fact that many studies in this domain suffer from a lack of theory-driven research design and from methodological problems. It was already

articulated how there is a great need for a theoretical foundation in research; here, methodological problems refer to the fact that most studies conducted thus far rely heavily on the frequency of parent-adolescent talk about sex as a mere count, an approach that is unable to reflect the essence of parent-adolescent communication about sex. Wilson and Donenberg's (2004) study compared the effect of the quality of parent-adolescent talk about sex to a frequency measures of talks on sexual. Their findings suggest that the quality of parent-teen communication weighed more heavily in sexual risk taking among adolescents in psychiatric care while the frequency was unrelated. Furthermore, the relationship between frequency and sexual risk taking was negatively associated which reversed the general conclusion that parents frequently communicate with their children about sex and that this helps protect children from sexual risk-taking. In this study adolescents who participated more equally in the discussions about sex with their parents also reported more risky sexual behaviors.

Potential Mediators: Deviant Attitudes towards Sexuality

There is a body of studies done on attitudinal factors predicting deviant or health-compromising sexual behaviors. Attitudes toward sexual risk are responsible for adolescent sexual behaviors, based on evidence found in previous studies (Miller, 2011; Racey, Lopez, & Schneider, 2000; Sheeran, Abrams, Abraham, & Spears, 1993; Sheeran & Taylor, 1999; Whitbeck, Simmons, & Kao, 1994). Many deviant attitudes toward sexuality had been identified includes the acceptance of rape myth, acceptance of dating violence or dating violence tolerance, date rape supporting attitudes, and as mentioned before, self-efficacy in negotiating safe sex and self-efficacy of the refusal of unsafe sexual encounters. A strong positive association linking deviant attitudes to deviant sexual behaviors has been substantiated by previous studies. Little is known about the extent to which individual deviant attitudes towards sexuality are influenced

by parenting and whether attitudes serve as mediators between parental influence and youth behavioral outcomes. Following the conceptual framework of TPB, it was proposed that the following deviant attitudes toward sexuality would act as mediators in the link between parent-adolescent communication about sex and risky sexual behaviors: sexual cues, acceptance of dating violence, and date rape attitudes.

Sexual cues. Sexual cues represent a person's inclination or disinclination to the possibility of having sex. It involves a person's cognitive ability like the perception of information from the surrounding environment and their information processing system to decode and interpret certain information. The latter process involves individual's knowledge of sexuality and personal experience. The ability to perceive sexual cues can lead to sexually deviant behaviors. Talking with parents openly about the intimate relationship and sex is assumed to increase adolescent's knowledge of sex. Parents could be a good resource of delivering healthy sex knowledge and norms and also provide a liberal environment at home, which encourages adolescents to explore sexuality by themselves freely. It is arguable that these adolescents' ability to distinguish between sexual cues from the non-sexual stimulus will be better than their peers who have limited knowledge of sex, and they are less likely to engage in risky sexual behaviors.

Acceptance of dating violence. Acceptance of dating violence is a persistent value and belief which accepts dating violence as a common element of a romantic relationship. Individuals holding this belief are more likely to be victims of dating violence or to use violence against their dating partners. Although in the majority of dating violence cases, males are the perpetrators and females are victims, it can be the opposite sometimes.

There are studies that verified the relationship between a history of dating

violence and increased risky sexual behaviors, unexpected pregnancy, and less condom use as well as attitudes toward sexuality (Silverman, Raj, Mucci, & Hathaway, 2001). Data from a group of African American adolescent girls revealed that previous having a history of dating violence predicts more STDs, higher chance of multiple male partners, and half as likely to use condoms consistently. More relevant to the current study's framework, adolescents with a history of dating violence were significantly more likely to fear the prospective consequences of negotiating condom use with their dating partner, to fear talking with their partner about pregnancy prevention, to perceive less control over their sexuality, and to have norms non-supportive of having a healthy relationship (Wingood, DiClemente, McCree, Harrington, & Davies, 2001). This study shows that both behavior and attitudes or perceptions concerning dating violence are significantly related to risky sexual behaviors. This means that people who have experienced dating violence are more likely to have unprotected sexual intercourse.

Date rape attitudes. Date rape attitudes is an attitude favoring rapists and minimizing the seriousness of rape while blaming the victim. Rape is seen as prohibited by most people; however, disapproval towards date rape differs greatly in degree among people. Evidence shows that date rape tolerant attitude predicts more date rape, in males this is often translated to being more likely to rape a dating partner and in females this is translated to being more likely to be raped by their dating partner. In a three-wave longitudinal study, date rape victims reported significantly lower proportions of condom-protected sex, higher frequency of sex while intoxicated, and increased the likelihood to have multiple sex partners (Lang et al., 2011). In the current study, it is hypothesized that using date rape attitudes to find not only that the behaviors of date rape are related to risky sexual behaviors, but also that these

attitudes can predict risky sex as well.

Cultural Differences

The data released by Advocates for Youth indicated that the pregnancy rate each year is 80 per thousand adolescents in the United States, 20 in France (equal to 25% of the American rate), 16 in Germany (20% of the American rate), and 9 in the Netherlands (11% of the American rate). An important reason that European youth have better sexual health is that adults approach teenage sexuality differently than do adults in the United States (Alford & Hauser, 2011). While the mainstream culture in America remains focused on an abstinence-oriented attitude, people in Western European countries see sexual activities as an acceptable part of adolescent development, as long as youth use contraceptives responsibly, and they are involved in healthy relationships (Berne & Huberman, 2000; Schalet, 2004). In the United States, the focus of the effort to keep young people sexually safe has been translated into abstinence-oriented programs, while in western European countries this is not the case. The Netherlands is of the most studied countries in the domain of adolescent sexual behaviors since it has one of the lowest adolescent unintended pregnancy rates in spite of the activeness of youth sexual life. Dutch adults approach teenage sexuality differently than do adults in the United States. Dutch parents have realized that sexual activities are part of adolescent development, just as normal as the appearance of puberty and rapid cognitive development. They treat adolescents as individuals who are mature enough to be responsible for their own sexual behaviors (Boonstra, 2011). Outside the family, health care providers, policymakers, educators, and members of the media "facilitated a normalization of adolescent sexuality by ensuring that young people had access to reliable contraception and by providing different public forums for the discussion of sexuality and relationships" (as quoted in Schalet & Santelli,

2009, p. 2).

However, even in Western Europe, differences exist from country to country depending on the unique culture environment and policy in each country. In a cooperative study done by researchers from the United Kingdom and the Netherlands, they compared school offered sex education courses in these two countries. Findings revealed that although most of the topics taught and interactive methods used in classes were similar, the emphases of the courses and organization of materials were different from each other, which convey different attitudes towards sex to students (Lewis & Knijn, 2001).

Given the fact that the majority of cross-cultural studies are done with American and Dutch youth, much is left to know about the adolescent risky sexual behaviors among other countries. Even with studies that include more Western Countries (Darroch, Singh, & Frost, 2001; Lewis & Knijn, 2001), little is known about parent-adolescent communication about sex beyond these two countries. In order to test the ability of generalization to other cultures, the samples used in the current study are from four different cultural backgrounds, including Slovenia (Eastern European), Japan (far Eastern Asian) and Spain (Western European) in addition to the United States.

Research Questions

Considering previous studies on adolescent risky sexual behaviors and parent-adolescent communication about sex, a number of areas are in need of more research and improved knowledge. This, the following research questions were addressed in the current study: a) Are there differences in frequency of parent-adolescent communication about sex across cultures? b) Does parent-adolescent communication on sex prevent adolescents from engaging in risky

sexual behaviors? c) Is the relationship between parent-adolescent communication on sex and adolescent risky sexual behaviors mediated by sexual cues, acceptance of dating violence and date rape attitudes? If the answer to the question was yes, then how do the three mediators influence adolescent sexual risk taking separately and together? d) Do the potential mediation effects of sexual cues, acceptance of dating violence and date rape attitudes stay consistent across samples from different cultures?

Hypotheses

Several hypotheses are formed in response to the research questions above and a theoretical model is presented in Figure 1, based on the following hypotheses

1) The amount of parent-adolescent communication about sex will vary from country/culture to country/culture. It was expected that Spanish parents would be more likely to communicate with adolescents about the topic on sex and dating, while Japanese parents least likely to do so, compared to American parents. American and Slovenian parents would talk about sex more than Japanese parents do, but not as much as Spanish parents.

2) Parent-adolescent communication about sex would reduce the chance of adolescent risky sexual behaviors. To be specific, adolescents who report having more discussion about sex with their parent would be more likely to have their first sexual intercourse later than adolescents discuss less about it with their parents.

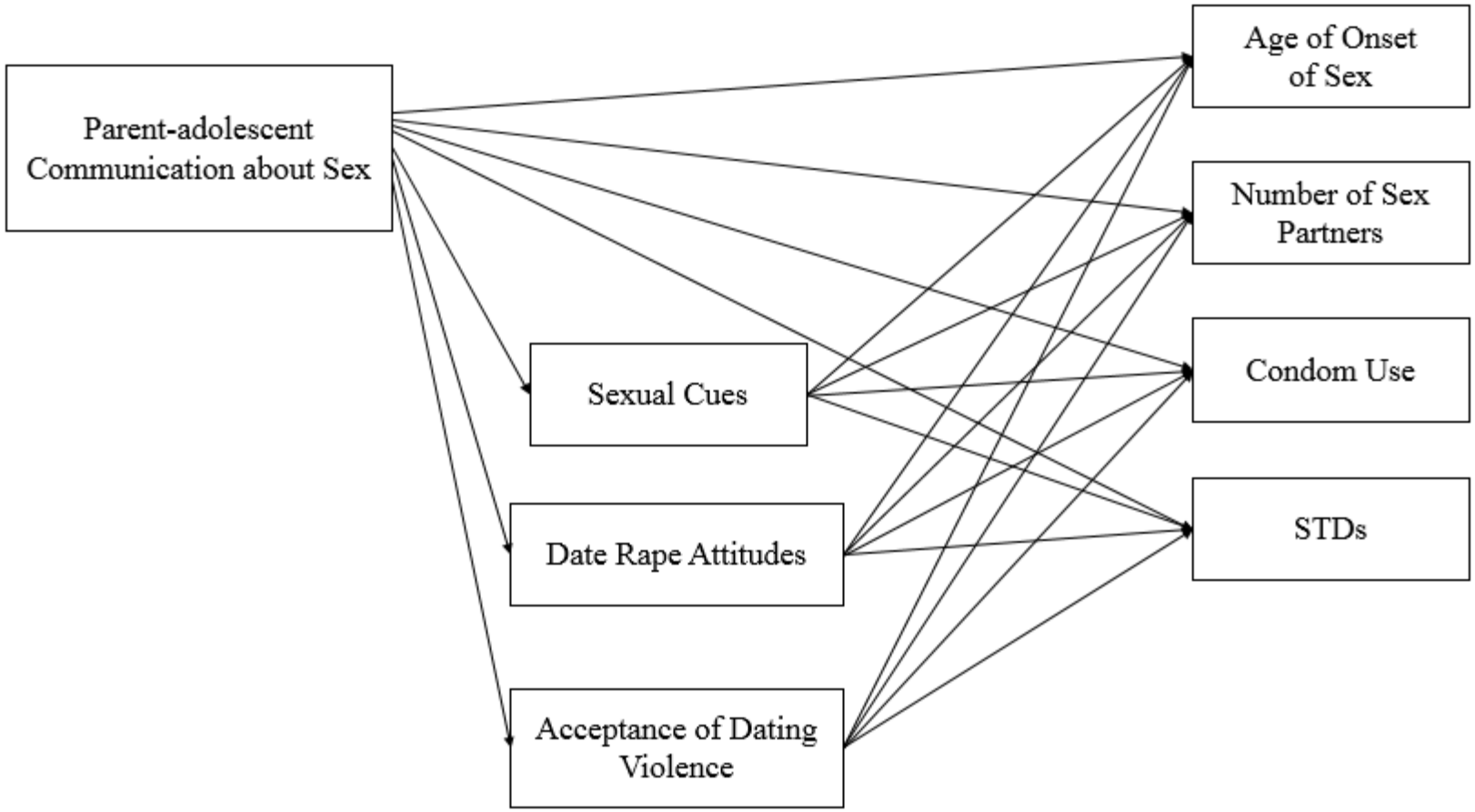

Figure 1. The hypothesized model.

3) The relationship between parent-adolescent communication about sex and adolescent risky sexual behaviors would be mediated by sexual cues, acceptance of dating violence, and date rape attitudes.

a1. More parent-adolescent communication about sex would predict fewer sexual cues;

a2. More parent-adolescent communication about sex would predict lower acceptance of dating violence;

a3. More parent-adolescent communication about sex would predict fewer deviant date rape attitudes;

b1. Fewer sexual cues would reduce the chance of adolescent risky sexual behaviors;

b2. Lower acceptance of dating violence would predict a lower chance of adolescent risky sexual behaviors;

b3. Less deviant date rape attitudes respectively would decrease the chance of adolescents engaging in risky sexual behaviors.

b4. The three mediators together would predict a reduced chance of risky sexual behaviors among adolescents;

4) Although European parents are assumed to have more communication about sex with their children, the model of mediation effects of adolescent attitudinal factors was assumed to remain the same across different samples. The effect of parent-adolescent communication about sex was expected to be predictive to some extent of adolescent risky sexual behaviors through three mediators in each sample. It was expected there would be no stronger cultural differences concerning parent-adolescent communication about sex.

Aim of the Study

The primary goal of this study was to test hypotheses concerning parent-adolescent communication about sex and the mediation effects of adolescent deviant attitudes toward sexuality on the relationship between parent-adolescent communication about sex and risky sexual behaviors by utilizing the Theory of Planned Behaviors. The second goal was to test whether the proposed model of parent-adolescent communication about sex can be generalized to adolescents in other cultures. Thus, this study deepened our understanding of the role of parent-adolescent interaction in promoting healthy sexuality development. It was also important to provide a new perspective that raises attention to the importance of adolescent own attitudinal and belief system mediating the external environmental influence and behavioral outcomes.

Methods

Sample

The sample consisted of 2,245 college undergraduate students from Japan, Slovenia, Spain and United States four countries. As part of the International Study of Adolescent Development and Problem Behaviors (ISAD; Vazsonyi, Hibbert, & Snider, 2003; Vazsonyi, Pickering, Junger, & Hessing, 2001), anonymous self-report data were collected from both high school students and college students in multiple countries. The purpose of the ISAD was to examine adolescent development in large samples from different countries. In the present study, considering the propriety of the research subjective and topic, only samples of college students were selected for analyses. The school-based convenience sample of late adolescents from four different countries represent a diversity of cultural backgrounds that enable greater opportunities to explore parent-adolescent communication about sex from a

cross-cultural perspective.

Japanese sample. Participants included 335 late adolescents attending a university in a medium size city in Japan. Students ranged in age between 18 and 39 ($Mean_{age}$ = 20.10 years, 67.2% female). **Spanish sample.** The Spanish sample was collected from youth attending a college in a city in the southeastern region of the country. A total of 304 late-adolescents were included ($Mean_{age}$ = 21.57 years, 75.3 % female). **Slovenian sample.** The Slovenian sample consisted of 319 college students ($Mean_{age}$ = 22.48 years, 50.8% female). **US sample.** Data were collected in two adjacent medium size cities from students attending a major university and a community college. Freshmen and sophomores from a wide variety of majors across the campus were surveyed. The U.S. sample used in the current study included 1336 late adolescents ($Mean_{age}$ = 20.39 years, 61.2% female, 88.2% Caucasian). A review of the important demographic information was presented in Table 1. Outlier cases in terms of age existed in Japanese (9 cases, < 2.5%), Spanish (6 cases, 1.9%), and American (19 cases, 1.4%) samples, but given the relatively low percentage in each sample, these they were not deleted and included in the analyses.

Measures

Parent-adolescent communication about sex. This concept was measured by six items extracted from Adolescent Family Process (AFP) scale (Vazsonyi, Hibbert, & Snider, 2003) concerning the communication between parents and children about sex ("How often do you talk to your parent about questions or problems about sex?") and dating relationship ("How often do you talk to your parent about the boy/girl whom you like very much?" "How often does your parent approve of your boyfriend/girlfriend?"). Participants were asked these questions about the mother (3 items) as well as about father (3 items). Response options were from 1 "strongly

disagree" to 5 "strongly disagree". A mean score of the six items was calculated for each subject as an index for parent-adolescent communication about sex, where a higher score indicated more parent-adolescent communication about sex. Cronbach alpha ranges from .68 to .70 across samples, which is a good given the small number of items. Frequency distribution of parent-adolescent communication about sex among the four samples were presented in Figure 2.

Date rape attitudes. Date rape attitudes was measured by three items extracted from the Prescribed Sexual Assault Norms (PSAN) scale (Foshee, 1998) in ISAD. The original PSAN scale consists of four questions, one of which was omitted in this study because its focus was not on dating rape. The final date rape attitude score was computed based on a mean score of three items. The Cronbach's alpha ranged from .50 to .66 across samples.

Acceptance of dating violence. Eight items were used to measure acceptance of dating violence. This scale was modified from the scale used to measure acceptance of prescribed norms (Gray & Foshee, 1997). Examples of items used are "Girls deserve to be hit by the boys they date." and "It is okay for a boy to hit a girl if she hit him first." Respondents rated their perceptions on a 5-point Likert scale, with ranged from 1 "strongly disagree" to 5 "strongly agree." An average score based on the items was computed which indicated acceptance of dating violence. A higher score indicated greater acceptance of dating violence. Cronbach's alphas ranged from .60 to .81 across samples.

Sexual cues. To capture adolescent comprehension of sexual cues, a score of three items from ISAD were used to calculate an index for sexual cues. The items adapted from Perceived Sanctions towards Dating Violence (Foshee, 1998) were designed to measure whether respondents think this is a cue or a signal to consent to

have sex. Three questions are “When girls say ‘no’ to sex they usually really mean ‘yes’.” “When a girl wears sexy clothes on a date, it means she wants to have sex.” “If a girl agrees to go into a bedroom with a boy on a date, it means she wants to have sex.” Response options were modified from a 4-point Likert scale to a 5-point Likert scale, with 1 “strongly disagree” to 5 “strongly agree.” A mean score was calculated based on the three items to indicate a sexual cues score. Reliability was acceptable across samples, where alphas ranged from .60 to .76 across samples.

Table 1
Demographics of Four Samples

Country	***N***	***Mean*** $_{age}$ ***(SD)***	**Age range**	**Ratio of females**
Japan	335	20.10 (2.30)	18-39	67.2%
Slovenia	319	22.48 (2.10)	16-27	50.8%
Spain	304	21.57 (3.84)	19-46	75.3%
United States	1336	20.39 (2.61)	17-49	61.2%

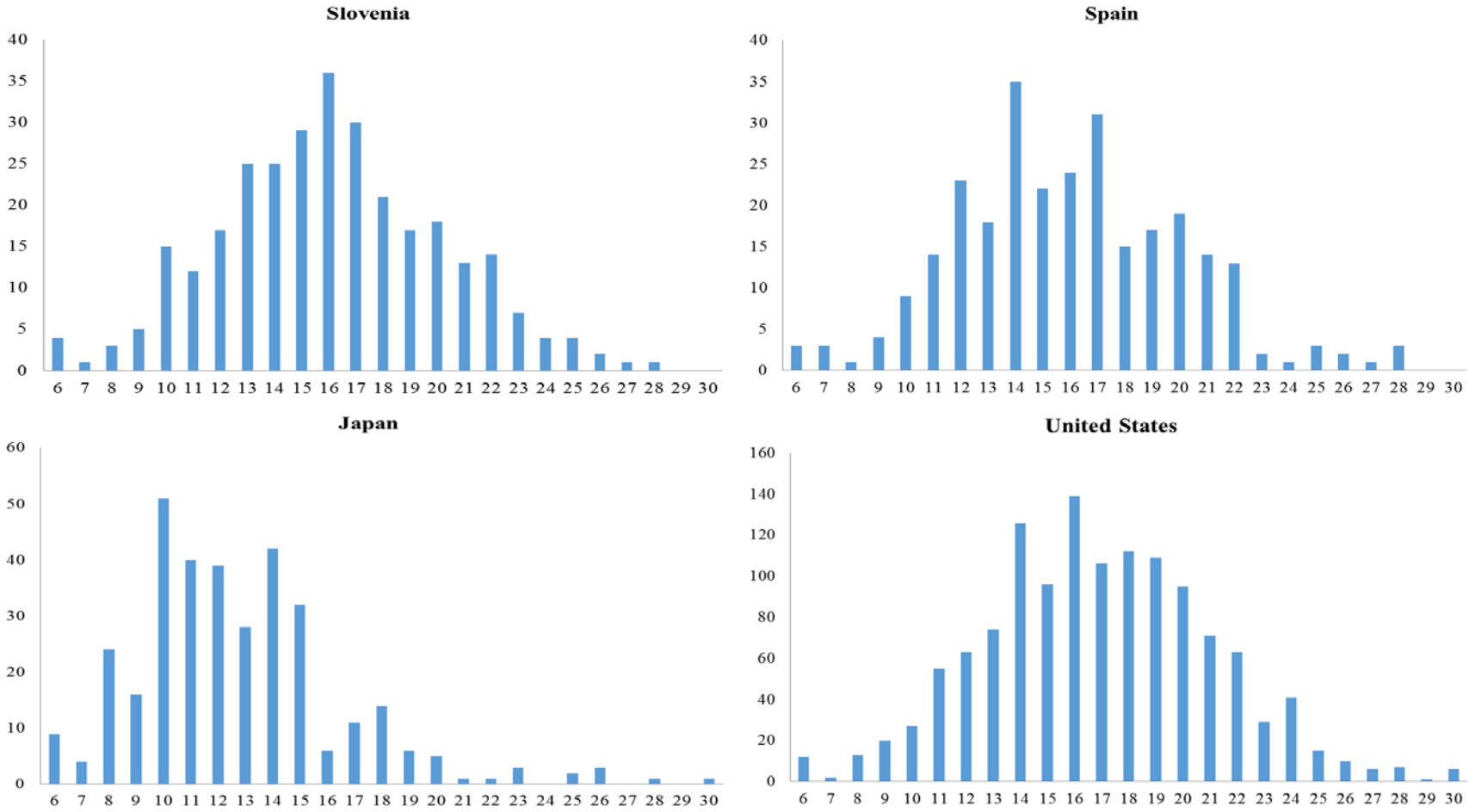

Figure 2. Frequency of parent-adolescent communication about sex in four countries.

Risky sexual behaviors. Four typical risky sexual behaviors were included in the present study as an index of risky sexual behaviors, including age of onset of sex (one item), number of sexual partners (two items), condom use (two items) and history of STDs (one item). These four types of behaviors are among the most studied adolescent risky sexual behaviors and are proved to be predictive of later life sexual activities, HIV-related behaviors, and teenage pregnancy. See Figure 3 for the distribution of four risky sexual behaviors in four samples.

Control variables. Age, sex, socioeconomic status, and family structure were tested as control variables, to partial out any potential effects by them. Family structure was dichotomized into two categories: 1 = living with both biological parents, 0 = others.

Parental education. As a proxy for socioeconomic status, parental education was assessed. Participants were asked to rate years of parental education for both parents. Responses included 1 (he or she finished elementary or junior high school [through Grade 9]), 2 (he or she finished high school [through Grade 12]), 3 (he or she finished some college or technical school), 4 (he or she has a college degree [4 years]), and 5 (he or she finished a graduate degree [advanced degree; e.g., master's or doctorate]). When there were reports of both maternal and paternal education, the higher level of parental education (one score) was used. When the educational status of the only parent was rated, the available report was used. (Vazsonyi et al., 2010, p. 1781)

Plan of Analysis

The data analyses were conducted in four steps. In the first step, the descriptive analysis was provided to depict a general view of samples and core variables; in addition, correlations among the main study variables were computed.

Second, to complete the between-group comparison of parent-adolescent communication about sex, an ANOVA was conducted. The focus was on the difference between the four samples from diverse cultural backgrounds so as to assess whether culture plays an important role in determining whether parents talk to their adolescents about sex. In the third step, the three proposed mediation paths connecting parent-adolescent communication on sex to adolescent risky sexual behaviors were tested respectively with the SPSS mediation macro (Preacher & Hayes, 2008). The last step was to test an SEM or path analysis model which included all mediation pathways. The original model was trimmed to a more parsimonious model based on the results of model fit and significance of each mediation path.

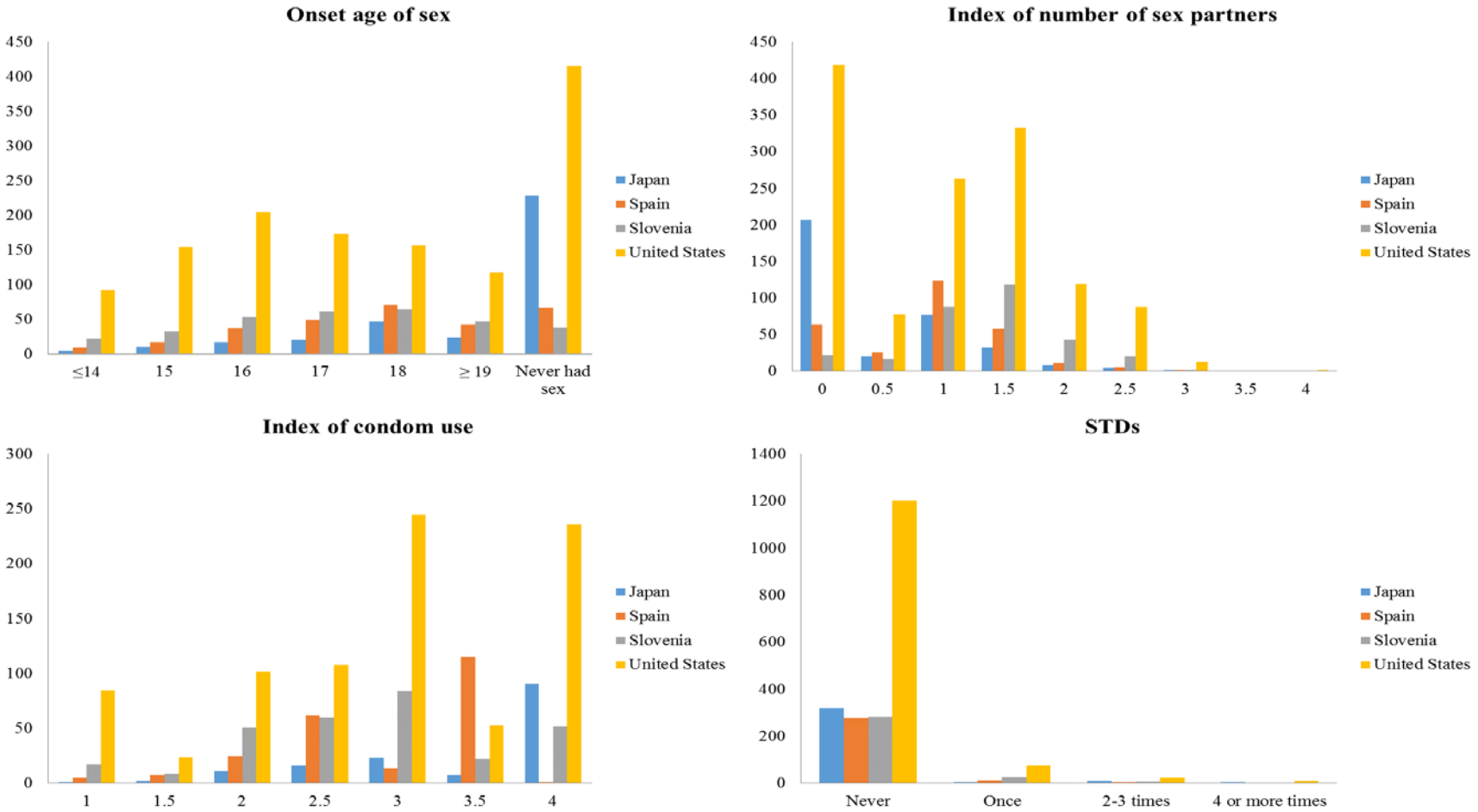

Figure 3. Frequency of risky sexual behaviors in four countries.

Results

One-way ANOVA

One-way ANOVA results (see Table 2) showed a strong effect of culture on parent-adolescent communication about sex as well as on sexual cues, date rape attitudes, and acceptance of dating violence. The differences between four samples in parent-adolescent communication about sex (F (3, 2275) = 89.40, $p < .001$), in sexual cues (F (3, 2288) = 89. 81, $p <.001$), and date rape attitudes (F (3, 2286) = 259.64, $p < .001$) were significant; in contrast, the level of acceptance of dating violence (F (3, 2289) = 1.00, *ns*) did not differ across the four samples. To look into the differences more closely, post hoc tests were conducted. Post hoc tests revealed that Japanese parents communicated significantly less with their children than parents from other countries; the American and the Spanish parents communicated the most. Scores on two out of three attitudinal measures, sexual cues (F (3, 2288) = 89.81, $p < .001$) and date rape attitudes (F (3, 2286) = 259.64, $p < .001$), were significantly different. Acceptance of dating violence showed no noticeable difference. Post hoc tests indicated that the Slovenian youth scored the lowest on data rape attitudes, while others were no different from each other; for sexual cues, Japanese and American youth scored the highest and the lowest respectively, while the Spanish and Slovenian adolescents did not differ.

Participants from different countries scored differently in risky sexual behaviors. The age of onset of sex (F (3, 1750) = 342.08, $p < .001$), number of sex partners (F (3, 2278) = 757.45, $p < .001$), and condom use (F (3, 1723) = 256.04, $p < .001$) revealed significant differences across the four samples. No remarkable differences were for STDs (F (3, 2260) = 1.64, *ns*). Post hoc tests showed that: 1) Japanese youth reported the highest age at first sexual experience, followed by

Table 2

Results of One-way ANOVA: Comparison between Four Countries

	Between groups	**Within groups**	***df***	***F***
Parental communication about sex	1186.44	10064.28	3/2275	89.40***
Sexual cues	1293.91	10987.39	3/2288	89.81***
Date rape attitudes	2496.45	7326.668	3/2286	259.64***
Acceptance of dating violence	55.60	42288.53	3/2289	1.00
Age of Onset of Sex	2309.09	3938.53	3/1750	342.08***
Number of sex partners	2153.60	2158.95	3/2278	757.45***
Condom use	605.05	1357.21	3/1723	256.04***
STDs	.96	441.78	3/2260	1.64

American youth; Spanish and Slovenian adolescents did not differ; 2) Japanese youth reported the fewest sex partners, American and Slovenian youth did not differ, while Spanish adolescents reported the most sex partners; 3) Japanese youth reported to use condoms the least, followed by the Spanish adolescents, and the Slovenian and American youth who reported the most frequent use, but did not differ from each other.

Bivariate Correlation

The results of the bivariate correlation were presented in Table 3a and 3b. Bivariate correlations showed that across all samples, being female was negatively associated with inappropriate attitudes (*r's* = -.07 to -.38); all three attitudes were highly intercorrelated (*r's* = .12 to .58). The direction and strength of the association between parent-adolescent communication about sex and attitudes were inconsistent among samples. In the American sample, the negative correlations between mother-adolescent communication and sexual cues ($r = -.12, p < .01$), date rape attitudes ($r = -.06, p < .05$), and acceptance of dating violence ($r = -.15, p < .01$) were significant; a similar effect was found in the Slovenian sample, mother-adolescent communication negatively correlated with sexual cues ($r = -.20, p < .01$) and acceptance of dating violence ($r = -.13, p < .05$). No such associations were found in the Spanish and the Japanese samples.

Table 3a

Correlations among Main Study Variables by Culture

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age		-.15**	-.09	-.06	.04	.05	-.05	-.01	-.01	.36**	-.12	.08
2. Female	-.08**		-.15**	.01	.14**	-.14**	-.14**	-.25**	-.14**	-.18**	-.06	-.01
3. SES	-.27**	.02		-.05	-.03	.04	-.05	.06	.08	-.01	.03	-.04
4. Family structure	-.07*	.01	.12**		-.04	.06	-.06	-.05	-.04	-.08	.19*	.12*
5. Parental communication	-.08**	.11**	.11**	.08**		.05	-.01	-.09	.14*	.15**	-.07	.03
6. Sexual cues	.05	-.33**	-.05	.02	-.07**		.18**	.27**	.17**	.20**	-.16	.05
7. Date rape attitudes	.04	-.10**	-.09**	-.04	-.04	.26**		.36**	.05	.04	.12	-.00
8. Acceptance of DV	-.01	-.33**	-.02	.00	-.10**	.42**	.35**		.01	.03	.02	.06
9. Age of Onset of Sex	.12**	-.08**	-.11**	-.09**	0.3	0.8**	.14**	.12**		.70**	-.17*	.03
10. Number of sex partners	.28**	-.13**	-.15**	-.11**	-.04	0.10**	.15**	.16**	.79**		-.34	.05
11. Condom use	-.14**	.01	.12**	.01	.00	-.14**	-.14**	-.11**	-.09**	-.14**		-.09
12. STDs	.13**	-.05*	-.07*	-.05	-.02	.14	.19**	.22**	.22**	.28**	-.12**	

Note. * $p < 0.05$, ** $p < .01$. American youth below diagonal, Japanese youth above. DV = dating violence.

Table 3b

Correlations among Main Study Variables by Culture

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age		-.04	-.11*	-.08	.05	-.03	.01	.00	.03	.26**	-.19**	-.01
2. Female	-.10		-.06	-.10	.12*	-.38**	-.17**	-.31**	-.11*	-.18**	.16**	.04
3. SES	-.11	-.06		.06	.08	.02	.09	.01	.06	.14*	.11	.08
4. Family structure	-.24**	.11	-.05		.01	.10	.02	.07	-.06	-.05	.14*	.09
5. Parental communication	-.02	.03	.13*	-.00		-.16**	-.02	-.10	.16**	.14*	.03	.04
6. Sexual cues	.01	-.37**	.00	-.11	.03		.12*	.19**	.07	.12*	-.12*	-.06
7. Date rape attitudes	-.01	-.23**	-.05	-.02	-.04	.32**		.28**	.20**	.09	-.16**	.08
8. Acceptance of DV	-.12*	-.15*	-.09	-.02	-.04	·19**	.20**		.12*	.13*	-.11	.03
9. Age of Onset of Sex	.05	-.08	.06	-.18**	.10	.08	.05	.10		.50**	-.24**	.07
10. Number of sex partners	.20**	-.10	.05	-.19**	.06	.01	.01	.10	.64**		-.16**	.08
11. Condom use	-.11	-.02	.01	.06	.08	.00	.03	-.00	.06	.08		-.03
12. STDs	.12*	-.01	-.08	-.25**	-.09	-.00	-.02	.04	.18**	.24**	-.19**	

Note. Spanish youth below diagonal, Slovenian youth above.

Total Effect of Parent-adolescent Communication about Sex

Parent-adolescent communication about sex was found to have no or a modest effect on risky sexual behaviors (age of onset of sex, number of sexual partners, condom use, and STDs). Three of 16 (four risky sexual behaviors in each of the four samples) parameters were significant. Age of onset of sex (b = .06, SE = .02, p < .01) and number of sex partners (b = .03, SE = .01, p < .01) among Japanese youth, and number of sex partners (b = .02, SE = .01, p < .05) among Slovenian youth were influenced by parent-adolescent communication about sex; this meant the more a parent talked about sex with their children, the more risky sexual behaviors their adolescent had engaged in. No significant association was found between parent-adolescent communication about sex and either condom use or STDs across all four samples. Although it was nonsignificant, the positive association between parent-adolescent communication about sex and risky sexual behaviors across samples was noteworthy. The exceptions were condom use in the Slovenian sample (b = -.00, SE = .01, *ns*), and condom use (b = -.01, SE = .01, *ns*) and STDs (b = -.01, SE = .01, *ns*) in the Spanish sample.

Mediation Pathways

Direct effect of parent-adolescent communication about sex on risky sexual behaviors. Findings from this test were mixed (see Table 4a – 4d). The amount of parent-adolescent communication about sex was significantly associated with age of onset of sex among Japanese youth (b = .06, SE = .02, p < .01), American youth (b = .03, SE = .01, p < .05), and Slovenian youth (b = .07, SE = .02, p < .01). In two of the four samples, parent-adolescent communication about sex was directly associated with the number of sex partners, namely in the Japanese sample (b = .02, SE = .01, p < .01) and in the Slovenian sample (b = .02, SE = .01, p < .05). The rate

of condom use and STD infection were unrelated to parent-adolescent communication about sex across all four samples.

Association between parent-adolescent communication about sex and sexual attitudes. Parent-adolescent communication about sex was found to have no or only a weak effect on adolescent sexual attitudes. Sexual cues was predicted by the amount of communication between parents and children in the American sample (b = .04, SE = .01, $p < .01$) and the Slovenian sample (b = -.10, SE = .03, $p < .01$), while there was no significant effect in the other two samples. None of the associations between parent-adolescent communication about sex and date rape attitudes was significant across the four samples. Acceptance of dating violence was negatively associated with communication between parents and children only in the American sample (b = -.10, SE = .03, $p < .001$), and there was no significant association in the Japanese (b = -.10, SE = .06, *ns*), Slovenian (b = -.11, SE = .06, *ns*), and Spanish (b = -.04, SE = .06, *ns*) samples.

Table 4a

Mediation Pathway Analyses in Japanese Sample

		total effect	**direct effect**	**IV→M**	**M→DV**	**Indirect effect**	
		C	***C'***	***a path***	***b path***	***a x b***	**95% CI**
Outcomes	**Mediators**	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	
Age of Onset of Sex	Sexual Cues			.03 (.03)	.11** (.04)	.00 (.01)	[-.004, .014]
	Date Rape Attitudes	.06** (.02)	.06**(.02)	-.00 (03)	.02 (.04)	-.00 (.00)	[-.003, .002]
	Acceptance of DV			-.10 (.06)	-.02 (.02)	-.00 (.00)	[-.001, .010]
Number of Sex Partners	Sexual Cues			.03 (.03)	.05** (.02)	.00 (.00)	[-.002, .006]
	Date Rape Attitudes	.03** (.01)	.02** (.01)	-.00 (03)	.01 (.02)	.00 (.00)	[-.001, 001]
	Acceptance of DV			-.10 (.06)	-.00 (.01)	.00 (.00)	[-.001, .003]
Condom Use	Sexual Cues			.03 (.03)	.03* (.01)	.00 (.00)	[-.001, .005]
	Date Rape Attitudes	.00 (.01)	.00 (.01)	-.00 (03)	-.02 (.01)	.00 (.00)	[-.001, .002]
	Acceptance of DV			-.10 (.06)	-.00 (.01)	.00 (.00)	[-.001, .002]
STDs	Sexual Cues			.03 (.03)	.01 (.01)	.00 (.00)	[-.001, .003]
	Date Rape Attitudes	.00 (.01)	.00 (.01)	-.00 (03)	-.01 (.01)	.00 (.00)	[-.001, .000]
	Acceptance of DV			-.10 (.06)	.01 (.01)	-.00 (.00)	[-.003, .000]

Table 4b

Mediation Pathway Analyses in United States Sample

		total effect	**direct effect**	**IV→M**	**M→DV**	**Indirect effect**	
		C	***C'***	***a path***	***b path***	***a x b***	**95% CI**
Outcomes	**Mediators**	*b* (*SE*)	*b (SE)*	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	
Age of Onset of Sex	Sexual Cues			-.04** (.01)	.01 (.030)	-.00 (.00)	[-.004, .002]
	Date Rape Attitudes	.03 (.01)	.03* (.01)	-.02 (.01)	.11** (.03)	-.00 (.00)	[-.006, .001]
	Acceptance of DV			-.10*** (.03)	.03* (.01)	-.00 (.00)	[-.008, -.001]
Number of Sex Partners	Sexual Cues			-.04** (.01)	-.01 (.01)	.00 (.00)	[-.001, .002]
	Date Rape Attitudes	.00 (.01)	.00 (.01)	-.02 (.01)	.04** (.01)	-.00 (.00)	[-.002, .000]
	Acceptance of DV			-.10*** (.03)	.02*** (.00)	-.00 (.00)	[-.004, -.001]
Condom Use	Sexual Cues			-.04** (.01)	.03* (.01)	-.00 (.00)	[-.003, .000]
	Date Rape Attitudes	.00 (.01)	.01 (.00)	-.02 (.01)	.04** (.01)	-.00 (.00)	[-.002, .000]
	Acceptance of DV			-.10*** (.03)	.01 (.01)	-.00 (.00)	[-.003, .000]
STDs	Sexual Cues			-.04** (.01)	.01 (.01)	-.00 (.00)	[-.001, .000]
	Date Rape Attitudes	.00 (.00)	.00 (.00)	-.02 (.01)	.03*** (.01)	-.00 (.00)	[-.001, .000]
	Acceptance of DV			-.10*** (.03)	.02*** (.00)	-.00 (.00)	[-.003, -.000]

Table 4c

Mediation Pathway Analyses in Slovenian Sample

Outcomes	Mediators	total effect *C* *b* (*SE*)	direct effect *C'* *b (SE)*	IV→M *a path* *b* (*SE*)	M→DV *b path* *b* (*SE*)	Indirect effect *a x b* *b* (*SE*)	95% CI
Age of Onset of Sex	Sexual Cues			-.10** (.03)	.00 (.05)	-.00 (.01)	[-.011, .009]
	Date Rape Attitudes	.07** (.02)	.07** (.02)	-.01 (.03)	.14** (.05)	-.00 (.00)	[-.012, .006]
	Acceptance of DV			-.11 (.06)	.02 (.03)	-.00 (.00)	[-.013, .003]
Number of Sex Partners	Sexual Cues			-.10** (.03)	.02 (.02)	-.00 (.00)	[-.006, .001]
	Date Rape Attitudes	.02* (.01)	.02* (.01)	-.01 (.03)	.01 (.02)	-.00 (.00)	[-.003, .001]
	Acceptance of DV			-.11 (.06)	.01 (.01)	-.00 (.00)	[-.004, .001]
Condom Use	Sexual Cues			-.10** (.03)	.01 (.02	-.00 (.00)	[-.007, .003]
	Date Rape Attitudes	-.00 (.01)	.00 (.01)	-.01 (.03)	.05* (.02)	-.00 (.00)	[-.005, .003]
	Acceptance of DV			-.11 (.06)	-.00 (.01)	.00 (.00)	[-.002, .004]
STDs	Sexual Cues			-.10** (.03)	-.02 (.02)	.00 (.00)	[-.001, .008]
	Date Rape Attitudes	.00 (.01)	.00 (.01)	-.01 (.03)	.02 (.02)	-.00 (.00)	[-.003, .001]
	Acceptance of DV			-.11 (.06)	.01 (.01)	-.00 (.00)	[-.004, .001]

Table 4d

Mediation Pathway Analyses in Spanish Sample

Outcomes	Mediators	**total effect** ***C*** *b* (*SE*)	**direct effect** ***C'*** *b (SE)*	**IV→M** ***a path*** *b* (*SE*)	**M→DV** ***b path*** *b* (*SE*)	**Indirect effect** ***a x b*** *b* (*SE*)	**95% CI**
Age of Onset of Sex	Sexual Cues	.03 (.02)	.04 (.02)	.02 (.04)	.02 (.04)	.00 (.00)	[-.002, .006]
	Date Rape Attitudes			-.02 (.02)	.02 (.07)	-.00 (.00)	[-.007, .001]
	Acceptance of DV			-.04 (.06)	.04 (.03)	-.00 (.00)	[-.010, .002]
Number of Sex Partners	Sexual Cues	.01 (.01)	.01 (.01)	.02 (.04)	-.01 (.02)	-.00 (.00)	[-.003, .001]
	Date Rape Attitudes			-.02 (.02)	-.01 (.03)	.00 (.00)	[-.001, .003]
	Acceptance of DV			-.04 (.06)	.02 (.01)	-.00 (.00)	[-.004, .001]
Condom Use	Sexual Cues	-.01 (.01)	-.01 (.01)	.02 (.04)	.00 (.02)	.00 (.00)	[-.001, .002]
	Date Rape Attitudes			-.02 (.02)	-.01 (.03)	.00 (.00)	[-.001, .003]
	Acceptance of DV			-.04 (.06)	.00 (.01)	-.00 (.00)	[-.002, .001]
STDs	Sexual Cues	-.01 (.01)	-.01 (.01)	.02 (.04)	-.00 (.01)	.00 (.00)	[-.001, .001]
	Date Rape Attitudes			-.02 (.02)	-.01 (.02)	.00 (.00)	[-.000, .001]
	Acceptance of DV			-.04 (.06)	.00 (.01)	-.00 (.00)	[-.003, .000]

Associations between sexual attitudes and risky sexual behaviors. Mixed results were found about how sexual attitudes affect risky sexual behaviors in the four samples. In the Japanese sample (see Table 4a), sexual cues showed a significant link to earlier onset of sex (b = .11, SE = .04, p < .01), more sex partners (b = .04, SE = .01, p < .01), and condom use (b = .03, SE = .01, p < .05), while no significant effect on STDs was found. Also, there was no effect of date rape attitudes or of acceptance of dating violence on any measure of risky sexual behaviors. In the American sample (see Table 4b), sexual cues only significantly predicted condom use (b = .03, SE = .01, p < .05). Date rape attitudes was associated with early onset of sex (b = .11, SE = .03, p < .01), more sex partners (b = .04, SE = .01, p < .01), condom use (b = .04, SE = .01, p < .01) and more STDs (b = .03, SE = .01, p < .001), and acceptance of dating violence could predict age of onset of sex (b = .03, SE = .01, p < .05), number of sex partners (b = .02, SE = .00, p < .001) and STDs (b = .02, SE = .00, p < .001). Only two significant effects of date rape attitudes were found: age of onset of sex (b = .14, SE = .05, p < .01) and condom use (b = .05, SE = .02, p < .05) among Slovenian adolescents; all other effects were nonsignificant. None of the sexual attitudes significantly predicted risky sexual behaviors among Spanish youth.

Indirect effect. The indirect effects of parent-adolescent communication about sex on risky sexual behaviors through the mediators was not significant in the Japanese, the Slovenian, and the Spanish samples; an effect was found among American youth, namely 3 of 12 significant mediation effects (see Table 4.b). Acceptance of dating violence mediated the relationship between parent-adolescent communication about sex and age of onset of sex (b = -.00, SE = .00, 95% CI = [-.008, -.001]), number of sex partners (b = -.00, SE = .00, 95% CI = [-.004, -.001]), and STDs (b = -.00, SE = .00, 95% CI = [-.003, -.000]).

Multiple Group Comparison

To compare the strength of each pathway in each sample, multiple group comparisons were conducted in AMOS 21.0. A free model and a fully constrained model was tested to examine for similarities or differences in the paths. In the free model, all parameters were freely estimated, while pathways between independent variables, mediators and dependent variables were all constrained to be equal across samples in the fully constrained model. Changes in each model fit suggested that the fully constrained model fit the data significantly poorer than the free model ($\Delta\chi^2$ (45) = 99.859, p = .000, ΔCFI = .020, ΔRMSEA = .038), signaling that a significant cultural effect and how the model maps onto youth from the four different cultural contexts.

Then a partially constrained model was tested in order to locate which paths of the model bore more of the discrepancy, whether it was in the paths from parent-adolescent communication about sex to sexual attitudes, or in the paths from sexual attitudes to risky sexual behaviors. Pathways from the parent-adolescent communication about sex to sexual attitudes were set to be equal across samples, and the rest of the model was left without any constraints. Thus, the proportion of variance explained by paths connecting communication about sex with sexual attitudes was inferred from comparing the partially constrained model to the free model; the variance pertaining to paths between sexual attitudes and risky sexual behaviors was inferred from the comparison of partially constrained model to the fully constrained model. Significant increases in model fit indices ($\Delta\chi^2$ (36) = 89.264, p = .000, ΔCFI = .020, ΔRMSEA = .027) indicated that the partially constrained model fit data substantially better than the fully constrained model. No such salient discrepancy in model fit indices was found between the free model and the partially constrained

model ($\Delta\chi^2$ (9) = 10.594, p = .305 > .05, ΔCFI = .000, ΔRMSEA = .011).

Discussion

The current study mainly intended to examine the assumption that parent-adolescent communication about sex was predictive of risky sexual behaviors (early onset of sex, multiple sexual partners, less condom use, and STDs infection) among late adolescents. It was hypothesized that more parent-adolescent communication can reduce the risky sexual behaviors among adolescents and that the association should be consistent across cultures. Adopting the Theory of Planned Behavior, these hypotheses were tested in late adolescent college-age samples from four different countries. It was found that there were weak to moderate protective effects of parent-adolescent communication about sex on adolescent risky sexual behaviors; in addition, the effects were different across cultures. A potential mediation effect of sexual attitudes (i.e. sexual cues, date rape attitudes, and the acceptance of date violence) was examined as well. Sexual attitudes in the present study were hypothesized to mediate the relationship between parent-adolescent communication about sex and adolescent risky sexual behaviors; this was partially supported in the current study. This next section is devoted to interpreting these results in a meaningful way, followed by some study limitations.

The Effect of Parent-adolescent Communication about Sex

Based on results from path models, the effect of parent-adolescent communication about sex was not as strong or as consistent as hypothesized. Very small effects were found in the Japanese and Slovenian adolescents and no significant effect was found for American or Spanish adolescents. In contrast with Hypothesis 1, results showed that more communication about sex between parents and adolescents was linked with lower age of onset of sexual intercourse, more sexual partners, and a

lower rate of condom use. Several potentially plausible explanations are provided in the following paragraphs.

First, the nature of the cross-sectional data made it impossible to determine the causal association between parent-adolescent communication about sex and risky sexual behaviors. Considering that there was no information indicating when the communication about sex happened, it was unclear whether the communication happened before or after children' first sexual experience. It is possible that the knowledge of children involved in sex increases the chance of parents initiating a conversation about sex. Thus, the positive association between parent-adolescent communication about sex and risky sexual behaviors could reflect the fact that parent may feel obligated to talk about sex with their adolescents after they learned the fact that children are already sexually experienced (Clawson & Reese-Weber, 2003; Rogers, Ha, Stormshak, & Dishion, 2015).

Another possible way to understand the results is that the communication about sex between parents and adolescents is a much more complicated process which may not be fully represented by the measure used in this study. The study done by Afifi and her colleagues (2008) did an excellent job exploring the dynamic interaction between parents and adolescents when they were engaged in conversations about sex. The study revealed that both parents and adolescents involved in a conversation about sex had some emotional reactions to the ongoing conversation and that the reaction, in turn, would have an impact on how effective the communication turned out to be. Thanks to Afifi et al.'s expertise in communication research, their work introduced two concepts: avoidance and anxiety tendencies. They found that parents with higher anxiety about talking to youth about sex-related topics predicted higher levels of avoidance tendency in adolescents. Not surprisingly, adolescents with a higher level

of avoidance tendency were more likely to withdraw from or to hold negative perceptions against the conversation. It was argued that this kind of anxious-avoidant parent-adolescent communication about sex did not have the expected protective effect against risky sexual behaviors among youth.

Other studies also came to the same conclusion that parent-adolescent communication about sex is a perplexing, dynamic activity in the family which involves not only the exchange of information, values and beliefs about sexuality, but also included an emotional component. The openness about sex makes a major difference when it comes to the effectiveness of parents talking to their children about sex (Miller, Kotchick, Dorsey, Forehand, & Ham, 1998), as much as specific topics concerning sexuality (Martino, Elliott, Corona, Kanouse, & Schuster, 2008). The higher degree of openness was the more topics were discussed in the communication process, which increased the chance of talking about more sensitive or private topics in the family while a lower degree of openness predicted more limited topic coverage.

Another way to understand the inconsistent effect of parent-adolescent communication about sex is that more communication about sex may encourage adolescents to have healthy sex with responsibility, even at early ages. That is to say, the early onset may not be a risky outcome and thus, it would not lead to other risky behaviors, such as teen pregnancy. Even though having sexual intercourse at young ages is traditionally regarded as of greater risk, this is not necessarily the case.

Parent-adolescent communication about sex can prevent adolescent risky sexual behaviors, and at the same time, it may promote adolescents to have healthy sex. As individuals enter adolescence and start to hit puberty, thinking of sex is "a natural drive that manifests during and after biological and cognitive maturation" (Somers & Paulson, 2000, p. 640). If the parent-adolescent communication about sex

acknowledges this sexual desire and normalize adolescent sexual behaviors, if parents are more open and knowledgeable about sex, then the adolescents are less likely to suppress the sexual desire, indicating a possible early sexual debut. They are also more likely to be responsible when having sex, . This would contribute to younger age of onset and having more sexual partners. If take the discussion goes one step further, the implication that adolescents who are engaged in sex are at risk need to be redeliberated. Somers and Paulson (2000) have argued against this implication:

> Sexual behavior on the part of adolescents is not necessarily negative behavior……Given biological development that is characteristic of adolescence, there may be a need to reconceptualize what constitute "negative behavior". Certainly, some of the potentially aversive outcomes of being sexually active would be considered negative (pregnancy or STDs), but the sexual behavior itself does not necessarily mean that it is a negative adolescent behavior. (p. 641)

In conclusion, the results revealed that this study failed to provide consistent evidence to support the protective effect of parent-adolescent communication about sex against risky sexual behaviors. The observed mixed effects suggested there are many aspects need to be explored with intensive studies on content or topics, context and the psychological elements involved.

Sexual Attitudes as Mediators

The three sexual attitudes examined in the current study, date rape attitudes, acceptance of dating violence, and sexual cues, were found to be negatively related to the amount of parent-adolescent communication about sex, and to have inconsistent effects on adolescent risky sexual behaviors across the fours samples.

Sexual cues. In the Slovenian and American samples, parent-adolescent

communication predicted significantly less sexual cues while in the Japanese and Spanish samples, a nonsignificant positive link was found. Sexual cues were effective in predicting three out of four risky sexual behaviors in the Japanese sample, significantly increasing the risk concerning early onset of sex and more sex partners but also increasing the use of condom use. Only one significant positive effect on condom use was found in the American sample and no significant effect in either the Slovenian or Spanish samples. Condom use was positively related to sexual cues, indicating that the rate of condom use is higher among people with more sexual cues.

Date rape attitudes. Parent-adolescent communication about sex had little power in predicting date rape attitudes among the four samples. Date rape attitudes showed a strong effect on all four risky sexual behaviors in the American sample and a mild effect on age of onset of sex and condom use in the Slovenian sample. No notable effect was found in the Japanese and Spanish samples. Among these significant associations, increases in date rape attitudes predicted increased risk concerning lower age of onset, more sex partners, and more STDs infection, but also a higher rate of condom use. This stable positive relationship between sexual cues/date rape attitudes and condom use may be attributable to the fact that adolescents engaging in sexual activities earlier are likely to be exposed to basic knowledge of sexuality after they have experienced sex. They might learn from their older partners or peers about using some contraceptive methods. Moreover, a higher STDs infection rate and higher pregnancy rate among these adolescents previously at risk also provide a chance for them to learn about how to protect their health in sexual activities.

Acceptance of dating violence. Parent-adolescent communication about sex significantly predicted decreased acceptance of dating violence in the American

sample, while few effects were found in the Japanese, Spanish, and Slovenian samples. Acceptance of dating violence showed a significant effect on age of onset, the number of sex partners, and STDs infection, but not on condom use in the American sample; no significant effects were found in other three samples.

To understand the inconsistent effect of sexual attitudes, it is necessary to return to the Theory of Planned Behavior. The theory was developed to explain how behavioral intentions are formed in terms. It is supposed to do well in predicting behavioral intentions than behaviors. The theory has been applied in many studies focused on behavioral outcomes because the behavioral intention is close to behaviors and highly correlated to actual behaviors. Nevertheless, though highly correlated, behavioral intentions are not equal to actual behaviors. Especially when it involves violating social norms, intentions are much less likely to be translated into actions, constrained by contextual or psychological factors. A relatively small amount of intentions to have unhealthy sexual behaviors lead to verified behavioral outcomes, the majority are either held back by social norms or constrained by environmental barriers. Therefore, the relatively weak effects of sexual attitudes on risky sexual behaviors indicated there are more factors involved in the transition from sexual attitudes to individual's sexual behavioral outcomes.

Cultural Influences

A conspicuous cultural influence arose between samples as we looked at the ANOVA results of parent-adolescent communication about sex and of risky sexual behaviors together. It was obvious that the only Asian sample—the Japanese sample—exhibited remarkably different tendencies from that of other western samples. The sexually inexperienced rate was the highest in the Japanese sample, and Japanese participants reported the lowest rate of condom use. As for communication

about sex, the Japanese parents reported the lowest rates. These results appeared to be inconsistent with each other and with the hypothesized protective effect of parent-adolescent communication about sex. In American youth, however, the hypothesized model was largely supported; partial support for the model was also found among Slovenian adolescents. The most unexpected results were found in the Spanish sample, where no paths were significant. Multiple group comparisons also revealed a cultural influence on how the proposed model operates across the four cultural contexts, which did not support Hypothesis 4.

These differences observed in effects of parent-adolescent communication about sex on risky sexual behaviors are assumed to be particularly related to social norms pertaining to sexuality and genders, sexual scripts, and gender roles. The next section will articulate how these two concepts influence the association between parent-adolescent communication about sex and risky sexual behaviors.

Sexual scripts. Sexual scripts refer to what is appropriate and inappropriate to sex in a society, thus projecting expectations of behaviors of men and women in sexual activities. Individual sexual attitudes and behaviors are guided and organized under the influence of sexual scripts (Seccombe, 2012). In a culture endorsing traditional sexual scripts, men's sexual needs and pleasure are placed over women's; for women, sex is granted as the means to reproduce and the psychological elements of sexual satisfaction is primarily neglected. Therefore, with traditional sexual scripts, men's sexual desire and need are considered as normal while women's are something should be suppressed (Seccombe, 2012). Gender inequality is also embedded in traditional sexual scripts as opposed to modern sexual scripts.

These sexual scripts acquire the understanding of what consists of risky sexual behaviors and what does not. These risky sexual behaviors included in the current

study are largely defined as detrimental and negative through the lens of modern sexual scripts. However, through the lens of traditional sexual scripts, many of them are acceptable and normal. The script "Women's goal of having sex is to get pregnant rather than satisfaction," for example, would prevent people, both men and women, from using contraceptive methods during sexual intercourse since they contradict the goals of sex in this culture. In a culture endorsing more modern sexual scripts in which sex satisfaction is seen as an important component of sexual intercourses, and in which women are equal to men, not using contraceptive methods in sexual intercourse is putting women in a vulnerable situation, endangering her future due to the potential pregnancy.

Gender roles. Traditional gender roles tend to place men in a dominant position with absolute power over women who are placed in a vulnerable and discriminated position. This affects sexual behaviors in a way that women are less empowered to express concerns or speak about their needs for contraception. Similarly, empirical findings have demonstrated an effect of traditional gender roles on increased risky sexual behaviors. Women holding more traditional gender roles, according to previous studies, are low in self-efficacy to negotiate with their male partners about using condoms, are more likely to be victims of dating violence (DiClemente et al., 2001).

Together, sexual scripts and gender roles can powerfully influence the way parent-adolescent communication affecting adolescent sexual attitudes and behaviors (Teva, Ramiro, & Bermudez, 2014). The values are preserved in the family and passed to the next generation through interaction between parents and their children in daily life. The implicit assumption on which research hypotheses were based is that parent-adolescent communication about sex would convey values and beliefs in line

with the modern sexual scripts and gender roles. However, this may not be true in many cultures. In cultures where the dominant sexual scripts are traditional and the majority of men and women embrace the traditional gender roles, it is safe to speculate that parents talk to children about sex-related topics in a tone in line with traditional values. This could lead to what is opposite to the proposed negative link between parent-adolescent communications about sex: the more talk about sex in the family, the more endorsement of traditional sexual scripts and gender roles are held by the children. In families where parents are more liberal and open to modern sexual norms, the traditional values can still find ways to reach adolescents through socialization outside the family environment, in school, from peers and/or the mass media. These resources immerse individuals with traditional sexual scripts and gender roles.

Japan, even though already a developed country, is a very conservative country in terms of gender roles and sexual scripts. These values will be conveyed in the communication between parents and children. More communication can generate more endorsement to traditional gender roles and sexual scripts, thus more risky sexual behaviors in the end. In America, modern gender roles and sexual scripts are widely accepted as the social norms. Thus, parent-adolescent communication about sex delivers these norms to the children and then predict more healthy sexual attitudes and less risky sexual behaviors. In Slovenia and Spain, both traditional and modern gender roles and sexual script exist; thus, mixed values and norms about sex are conveyed. Accordingly, diverse sexual attitudes and patterns of sexual behaviors are developed in this cultural background since parent-adolescent communication about sex can have either positive or negative influence on sexual attitudes and behaviors. It is hard to detect the compounding effect with the single model tested in the present

study.

Limitations

Large samples provide enough statistical power to test relatively small mediation effects. Of course this can also result in finding spurious effects. In the current study, there were several significant, yet small, effects. Researchers need to be cautious whether significance should be translated into meaningful differences. The relatively low reliability of several measures used diminished the strength of the study and lowered the chance to find more significant results, though this might have attenuated the observed links. Using stronger measures would increase the likelihood of finding more consistent effects. In addition, the cross-sectional design did not allow for an inference of causality and thus contributes to obscuring whether parent-adolescent communication about sex leads youth to more risky sexual behaviors or the other way around. Longitudinal studies are needed in order to provide more answers to this question.

Parent-adolescent communication about sex was indexed by the frequency. The reduction of this family dynamic process limited the possibility to dig deeper into the nature of it. Future studies are necessary to test the multiple facets of the process so as to contribute to the whole knowledge of parent-adolescent communication about sex. Lastly, the cross-cultural study design required the researcher to have a good understanding of each of the four cultures. The discussion on cultural differences can be addressed more thoroughly if researchers have a better understanding of cross-cultural comparison. The cultural influence on human sexuality manifest in many ways and need more attention to it in order to understand how youth learn social norms on sex.

Appendix

Parent-adolescent Communication on Sex

1. How often do you talk to your mother/father about the boy/girl whom you like very much?
2. How often do you talk to your mother/father about questions or problems about sex?
3. In general, does your mother/father approve of your boyfriend/girlfriend?

Date Rape Attitudes

1. It is OK for a boy to force a girl to have sex if he paid for all the expense of a date.
2. Forcing a dating partner to have sex is never OK.
3. It is OK for a boy to force a girl to have sex if she got him sexually excited.

Acceptance of Dating Violence

1. It is ok for a boy to hit his girlfriend if she did something to him mad.
2. It is ok for a boy to hit his girlfriend if she insulted his in front of friends.
3. Girls sometimes deserve to be hit by the boys they date.
4. A girl who makes her boyfriend jealous on purpose deserves to be hit.
5. Boys sometimes deserve to be hit by the girl they date.
6. Sometimes boys have to hit their girlfriends to get them back under control.
7. It is ok for a boy to hit a girl if she hit him first.
8. It is ok for a girl to hit a boy if he hit her first.

Sexual Cues

1. When girls say “no” to sex they usually mean “yes”.

2. When a girl wears sexy clothes on a date it means she want to have sex.
3. If a girl agrees to go into a bedroom with a boy on a date, it means she wants to have sex.

Risky Sexual Behaviors

1. How old were you the first time you had sexual intercourse?

    a. 14 or younger

    b. 15

    c. 16

    d. 17

    e. 18

    f. 19

    g. does not apply

2. With approximately how many different individuals have you *ever* had sexual intercourse?

    a. one

    b. 2-5

    c. 6-10

    d. more than 10

    e. not applicable

3. With how many partners are you presently involved sexually?

    a. one

    b. 2-5

    c. 6-10

    d. more than 10

e. none

4. How often do you use contraception during sexual intercourse?

a. never

b. once in a while

c. most of the time

d. every time

e. not applicable

5. How often do you use condoms?

a. never

b. once in a while

c. most of the time

d. every time

c. not applicable

6. How many times have you been professionally treated (e.g. nurse or doctor) for a sexually-transmitted disease?

a. never

b. once

c. 2-3 times

d. 4 or more times

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