

**Predictors of Sexual Behavior among Korean College Students:  
Testing the Theory of Planned Behavior**

by

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**PREDICTORS OF SEXUAL BEHAVIOR AMONG KOREAN COLLEGE STUDENTS:  
TESTING THE THEORY OF PLANNED BEHAVIOR**

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University of Pittsburgh, 2005

**Purpose:** This study examined the relationships among variables derived from Ajzen's Theory of Planned Behavior (TpB) in order to explain intentions of premarital sex and condom use in Korean college students.

**Methods:** This study used a cross-sectional, correlational design using an exploratory survey methodology through self-reported questionnaires. Several instruments were used to measure the variables studied. Students aged 18-25 were recruited from a university in Seoul, Korea using a flyer and self-referral (male =165, mean age: 22.6; female=133, mean age: 20.67). Since there was a small amount of missing data (6.88%) and no differences in sample characteristics between the missing (n=22) and the non-missing groups (n=298), list-wise deletion was performed. The analytic approach included descriptive statistics, spearman rank correlation, and multi-sample structure equation modeling. All instruments showed good reliabilities. Cronbach's alphas were used to examine internal consistencies of the instruments ( $\alpha=0.77 - 0.98$ ).

**Results:** Forty nine percent of male students and around 12% of the female students had engaged in premarital sex; however, only 26.7% of sexually active students always used condoms. Looking at the model of premarital sex, premarital attitude was the strongest predictor of intention of premarital sex for both genders. For males, the TpB components of attitude, perceived behavior control, subjective norms explained intention of premarital sex; however, perceived behavioral control did not predict intention of premarital sex for females. A Lagrange

Multiplier (LM) test showed that male and female students had different models to explain intention of premarital sex ( $S-B\chi^2(22) = 20.55, p=0.55, CFI=1.00, RMSEA=0.000$ ). Looking at the model of condom use, condom efficacy was the strongest predictor of intention of condom use, and all TpB components significantly predicted intention of condom use. Higher condom efficacy predicted a higher intention. The LM test showed that male and female students shared one model to explain this intention ( $S-B\chi^2(17) = 22.72, p=0.16, CFI=0.98, RMSEA=0.03$ ).

Conclusion: The TpB has demonstrated applicability for predicting intentions of premarital sex and condom use as a way to decrease risky sexual behavior within the Korean culture. Findings provide information for developing better sex education programs for Korean late adolescents and young adults.

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## **PREFACE**

Life in Pittsburgh was another milestone in my academic life as well as my personal life. Since my childhood, I dreamed of studying in the States, and the dream finally came true. I met many people in Pittsburgh who influenced me personally and professionally. I cannot express how valuable each of them is to me, and I can just say I love them.

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# **1. CHAPTER ONE**

## **1.1. INTRODUCTION**

Adolescence is a developmental period which can decide a person's current and future health as it is at this time people begin to make independent decisions about health-risk and health-enhancing behaviors (Williams, Holmbeck, & Greenley, 2002). Physiological, psychological, sexual and cognitive changes are experienced during this period; however, these changes are not concurrent (Lerner, 2002). Thus, it is not unusual for adolescents to have the physical characteristics of adults in early adolescence, and yet have the limited psychological, social, and cognitive development consistent with childhood (Lerner, 2002). Risky sexual behavior, one of the major problems of adolescence, is a result of the developmental characteristics of adolescence (Lerner, 2002). Therefore, adolescents need to learn the consequences of sexual behaviors.

The negative health outcomes of adolescent sexual behavior are diverse. Unexpected pregnancy, subsequent abortions, contraction of sexually transmitted diseases (STD) and Acquired Immune Deficient Syndrome (AIDS) are a few of these possible negative outcomes (Johnson, McCaul, & Klein, 2002; Sieving, Oliphant, & Blum, 2002). Other negative outcomes are human papilloma virus and precancerous changes of the cervix, which are caused by irritation of the cells of an immature cervix and the predisposition to infection of the genital tract (Blum, 2002). Psychological maladjustment in adolescence is also associated with early and unprotected sexual behavior (Barber & Erickson, 2001; Costa, Jessor, Fortenberry, & Donovan, 1995; Guindon, 2002; Jessor, Donovan, & Costa, 1991; Sim, 2000).

The patterns and styles of sexual behavior of adolescents vary depending on the types of physical and cognitive development level, peer norms, and family values (Albrecht, Cassidy,

Reynolds, Ketchum, & Abriola, 1999; Doswell, 2002; East, 1998). Studies showed that girls with earlier puberty than their peers engage in sex earlier and are more likely to become pregnant during adolescence (Herman-Giddens et al., 1997; Udry, Talbert, & Morris, 1986; Wyatt, Durvasula, Guthrie, LeFrance, & Forge, 1999). Peer pressure is a major factor that influences adolescents to engage in risky sexual behavior as well (Dekovic & Meeus, 1997; Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001). However, adolescents who have more satisfying relationships with their mother and perceive maternal disapproval of sexual behavior delay the initiation of sexual behavior (Dittus & Jaccard, 2000). There is an agreement that the most important person who influences a decision about sexual debut depends on the stage of adolescence: parents' norms are more important in early adolescence, but their influence declines with age; then peer norms become more important in later stages such as middle and late adolescence (Doswell et al., 2002; Lerner, 2002; Treboux & Busch-Rossnagel, 1995).

Worldwide, the sexual debut of adolescents is earlier than in past decades (CDC, 2004); however, cultural and social norms decide the trends of sexual behavior (Jessor et al., 1991). In other words, the timing of sexual initiation, decisions regarding protection from STDs and unintended pregnancy and response to adolescent pregnancy vary among cultures and societies because they are influenced by social norms (East, 1998). Therefore, the patterns of sexual behavior and goals for controlling risky sexual behavior may differ between the U.S and Asian countries because they have different cultures. For example, East (1998) surveyed girls' sexual, marital and birth expectations with the European-American, African-American, Latinos and Southeast Asian –American populations in Southern California (n=574, mean age=12.86). She found that the Southeast Asian-Americans had the lowest intention to initiate sex and the highest



virginity rate regardless of their social economic status. They also rated the item of importance of marriage before childbearing higher than all the other ethnic groups in the study (East, 1996).

Traditionally, in Asian societies such as Korea, premarital sex and pregnancy before marriage were considered a stigma for both the individual and the family (Kang, 2001) because of the influence of the ancient Chinese philosophy of Confucianism. These traditional beliefs are still upheld in relation to adolescent sexual behavior. If adolescents engage in sexual behavior and others become aware of this premarital sexual behavior, it is unlikely that the adolescents will be confronted about their choice. Instead these adolescents experience a social stigma affecting their entire future including job discrimination and discrimination by possible future in-laws. Because of these specific social responses, sexually active adolescents do not want to reveal their sexual experience to other people, and they are reluctant to buy a condom or to use contraceptives. Furthermore, this means that if a pregnancy results from sexual behavior, abortion is considered the best solution of the pregnancy (Park, 2000).

There are many reasons why Korean college students are a high-risk group with respect to risky sexual behavior. When adolescents are admitted to college, they are free from strict parental supervision and school restriction for the first time (Youn, 1996). Students have more liberal views of premarital sex and more chances to engage in sexual behavior since they spend more time with their peers and are more exposed to western cultures from the media (Kang, 2001). However, they are still expected to follow traditional norms that the older generation believes to be “golden rule”, that is sexual abstinence until marriage. Because of traditional societal norms, students do not want to reveal their sexual experiences to others and are reluctant to use contraceptives and to buy a condom, the most effective method to prevent STDs and pregnancy. Furthermore, they have few opportunities to get information to protect themselves

from the negative outcomes of their sexual behavior. As a result, the number of sexually active Korean college students is increasing (Cha, 1999; Kang, 2001); in addition, the number of Korean adolescents and young adults diagnosed HIV/AIDS is increasing (Korean National Statistical Office, 2003). Abortion is regarded as a contraceptive method or the best solution for pregnancy before marriage without any consideration of the complications and long-term effects such as increased risk of infertility in the future (Park, 2000).

There are no nation-wide statistics in Korea on adolescent sexual behavior and abortion rates because of the impact of Confucianism. This code does not accept adolescent sexual behavior, so people deny that it exists (Pachauri & Santhya, 2002). This makes it extremely difficult to get reliable statistics of Korean adolescent sexual behavior. It is not unusual for potentially infected adolescents to donate their blood because they can get an anonymous test for STDs and HIV/AIDS during the blood donation. Researchers can only gain access to related statistics on adolescent sexual behavior from the findings of individual studies or reports of nonprofit organizations; however, these may not be representative of the general population and the reported prevalence may therefore be biased. Researchers agree that the numbers of sexually active adolescents are increasing and the negative outcomes of sexual behavior are showing alarming increases in Korea (Cha, 1999; Kang, 2001).

There are many studies regarding adolescent sexual attitude and behavior in Korea (Cha, 1998; Cha, 1999; Kang, 2001; Park, 2000; Park, 1996); yet, theory-driven studies are few. Theory-based interventions which intended to reduce identified determinants of risky sexual behavior are regarded as good ways to lessen the negative outcomes of risky sexual behavior (Bryan & Fisher, 2002; Jemmott, Sweet Jemmott, & Fong, 1998). Thus, there is a need to test a

theory which will guide development of a culturally specific program according to the stages of adolescence (Doljanac & Zimmerman, 1998; Perkins, Luster, Villarruel, & Small, 1998).

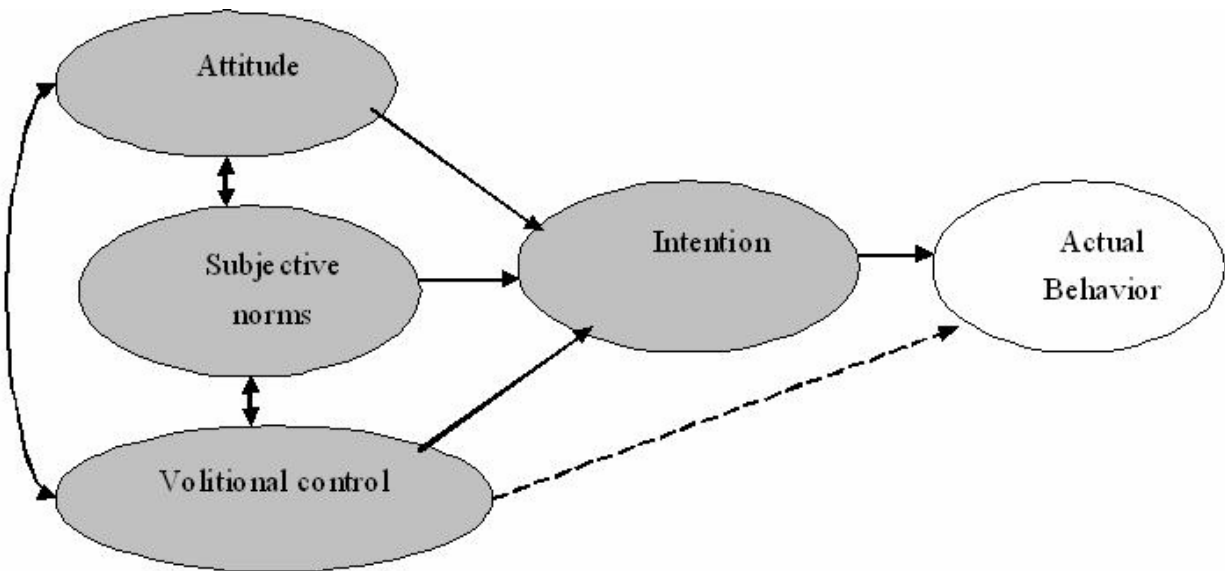
## **1.2. THEORETICAL FRAMEWORK**

The Theory of Planned Behavior (TpB) is widely used for explaining human behavior and for identifying how and where to target strategies for changing behavior (Ajzen, 1991). It views human beings as capable of reasoning to decide their behaviors (Fishbein & Middlestadt, 1989). The TpB was developed as an extension of the Theory of Reasoned Action (TRA) to overcome the main criticism that the TRA model did not consider intentions and behaviors that are not completely under volitional control (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). Thus, the TpB adds volitional control to the original TRA model (see Figure 1).

Both theories emphasize intention, the best predictor of a corresponding behavior (Fishbein & Middlestadt, 1989). In the 1960's, Fishbein and colleagues started to investigate human behaviors based on models of intention. They revealed that intention plays an important role in areas such as what items people buy, what they do in their leisure time, what type of contraceptive they use and why they engage in premarital sexual intercourse (Ajzen & Fishbein, 1975; Albarracin et al., 2001; Salabarria-Pena, Lee, Montgomery, Hopp, & Muralles, 2003). The TRA and the TpB are focused on individual behaviors rather than population. A specific behavior can be predicted by the specific attitude and subjective norms that correspond to a specific target, time and context of behavior (Werner, 2004). That is, these theories seek determinants of specific behaviors and give guidelines for intervention and behavioral change for specific behaviors (Fishbein & Middlestadt, 1989). Intention as the proximal determinant of a corresponding behavior under a volitional control (Armitage, Conner, & Norman, 1999) is determined by attitude, subjective norms and volitional control (Ajzen, 2002; Fishbein &

Middlestadt, 1989). There are many studies which have applied these two theories to various ethnic groups in the U.S. (Basen-Engquist & Parcel, 1992; Bryan & Fisher, 2002; Carvajal et al., 1999; Fisher, Fisher, & Rye, 1995; Gebhardt, Kuyper, & Greunsvan, 2003); however, very few studies exist that have studied appropriate sample size of Asians or Asian-Americans.

The purpose of this study is to examine the relationships among variables derived from Ajzen's TpB in order to explain intentions of premarital sex and condom use in Korean college students. As this study is a cross-sectional study, the direction between intention and actual behavior is not examined in the primary aims. However, self-reported sexual behavior (premarital sex and condom use) is addressed in the secondary aims. The shaded variables in Figure 1 display the relationships to be examined in the primary aims.



**Figure 1.**Theoretical framework derived from the Theory of Planned Behavior

### 1.3. SPECIFIC AIMS, RESEARCH QUESTIONS, AND HYPOTHESES

#### 1.3.1. Specific aims

The specific aims of this study are:

- 1) To obtain descriptive information on Korean college students' risky sexual behavior;
- 2) To examine the mean differences in age, parent-adolescent communication, and the components of the Theory of Planned Behavior (TpB) (premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, the intention of sexual behavior, premarital sex and condom use) between genders;
- 3) To examine the bivariate association among age, perceived risks, premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, parent-adolescent communication, the intention of premarital sex and condom use by gender;
- 4) To examine the internal consistencies of all instruments measuring the TpB components (premarital sex attitude scale, condom attitude scale, subjective norms of premarital sex scale, subjective norms of condom use scale, abstinence efficacy scale, condom efficacy scale, and intention of sexual behavior scale including its two subscales) and Parent-Adolescent Communication;
- 5) To examine the factorial invariance (a, b, c, d, e, f, j and k) of the hypothesized model for using structural equation modeling based on the theory of planned behavior between gender (see Figure 2);
- 6) To examine the regression coefficients in prediction of intention from attitude, norms and efficacy between gender in the hypothesized model (g, h and i ; see Figure 2);

- 7) To test factorial invariance(m, n, o, and p) of the hypothesized model of premarital sex between gender (see Figure 3);
- 8) To examine the regression coefficients in prediction of intention of premarital sex from premarital sex attitude, norms of premarital sex and abstinence efficacy (l, r, and q) between male and female students in the hypothesized model of premarital sex (see Figure 3);
- 9) To examine factorial invariance of the hypothesized model of condom use between gender ( t, u, v, I, II, III, and IV; see Figure 4) ;
- 10) To test gender differences in prediction of intention of condom use from condom attitude, condom efficacy and norms of condom use (s, w, and x; see Figure 4) ; and
- 11) To explore whether military service affects students' sexual behavior.

### **1.3.2. Research questions**

*Question #1:* What is the prevalence of premarital sexual behavior and condom use among Korean college students?

*Question #2:* Are there mean differences in age, parent- adolescent communication, and the components of TpB (premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, the intentions of sexual behavior such as premarital sex and condom use) between genders?

#### Hypotheses

2.1. Female students have a more conservative premarital sexual attitude than the male students.

2.2. There is a difference in the condom attitude scale between male and female students.

2.3. There is a difference in abstinence efficacy between male and female students.

2.4. Male students have higher condom efficacy than female students.

2.5. Female students perceive more conservative subjective norms in terms of premarital sex than male students.

2.6. Female students have lower intention to engage in premarital sex than male students.

2.7. There is a difference in the intention of condom use between men and women.

*Question #3:* What are the bivariate relationships among age, premarital sex attitude, condom attitude, subjective norms of premarital sex, norms of condom use, abstinence efficacy and condom efficacy, parent- adolescent communication, and intentions of premarital sex and condom use for each gender?

#### Hypotheses

3.1. Premarital sexual attitude will be positively correlated with the intention of premarital sexual behavior, with a stronger relationship for females than males.

3.2. Abstinence efficacy will be positively correlated with the intention of premarital sexual behavior with a stronger relationship for females than males.

3.3 Subjective norms of premarital sex will be positively correlated with the intention of premarital sex with a stronger relationship for males than females.

3.4. Premarital sex attitude will be positively correlated with abstinence self-efficacy with a stronger relationship for females than males.

3.5. Premarital sex attitude will be positively correlated with subjective norms of premarital sex with a stronger relationship for females than males.

3.6. Abstinence efficacy will be positively correlated with subjective norms of premarital sex with a stronger relationship for females than males.

3.7. Condom attitude will be positively correlated with the intention of condom use with a stronger relationship for males than females.

3.8. Condom efficacy will be positively correlated with the intention of condom use with a stronger relationship for males than females.

3.9. Subjective norms of condom use will be positively correlated with the intention of condom use with a stronger relationship for males than females.

3.10. Condom attitude will be positively associated with condom efficacy with a stronger relationship for males than females.

3.11. There will be a positively significant relationship between condom attitude and condom norms.

3.12. Condom norms will be positively correlated with condom efficacy with a stronger relationship for males than females.

3.13. Parent-adolescent communication will be positively correlated with the parents' norms of premarital sex.

*Question #4:* What are the internal consistencies of all instruments measuring the TpB components (premarital sex attitude scale, condom attitude scale, subjective norms of premarital sex scale, subjective norms of condom use scale, abstinence efficacy scale, condom efficacy scale, and intention of sexual behavior scale including its two subscales) and Parent-Adolescent Communication?

*Question #5:* Are there significant gender differences with respect to the parameters (regression coefficients and factor loadings; a, b, c, d, e, f, g, h, I, and k) in the hypothesized model based on the Theory of Planned Behavior (see Figure 2)?



*Question #6:* Are there significant gender differences in the prediction between independent variables (Attitude of premarital sex, subjective norms of premarital sex and abstinence efficacy) and the dependent variable (intention of premarital sex) (l, m, n, o, p, q, and r) with respect to the parameters in terms of the model of premarital sex (see Figure 3)?

#### Hypotheses

6.1. There will be no significant differences for factor loadings (m, n, o and p) in terms of four subjective norms of premarital sex across gender.

6.2. There will be significant predictions between the predictors of premarital sex (the attitude of premarital sex, abstinence efficacy, subjective norms of premarital sex) and the intention of premarital sex (l, q and r; see figure 2).

*Question #7:* Are there significant gender differences in the prediction of condom use between the independent variables (attitude of condom use, subjective norms of condom use and condom efficacy) and the dependent variable (intention of condom use) (s, t, u, v, w, x, y, z, I, II, III, and IV; see Figure 4)?

#### Hypotheses

7.1. There will be no significant differences in the factor loadings of the norms of condom use across genders (I, II, III, and IV).

7.2. There will be no significant differences in the factor loadings of the condom efficacy across gender (t, u, and v).

7.3 There will be a significant prediction between the condom attitude, condom efficacy and subjective norms of condom use, and the intention of condom use (s, w, and x).

Question #8: Is there a difference in sexual behavior between participants who experienced military service and participants who did not?

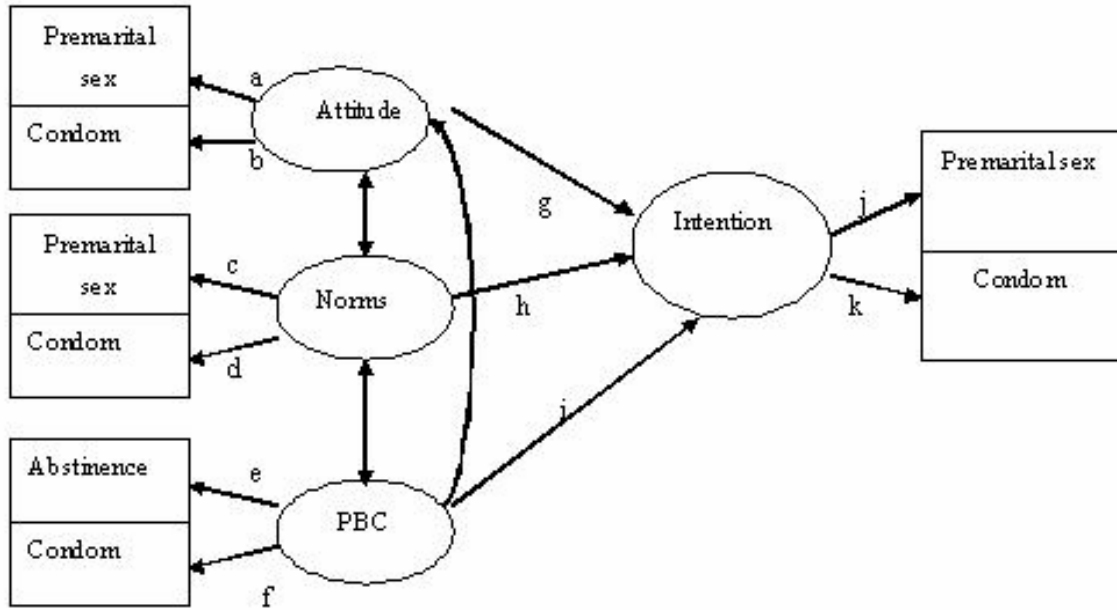


Figure 2. The Hypothesized Model based on the Theory of Planned Behavior

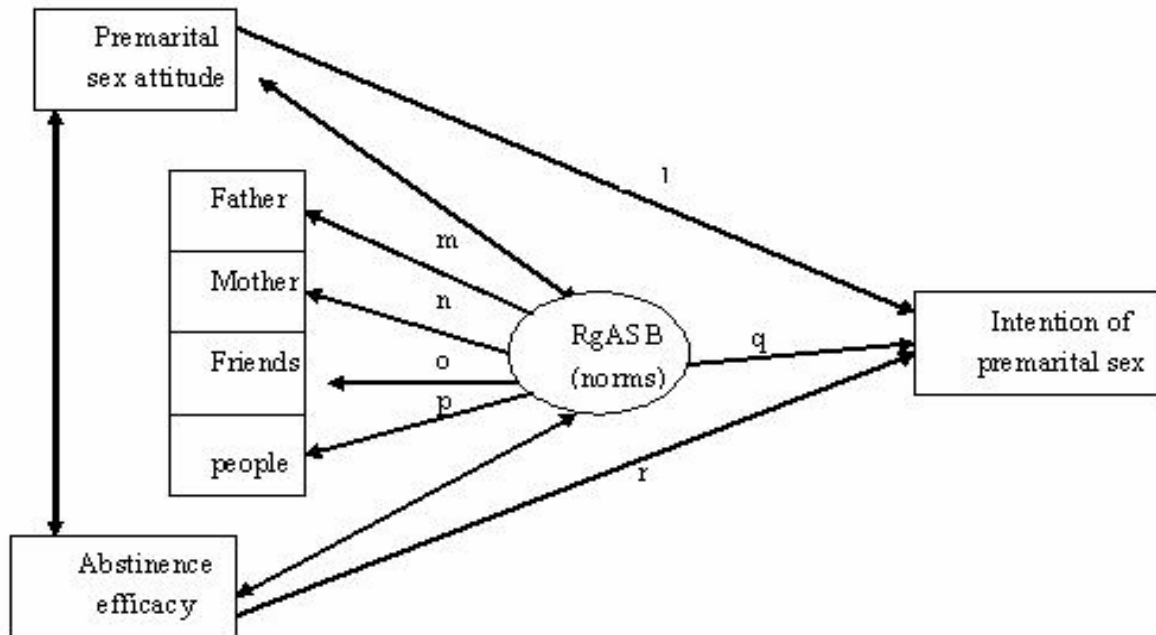


Figure 3. The proposed relationships among variables in terms of premarital sex

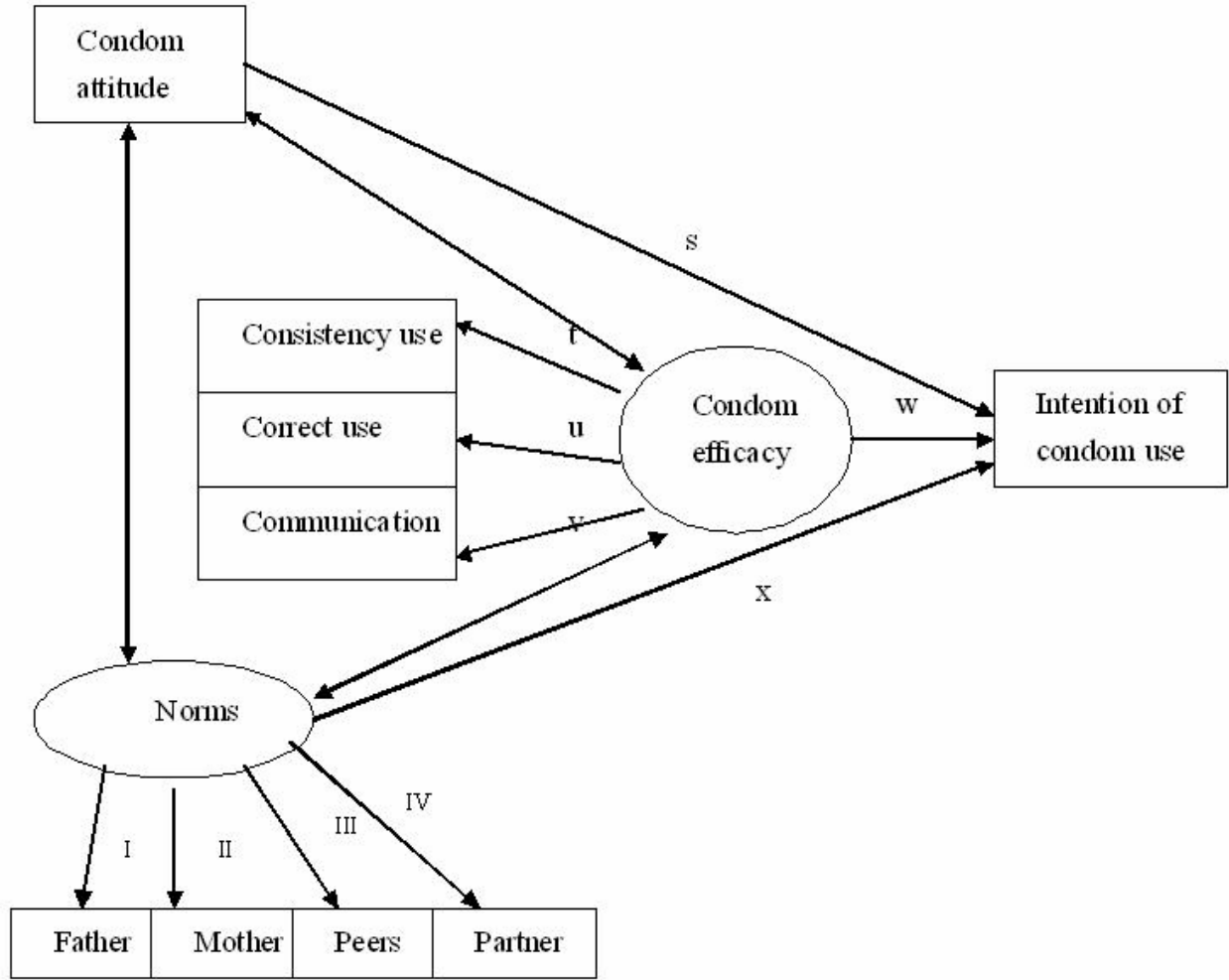


Figure 4: Proposed relationships among variables of condom use

#### 1.4. SECONDARY AIMS

There are three secondary aims in this study. The aims are: 1) to explore where students receive sex education in Korea; 2) to describe the contents of sex education which Korean college students have received; and 3) to examine the relationships between intentions and actual sexual behaviors (premarital sex and condom use) by gender.

## 1.5. DEFINITIONS OF TERMS

Adolescent sexual behavior: The definition of adolescence differs according to researchers and cultures. Historically, many societies have regarded marriage as a passage to adulthood (Wile, 1934), and even modern Korean parents treat their children as adolescents until they get married. Since majority of college students live together with their parents and experience few changes during college period, college students can be categorized as late adolescents in Korea. Thus, the term ‘adolescent sexual behavior’ is interchangeable with premarital sexual behavior when discussing Korean college students aged 18-25 in this dissertation. The rationale for choosing this age range is related to the age at which military service is completed in Korea. All Korean men must finish military service before they are 30 years old, and most Korean male students go to the military service when they attend a university. The required duration of the military services varies from 18 months to 3 years according to the man’s general condition and health condition.

Attitude: attitude refers to a favorable or unfavorable degree of one’s feeling and predisposition toward a certain behavior (Ajzen, 1991; Ajzen & Fishbein, 1975). “It cannot be observed directly but has to be inferred from observed consistency in behavior” (Ajzen & Fishbein, 1975, p.8). In this dissertation, attitude is defined as one’s feeling and predisposition toward premarital sex and condom use. It influences intention of sexual abstinence and condom use. Attitude is measured by a modification of the Premarital Sexual Attitude Scale (mPSAS) (Treboux & Busch-Rossnagel, 1995) and Condom Attitude Scale (CAS)(Kang, 2001).

Subjective norms: Subjective norms are expectations of the referent people and motivations complying with their expectation. They can be defined as the perceived social pressure to comply with a specific behavior which is accepted as a standard and considered as

normal in a particular society (Ajzen, 1991). In this dissertation, the subjective norms with respect to premarital sex and condom use consist of parental expectations and friend (peer) norms toward premarital sex and condom use when adolescents engage in premarital sex. Additionally, cultural expectation about premarital sex and partner's norm for condom use is measured. Two scales are used to measure the subjective norms of premarital sex and condom use. The Referent group Approval toward Sexual Behavior (RgASB), a modification of the Parental and Friends' Approval of Sexual Behavior scale (PFRASB) (Treboux & Busch-Rossnagel, 1995) is used for assessing the influence of subjective norms of premarital sex. The norms of peers, parents and partner toward condom use are measured by a modified subscale of the Sexual Risk Behavior Belief and Self-efficacy Scale developed by Basen-Engquist and colleagues (1999).

Perceived Behavioral Control: The third determinant to behavioral intention is perceived behavioral control (Ajzen, 2002). The definition of this term is perceived ease or difficulty of performing a specific behavior. This term is often compared to self-efficacy and locus of control (Ajzen, 2002; Werner, 2004). Nonetheless, locus of control and perceived behavioral control show a great difference with respect to whether the concepts are directly linked to a particular behavior (Ajzen, 1991). There is a suggestion to conceptualize perceived behavior control as only an external control factor, and include self-efficacy as an internal factor (Werner, 2004). However, Ajzen who developed the Theory of Planned Behavior explained that perceived behavioral control consists of two components, self-efficacy and controllability, both of which concepts reflect internal and external factors (Ajzen, 2002). Ajzen explained that perceived behavior control is most compatible with Bandura's self-efficacy belief and is a stronger path to intention than behavior (Ajzen, 1991, 2002, 2004). Controllability is a belief about the extent to

which performing the behavior up to the actor. Controllability has a stronger path with actual behavior rather than intention (Ajzen, 2002). Thus, perceived behavioral control is measured with self-efficacy scale since the outcome variables of this dissertation is the intention of sexual behavior. The condom self-efficacy is measured with a modified Hanna's condom efficacy scale (Hanna, 1999). This scale assessed three domains of condom use efficacy (consistency, correct use and communication). To assess self-efficacy about premarital sex, Norris's abstinence-efficacy scale is used. This scale was developed to assess how sure the respondents have abilities to variety of behaviors related to abstinence (Norris, Clark, & Magnus, 2003).

Intention: Intention is an immediate antecedent to engaging in a specific behavior (Werner, 2004). "Each intention is viewed as being related to the corresponding behavior (Ajzen & Fishbein, 1975, p.15). The intention of premarital sex and condom use are measured using a modified version of Doswell's Intention of Sexual Behavior Scale. Participants are asked whether they have an intention to engage in premarital sex and whether they intend to use a condom if they engage in premarital sex using the modified intention of sexual behavior scale.

## **1.6. SIGNIFICANCE TO NURSING RESEARCH**

This study is significant to nursing research in the following ways. First, there are few studies that have examined Korean college students' risky sexual behavior because Korean college students are in an ambiguous position in the society. Korean college students are treated as adolescents by their parents and the general culture since they are students, financially dependent and not married (marriage is a criterion for being an adult in Confucian society). Korean college students are, however, expected to behave like adults given their age and education. Similarly, sexual behavior among college student is also linked to the expectation that they behave like adults. Members of the older generations' expectations are paradoxical. Older generations in

Korea expect college students to 1) abstain from engaging in premarital sexual behavior and 2) know how to use contraceptives methods like condoms. Unfortunately, there have been a few school-based sex education programs for college students in Korea, and only a few students were satisfied with the quality of the school based programs (Kang, 2001). Therefore, the significance of this study was that it identified and highlighted the need for a sex behavior program for Korean college students. As health educators, nurses can provides a practical education program to reduce risky sexual behavior, and this study will provide nurses with insights for theory-driven sex education program designed to reduce risky sexual behavior.

Second, many studies on adolescent sexual behavior in Korea have been exploratory without theory (Cha, 1998; Cha, 1999; Kang, 2001; Park, 2000; Park, 1996). Additionally, when a theory is identified, researchers do not usually use theories to select measurements. Thus, a study uses measurements coming from several theories, even though a researcher may be interested in testing only one theory. Therefore, it is difficult to develop an intervention program for prevention of risky sexual behavior that is theoretically based. This study may provide insights about the effectiveness of the TpB to explain the Korean college students' sexual behavior; and provide valuable information as to when sex education programs for college students can be developed using this theory.

With regard to data collection, Korean researchers may identify several differences in relation to the procedures and human right protection using survey methodology between the U.S and Korea. Korean researchers can see the meaning of “anonymous study” as it applies in the U.S. from this study since this study follows the recommendations of the University of Pittsburgh Institutional Review Board. In Korea, an “anonymous study” will not have the subject's name on the instruments when using the survey method, but they may still directly

contact the participants. In the U.S., however, the recruitment process required that the investigator have no contact with potential subjects in order to preserve anonymity for same type of study. The second difference in methodology procedures is eligibility to be a data collector. For instance, in Korea, a researcher is the person who collects data and/or who teaches the subjects of the study. In that case, researchers and/or instructors distribute questionnaires in the beginning of the class and ask the students to complete them during the class time. However, in the U.S., a person who could potentially influence study participation can not be a data collector. Given these reason, this study may provide useful information about the criteria of study protocols and procedures to Korean nurse researchers. It is important to develop human right protection strategies which are culturally and scientifically acceptable. Since protocols are directly related to ethical consideration, there is a need to inform investigators and potential subjects about human rights. This study can then guide the Korean scientific community to develop their own culturally appropriate strategies for protecting participant rights.

There is an agreement that previously developed instruments provide international researchers with the advantages of saving time and effort. Further, the use of common instruments which are validated and reliable allows researchers to compare findings across cultures and expand cross-cultural knowledge (Yu, Lee, & Woo, 2004). However, importing a scale for use in another language or culture often requires considerable effort by researchers to maintain the quality of translation (Brislin, 1970; Sechrest & Fay, 1972).

The back-translation method is very important for a researcher to use for a scale translated from one language to another since the method may guarantee equivalence of content between the original and the translated version of instruments (Jones, Lee, Phillips, Zhang, & Jaceldo, 2001). Not surprisingly, Korean researchers often use a combination technique without



the back-translation method in order to obtain appropriate instruments for their studies because of a lack of qualified bilingual translators. However, back-translation method is necessary since literal (direct) translations of measures may convey a completely different meaning (Sechrest & Fay, 1972; Streiner & Norman, 1989). Therefore, Korean researchers need to be familiar with the strategies that can assist researchers to obtain reliable and valid instruments that are culturally acceptable and in the language of the people. In addition, this study used a newly Korean translated, validated and reliable instrument that can be used in future studies by the Korean nurse researchers.

In this study, the researcher introduced a new combined translation technique which successfully obtains reliable measures that can be used for the future studies. A combined technique for scale translation in this study is a modified technique from Brislin's classical back-translation model. Because the researchers had difficulty finding individuals who were both fluent in English and Korean and knowledgeable about the field of study, the researchers could not use Brislin's team approach, which is generally reported as the way to do scale translation (Brislin, 1970). Instead, the researchers applied three combined techniques (back-translation, the committee approach, and the pretest technique using a monolingual sample) and obtained satisfying results. Therefore, this study may provide Korean researchers with a good insight regarding diverse procedures of the back-translation method and help them to find an appropriate method based on their research environment.

## 2. CHAPTER TWO

This chapter provides the basic rationale for and explains the significance of this study. Additionally, it will explain gaps between the previous literature and the current study. The major areas related to adolescent sexual behavior will be explored in the following order.

The first section discusses the definitions of adolescence according to times, culture and organization. Additionally, characteristics of adolescence and perceptions of late adolescents toward sexual behavior will be explained. The second section provides information regarding the prevalence of adolescent sexual behavior and condom use in the U.S and in Confucian societies in Asia, including Korea. This section will lay out the trends and the patterns related to premarital sex and condom use among the countries and examine the difference between them. Third, the negative outcomes of adolescent sexual behavior are presented. Various negative outcomes of adolescent sexual behavior such as STDs, HIV/AIDS, unplanned pregnancies and abortion are discussed. Fourth, the influence of culture on Korean college students' sexuality is addressed with a rationale as to why the researcher is approaching the phenomenon of Korean college students' sexual behavior by looking at differences based on culture. This section also describes the reason why gender differences should be considered when doing research on Korean adolescent sexual behavior. Fifth, the components of the Theory of planned Behavior (attitude, perceived behavioral control and subjective norms) are discussed. Last is a summary which will explain the gaps from the prior literature, summarize the literature review, and identify the gaps between previous empirical studies and the current study are addressed.

## **2.1. ADOLESCENCE**

### **2.1.1. Definition of adolescence**

Adolescence is a developmental period that was recognized after the industrial revolution of the 20th century, primarily in Western (or westernizing) countries. In the past, many cultures treated married people as adults regardless of their age (Koteskey, 2003). A person was a child then an adult. Since the timing of marriage was different across cultures, the variation of adolescence by culture exists. According to Koteskey's investigation, the minimum legal marriage age was 12 for women and 14 for men, in the Jewish, Roman, Anglo-Saxon and American cultures for 3000 years (Koteskey, 2003). In the Talmud, one Rabbi suggested that to be a good man is to lead his children in the right path, and he marries his children before they attain puberty (Koteskey, 2003). Another definition of adults in Ancient times was puberty. Some cultures regard an individual who has started puberty as an adult. Thus, there was no concept of adolescence in cultures that encouraged early marriage, or regarded puberty as a sign of adults.

Puberty is now, however, a sign of adolescence, not adulthood in westernizing countries (Petersen & Leffert, 1995). Although physical development such as puberty is still regarded as the hallmark of adolescence, researchers have started to consider other developmental domains related to adolescence: cognitive, moral, and psychosocial development (Petersen & Leffert, 1995). For instance, the World Health Organization (WHO) defines adolescence as the period of 10 to 19 years old from the perspectives of not only biological development but also psychological development and socioeconomic status (WHO, 2003).

Age distinction provides another perspective on defining adolescence. Adolescence is the period from 10 to 20 years old and is further divided into three phases: early, middle and late adolescences (Petersen & Leffert, 1995). However, the age distinction varies significantly among

definitions. For example, the Oxford English Dictionary (1961) defines adolescence as “the process or condition of growing up; the growing age of human beings; the period which extends from childhood to manhood or womanhood; youth; ordinarily considered as extending from 14 to 25 in males and 12 to 21 in females”(Oxford English Dictionary, 1961). The age distinction is continuously changing and only provides a general guideline, not a standard rule. While researchers agree that puberty is a starting point of adolescence (Petersen & Leffert, 1995), they are still looking for the cessation point of adolescence. This delineation could provide clear definition of what the adult role is.

Neither marriage nor first sexual behavior are the criteria making the start of adulthood anymore (Pachauri & Santhya, 2002), because many persons engage in premarital sexual behavior during adolescence in modern societies. Also, the extended duration of education influences the average age of a first marriage, childbearing, and adolescent sexual behavior (The Alan Guttmacher Institute, 2002). Therefore, there is a need to identify criterion of adult role for defining adolescence. The following section will briefly explain the characteristics of the three stages of adolescence.

### **2.1.2. Characteristics of adolescence**

Children experience external (e.g., secondary sexual) and internal changes (cognitive and emotional changes) during adolescence (Petersen & Leffert, 1995). Subsequently, social relationships are changed in adolescence (Lerner, 2002; Maxwell, 2002). Children meet different developmental tasks during three phase of adolescence (early, middle, and late adolescence). During the early stage of adolescence, adolescents experiencing pubertal development set new definitions of self and discover sexual identity (Lerner, 2002). The main issue of middle adolescence is changing social relationships (Petersen & Leffert, 1995). During this second stage

of adolescence, peer influence increases, the impact of parents is weaker on their child's behavior (Barber & Erickson, 2001). This stage is the one most people regard as stereotypical adolescence. Late adolescence is a newer concept, associated with the characteristics of modern society (e.g., longer education, delayed marriage). During this phase, adolescents experience adult roles (Petersen & Leffert, 1995). Additionally, late adolescents develop formal operational thought, defined as one of characteristics of adults in modern society (Lerner, 2002). According to Piaget, formal operational thoughts make it possible for someone to consider all hypothetical situations and anticipant consequences (Lerner, 2002; Petersen & Leffert, 1995). However, these characteristics are age related, but not age dependent (Thato, 2002), making it difficult to define when late adolescence ends.

### **2.1.3. Perceptions of late adolescents toward sexual behavior**

Late adolescence is the focus of this study. Because the late adolescent does not completely achieve formal operational thought capabilities, they may have incorrect perceptions of risky sexual behavior. An adolescent who underestimates vulnerability for the consequences of risky sexual behavior has an increased chance of engaging in risky sexual behavior. Several studies have shown that adults and adolescents perceive the risks of behaviors differently (Beyth-Marom, Austin, Fischhoff, Palmgren, & Jacobs-Quadrel, 1993; Millstein & Halpern-Felsher, 2002; Sobal, 1988). Beyth-Marom and colleague (1993) examined the perceived consequences of sexual behavior with 199 parents (mean age = 42.5) and adolescents (mean age =14.8). The researchers found that the adolescents perceived risks of sexual behavior were significantly lower compared to the parents' perception. Millstein and Halpern-Felsher (2002) reported similar findings. Adolescents attending 7<sup>th</sup> and 9<sup>th</sup> grade perceived less vulnerability to STDs than their teachers (Millstein & Halpern-Felsher, 2002). This optimistic perception toward sexual behavior

may explain why adolescents are more likely to engage in risky sexual behavior than adults (Tinsley, Lees, & Sumartojo, 2004; Weinstock, Berman, & Cates, 2004).

Various experiences help adolescents to develop cognitive abilities and decision making skills (Petersen & Leffert, 1995). However, their relative lack of experience, as compared to adults, contributes to adolescents having misperceptions about risk behaviors and the effects of these behaviors (Millstein & Halpern-Felsher, 2002; Petersen & Leffert, 1995). Therefore, health providers developing a sex education program for late adolescents should consider how they can help late adolescents gain an accurate perception of risky sexual behavior.

## **2.2. THE PREVALENCE OF SEXUAL BEHAVIOR**

Adolescents living in Western (or westernizing) countries share more of a liberal sexual value, due at least in part, to industrialism, urbanization, improved modes of transportation and communication; and sexual behavior is identified as a major concern threatening adolescent health in these countries regardless of culture (The Alan Guttmacher Institute, 2002). In the U.S., around 65 % of adolescents in the 12<sup>th</sup> grade are already sexually active and the average age of initiating sex is 16 (the mean age of inner-city youths is 13) in 2002 (Childstats.gov, 2002). However, teen pregnancy rates among sexually active adolescents aged 15-19 significantly decreased during the 1990s (e.g., 116 per 1,000 in 1990 to 87 per 1000 in the 1999) (Coley & Chase-Lansdale, 1998; Singh & Darroch, 1999). Concurrently, the numbers of sexually active students consistently using condom increased from 33.1% in 1988 to 45.0% in 1995 (Sonenstein, Ku, Lindberg, Turner, & Pleck, 1998). Associated with both encouraging statistics, birthrates of the U.S. adolescent mother declined from 89.1 in 1960 to 56.8 in 1990s per 1000 (Coley & Chase-Lansdale, 1998).

These statistics indicate improvements in adolescent health in the U.S in general, but the findings also showed a large difference among ethnic and racial groups (Coley & Chase-Lansdale, 1998). Minority groups such as African American, Latinos and inner-city adolescents are still vulnerable to negative outcomes of adolescent sexual behavior, because they are more likely to engage in premarital sex and less likely to use condoms (Koniak-Griffin, Lesser, Uman, & Nyamathi, 2003). Most African American high school students are already engaged in sexual intercourse: 89% of boys and 70% of girls reported having sexual experience (Kann et al., 1995). Latino adolescents reported a declining rate of condom use from 34.1% in 1988 to 30.1% in 1995 when the other ethnic groups showed significantly increasing percentages of consistent condom use at the same time (Sonenstein et al., 1998).

Asian countries do not share these positive trends of the U.S. for adolescent sexual behavior. Most Asian countries are experiencing the same rapid increase in the numbers of sexually active adolescents that U. S. experienced in 1970's (Mensch, Clark, & Anh, 2003; Thato, Charron-Prochownik, Dorn, Albrecht, & Stone, 2003). According to Thato (2003), 64.8% of male and 32% of female Thai vocational students aged 18 to 22 were sexually active. Mensch and colleagues (2003), who examined the negative consequences of adolescent sexual behavior among Vietnamese adolescents using a 1999 survey data of the Adolescents and Social Change in Vietnam, estimated that 25% of men and 10% of women aged 21 would have had premarital sex in 1999. They concluded that the numbers of sexually active adolescents were increasing although sexual behavior was not a prevalent behavior yet.

The patterns of Korean adolescent sexual behavior showed the same movements as other Asian countries. The numbers of sexually active adolescents increased, and the trends of Korean adolescent sexuality are changing. Park (2000) reported that 17.9% of high school boys were

sexually active in 2000 and 7.3% of high school girls were sexually active in 1997. Studies that examined Korean college students' sexual behavior found that around 50-55 % of male students and 10 - 18.4% of female Korean college students were sexually active (Cha, 1999; Jang et al., 1998). More recent studies conducted with Korean college students reported that 631 of 2800 Korean college students (22.54%) were sexually active (Kang, 2001). The researcher's pilot study (2004) found that the percentage of sexually active male students decreased (40.0%), but that of girls increased (22.73%), compared to the previous findings. In summary, previous literature showed that the numbers of sexually active Korean adolescents were different based on the stage of adolescence and time period during which the studies were conducted.

With regard to using contraceptives, many Asian Confucian countries showed lower rates of using contraceptives or condoms than those in the U.S (Goodkind & Anh, 1997). According to Thato (2002), in Thai vocational students, only 16.5% of male students and 19.1% of the female students who were sexually active used condoms "most of time" or "always". Korean students showed inconsistent rates of condom use depending on the participant's age. Youn (1996) examined the Korean adolescent sexual behavior with 849 boys and girls (mean age=18.8), and found only 7% of sexually active adolescents consistently used condoms. Kang (2001) examined condom use rates with 631 sexually active students, and reported that 55% of male (mean age= 24.51) and 58.1% of female (mean age= 21.35) used condoms "most of time" or "always"(Kang, 2001). In the researcher's pilot study, roughly only 20% of male students (mean age= 22.98) used condoms with their current partner (s) or in their sexual relationships during the last 3 months. However, 75% of female students (mean age= 21.43) reported that they often or always used condom with their current partners or in the sexual relationships during the last 3 months.



Thus, there is a need to examine the prevalence of condom use with larger samples to identify whether the patterns of condom use have been changed.

### **2.3. NEGATIVE OUTCOMES OF SEXUAL BEHAVIOR**

#### **2.3.1. Sexually transmitted diseases**

Sexually transmitted diseases (STDs) are the most common infections in adolescents and young adults. It is estimated that more than 15 million new STDs case were diagnosed in the United States in 2000 (Weinstock et al., 2004), and two thirds of the STD cases were reported in persons under 25 years old (Zak-Place & Stern, 2004). Evidence has suggested that women are more vulnerable to STDs than men (The Alan Guttmacher Institute, 2002; Weinstock et al., 2004; Zak-Place & Stern, 2004), because STDs increase the risk of incidence of pelvic inflammatory disease, infertility, ectopic pregnancy cervical cancer. Furthermore, STDs transmitted via oral sex may facilitate oral cancers (Herrero et al., 2003; Kreimer, Alberg, Viscidi, & Gillison, 2004; Rajkumar et al., 2003).

Several STDs, such as chlamydia, gonorrhea and syphilis, have been annually reported to CDC in the U.S. The rates of reported gonorrhea and Chlamydia in the U.S were 0.48 per 100 and 1.48 per 100 in 2002, respectively (CDC, 2003). Adolescents and youths are at the highest risk group from the negative outcomes of STDs (Cotton, Mills, Succop, Biro, & Rosenthal, 2004; Hiltabiddle, 1996; Millstein & Halpern-Felsher, 2002). For Chlamydia, which is the most commonly reported among new STDs, 74% of the reported cases were aged 15-24 (CDC, 2003). For Gonorrhea, 60% of new reported cases occurred among persons aged 15-24. Overall, syphilis rates have dramatically decreased during the 1990s, but it is still a common STD. Around 8,200 new cases of syphilis infection are reported among persons aged 15-24 in 2000 (CDC, 2003; Weinstock et al., 2004).

The reported statistics of STDs in the U.S., however, may be underestimated in due to the following reasons: 1) asymptomatic persons with STDs may not get tested, and are thus not reported; 2) high risk groups (e.g., homeless and adolescents) are not routinely screened; 3) health care providers may fail to report all diagnosed cases; and 4) several other STDs (e.g., Herpes) are not nationally reportable in the U.S (CDC, 2000b).

It is more difficult to get accurate statistics, especially for adolescents and women, in relation to STDs in Asian societies influenced by Confucianism. For adolescents, premarital sex is not accepted by Confucian society (Pachauri & Santhya, 2002). Therefore, adolescents never visit a clinic to test for STDs and HIV/ AIDS before they exhibit severe symptoms. Treatments for these infections are usually performed after they have very serious and recognizable symptoms. For women, “good girls” are expected to be sexually ignorant until marriage (Bullough & Bullough, 1995). Even gynecological services, only considered for reproduction in Confucian Societies, are not acceptable before marriage (Okazaki, 2002). As a result, Asian women were more reluctant to talk about STDs to physicians and seek screening test for cervical cancer (Frisch & Goodman, 2000; Schuster, Bell, & Kanouse, 1996). Okazaki (2002) cited the report of National Asian Women’s Health Organization which examined 674 Asian American women’s sexuality. According to the report, more than 25 % women aged 18- 35 have never visited the clinics for reproductive health or sexual health service, and more than one third never discussed pregnancy, STDs and birth control with their spouses or household members.

In Asia, few nationwide studies have been done, and the statistics showed lower prevalence of STDs than that of the U.S. However, there is evidence that the prevalence of STDs may be higher in Asia than in the U.S. Parish and colleagues (2003) examined the prevalence of Chlamydial infection in China with a probability sample. The study sample consisted of 1,738

women and 1,688 men aged 20 to 64 years. They found that 2.6 women and 2.1 men per 100 of the populations had Chlamydia in China. In addition, 38% and 8% of sex workers were infected by Chlamydial infection and Gonorrhea, respectively (Parish et al., 2003). In contrast, the national reporting system in China announced that the annual incidence of combined 8 STDs human immunodeficiency virus (HIV) / acquired immune deficiency syndrome (AIDS), gonorrhea, syphilis, genital warts, nongonococcal urethritis / cervicitis, genital herpes, lymphogranuloma venereum and chancroid) was 0.07 per 100 total populations (Chen, Gong, Liang, & Zhang, 2000). That is, nationwide statistics may significantly underestimate the prevalence of STDs in China as well as in other Confucian societies.

Parish's study showed another important finding in terms of unique patterns of STDs infection in Confucian societies. Men are usually infected by STDs from a commercial sex worker and women are usually infected by her steady sex partner or her spouse. The risk factors of STDs for Asian men were being younger than 45 years old, being more educated, and earning more money; the factors for women were having a spouse or a steady sexual partner (Beyrer, 2003; Parish et al., 2003; Rojanapithayakorn & Hanenberg, 1996). The results imply that Asian women are vulnerable to STDs even though they have only one sex partner.

Parish's study is important to researchers in Korea where there is no nationwide statistics related to the STDs except HIV/AIDS. With regard to STDs, Korea may have similar trends because of the impact of Chinese Confucianism on the society. Because people only visit a clinic when they have severe pain or the symptoms of infection for STDs, carriers may not be included in any reported statistics. For instance, Cha and colleagues (2003) found that none of whom reported contracting STDs among sexually active Korean college students in their pilot study.

That is, both self-administrated and reported statistics about STDs may be biased or underreported in Korea.

### **2.3.2. AIDS**

The proportion of adolescents and young adults diagnosed with HIV/AIDS is increasing in the U.S (CDC, 2000a; Tinsley et al., 2004). Adolescents diagnosed with AIDS account for 4.12 % of all persons with AIDS, and 8.69% of the current AIDS cases are 25 to 29 years old in the U.S (CDC, 2000a). Since one of the characteristic of AIDS has a long latency period from infection--the average estimated years between HIV infection and AIDS diagnosis are 7 to 9.8 years (Flora & Thoresen, 1989)--the young adults diagnosed with AIDS in their 20's most probably were infected by HIV in adolescence. While HIV risk-behavior is decreasing, and the numbers of AIDS cases decreased from 70,325 in 1994 to 39,412 in 2000 in the U.S., minority groups such as African-Americans and Latinos are disproportionately vulnerable to HIV/ AIDS, and they account for the largest numbers of persons with AIDS (CDC, 2000a; Tinsley et al., 2004).

A significant number of cases of newly infected with HIV are now found in developing countries in Africa and Asia (Kelly & Kalichman, 1995). Unlike that of U.S., the HIV/AIDS statistics in Asia do not show positive trends. In 2001, approximately one million people were newly infected with HIV in Asia (UNAIDS, 2002). It is estimated that 40 million people with HIV in the world in 2003 (UNAIDS, 2003), and currently, 7.1 million people with HIV lives in Asia (UNAIDS, 2002).

Korea is not an exception with respect to the HIV/AIDS epidemic. The numbers of persons infected by HIV are increasing (CDC, 2002; KCDC, 2004). In 2002, 277 new cases were reported to the Korea Center for Disease Control and Prevention, and it showed a 19.7% increase compare to that of 2001 (CDC, 2002; KCDC, 2003). In 2004, 2,135 men and 273 women have

been infected with HIV (KCDC, 2004). The major transmission mode is sexual intercourse (97.7%), and the proportion of adolescents and youths in their 20's infected with HIV is 27.9 % (CDC, 2002; KCDC, 2003, 2004). These phenomena may be related to the increasing the numbers of sexually active adolescents and lower rates of consistent condom use. Additionally, the disproportion of men versus women infected by HIV may be related to the social expectation of women's sexual behavior.

However, the disproportion of contracting HIV/AIDS between men and women will be rapidly smaller for the following reasons: 1) HIV is communicable with sexual intercourse; 2) the numbers of sexually active girls are increasing; 3) the impact of Confucianism which creates a unique phenomenon in relation to gender differences of sexuality in Korea are diminishing among the younger generation (Kang, 2001; Parish et al., 2003). Given the explanations imply that women and adolescents are currently most vulnerable population to HIV and AIDS in Korea. Therefore, although Korean women and adolescents showed a lower prevalence to HIV and AIDS in the reported statistics, there is a need to examine the changing trends in terms of adolescent sexual behavior.

### **2.3.3. Teen pregnancy and abortion**

Sexual behavior in adolescence is linked to teen pregnancy. Teen pregnancy may have moral, religious, and social implications with respect to the financial cost of subsequent social and health problems such as abortion or single parenthood (Blum, 2002; Koyle, Jenseb, & Olsen, 1989). Even though adolescents learn how one becomes pregnant and the negative outcomes of sexual behavior, they believe that those things happen to others, not them, because they do not yet have the capability for formal operational thought (Ludmer, Nucci-Sack, & Diaz, 2003). Thus, sexually active adolescents do not consistently use effective contraceptives such as

condoms, and they are more likely to be pregnant without intention (Henshaw, 1998; Ludmer et al., 2003). According to the Henshaw (1998), for 82.7% of pregnant girls aged 15 to 17 and 75.0% of pregnant girls aged 18 to 19, the pregnancies were unintended.

Singh and Darroch (2000) reported that the rate of teen pregnancy in the U. S. was the highest among developed countries in 1995 and 1996. The teen pregnancy rate dropped from 117 per 1,000 girls aged 15-19 in 1990 to an estimated 72 per 1,000 women aged 15-19 in 2001 with a great deal of public attention to adolescent sexual behavior (Childstats.gov, 2002; Darroch & Singh, 1999; Dryburgh, 2000; Singh & Darroch, 2000). To build on that success, Health People 2010 set a goal to decrease teen pregnancy to no more than 46 per 1,000 (Childstats.gov, 2002). Since more than 75% of teen pregnancies are unintended and 45.3% of unplanned teen pregnancies end in abortion, the declining rate of teen pregnancy directly influences the abortion rate among teens (Henshaw, 1998). In 2000, abortion rate of girls aged 18-19 was 39 per 1000, dropping from 48 per 1000 in 1994 (Ludmer et al., 2003).

However, in Asia, although the numbers of sexually active adolescents are increasing, people are still relying on the traditional contraceptive methods (e.g., withdrawal, periodic abstinence) (Goodkind & Anh, 1997; Kaplan et al., 2003). Therefore, sexually active Asian adolescents are more likely to fail to prevent unplanned pregnancy (Kaplan et al., 2003). Many Asian sexually active adolescents are reluctant to use modern contraceptive methods, not only because of the cultural views of modern contraceptives but also due to a social stigma when they reveal they are participating in premarital sex to purchase modern contraceptives (Kaplan et al., 2003). Therefore, they are more likely to experience unplanned pregnancies.

Most unplanned teen pregnancies end up in abortions because of the taboo against premarital sex in Asia (Mensch et al., 2003). The abortion rate in Asia is underreported due to

the laws against induced abortion (abortion is illegal in most Asian countries) and social norms which condemn premarital sex (Korean Ministry of Health and Welfare, ; Mensch et al., 2003; Thato, 2002). The actual abortion rate among Asian adolescents, therefore, may be much higher than in the U.S (Bankole, Singh, & Hass, 1999; Goodkind & Anh, 1997; Mensch et al., 2003; Pachauri & Santhya, 2002).

Abortion trends in Korea may have some differences when compared with other Asian countries because of the following. First, although adolescent abortion is a family and individual stigma because of the taboo of premarital sex, other types of abortion, such as those by the married women, have long been regarded as a way of family planning in Korea (Ha et al., 1993); thus, culturally, abortion may be more accepted than the other Asian countries. Second, even though abortion is illegal in Korea, it is accepted for some cases such as if the pregnancy is (1) from rape, (2) endangers the women's health or (3) if severe health problems are detected in the baby (Korean Ministry of Health and Welfare). Thus, health care providers may perform illegal abortions, but report it as legal, dishonestly citing one of these reasons for the abortions. Third, most of abortions are conducted with private money and are not covered by health insurance, because both health providers and health clients do not want to reveal abortions. Therefore, reported abortions are underestimated. Fourth, like other Asian countries, there is no nationwide statistics about abortion rate by ages in Korea. In fact, information on abortion rate for teenagers is unavailable (Bankole et al., 1999).

Given these reasons, many of studies estimate teenage abortion rates based on the reports from the rates of married women (Henshaw, 1998). However, the average age of women's first marriage is high (mean age=27.3), and significant numbers of abortion are performed by unmarried women in Korea (Henshaw, Singh, & Haas, 1999). Thus, the estimated statistics may

be inaccurate, and Korean researchers rely more on the individual studies when they want to get information about abortion rate among teens in Korea. Additionally, the abortion rate may also be incorrect due to the social norms regarding premarital sex in Korea: unmarried girls may misreport their age and their marital status to their health providers since they spend their private money for the medical service and no obligations for reporting accurate personal information.

WHO (2003) cited the findings of reports, which were submitted to the program of the organization but unpublished, about Korean adolescent sexual behavior. Ten percent to thirty seven percent of young unmarried females reported having experienced an unwanted pregnancy in Korea (WHO, 2003). Additionally, 78% to 91% of females with unplanned pregnancies experienced one or more abortions (Park, 2000; WHO, 2003). Park (2000) cited a study conducted by the Korea Family Planning Association, which reported that the teen abortion rate was 26.7 % of total abortion rate in 1996. That is, social norms strongly affect the pattern of pregnancies before marriage and abortion rate regardless of age, and accessibility to contraceptive (Moore, 2000).

#### **2.4. THE INFLUENCE OF CULTURE ON KOREAN COLLEGE STUDENTS' SEXUALITY**

Culture is the social context, and plays an important role in prevalence of certain behaviors (Maxwell, 2002). Sexual behavior, especially, is viewed in the context of social values, and social acceptance of adolescent sexual activity is different across cultures. For instance, contraceptive use is regarded as a normatively regulated behavior and as a health-related behavior in the United States. Adolescents using contraceptives are the persons who are more familiar with conventional norms regarding timing of pregnancy, childbearing, and parenting, and they are less likely to drop-out of school (Costa et al., 1995). Thus, empirical studies have



been focused on developing education programs to reduce risky sexual behavior and promote contraceptive methods such as using a condom. Health insurance companies in the U.S support this objective by covering contraceptive supplies and services (CDC, 2004). The goal of Healthy People 2010 shares the same view for the solution of the problem of pregnancies resulting from adolescent sexual behavior: “support, value and stimulate actions that are consistent with a “pregnancy-free adolescence” (National Campaign to Prevent Teen Pregnancy, 1998).

Asian cultures, on the other hand, set different objectives in relation to adolescent sexual behavior and research: find a way to promote sexual abstinence until a certain time (e.g., marriage). The Asians living in Confucian societies share certain values such as order, harmony, family closeness and premarital chastity (Taylor et al., 2004; Thato, 2002). All behaviors in relation to premarital sex are regarded as “social evils” in these societies; and contraceptive use by adolescents is not accepted (Mensch et al., 2003).

Traditional Korean culture has been highly influenced by the ancient Chinese philosophy of Confucianism. The impact of Confucianism is very great, even in modern Korean society. Confucianism puts emphasis on a respect for learning, filial piety and family unity (Kwon-Ahn, 2001), and these perspectives provide the roots of Korean culture that emphasizes “woori (collective pronoun), cheong (an affective emotion that binds individual to a group) and chemyon (social face)” (Cheung, Cheung, Wada, & Zhang, 2003, p282). Parents are expected to control their children’s behavior regardless children’s age, and a family member is blamed if another family member is at fault (Cheung et al., 2003; Kwon-Ahn, 2001).

Children have a strong loyalty, and obligation toward their parents in Confucian society (Sue & Okazaki, 1990). Children are expected not to demean their parents’ *chemyon* (*social face*) in Korea. Since academic achievement is the first step to being successful in life and is a

way to upgrade parents' *chemynon*, Korean children are expected to go on to higher educational institutions such as college. Therefore, Korean adolescents try to devote their time and energy to studying until they are accepted to college in order to follow their parents' authority and pay off a debt toward their parents' sacrifices (Youn, 1996). In other words, attending college is a way to fulfill obligations toward parents and an indirect expression of how much children are under parental control in Korea (Sue & Okazaki, 1990).

With regard to family unity, the family is considered as a collected element in itself, not the aggregation of each member. This is reflected in the Korean language where people use the plural possessive instead of the singular possessive when they refer to their family. Each member has a strong loyalty, obligation for each other and feeling of togetherness within the family (Cheung et al., 2003; Kwon-Ahn, 2001). Koreans consider a direct expression of differences of opinions with others as being rude; all behavior is nonverbally judged by a strict moral and ethical code, a central theme of Confucianism (Kwon-Ahn, 2001). Children learn to be sensitive to the nonverbal expressions of others, which are directly linked to the debasement of *chemyon* of the family and parents.

This unique culture affects adolescent sexual behavior, which is regarded as misbehavior of adolescents in traditional Korean society. Traditionally, children were expected to remain sexually abstinent until marriage (Bullough & Bullough, 1995; Denis, 1966). Young children were separated from the opposite gender when they reach 7 years old to maintain sexual ignorance (Youn, 1996), and early marriage was encouraged to avoid the problem of teenager sexual activity (Bullough & Bullough, 1995; Denis, 1966). However, the abstinence canon was more strictly applied to girls rather than boys. Virginity for girls was a prerequisite to have a ideal (normal) marriage as being a wife rather than a concubine according to norms of

Confucianism (Bullough & Bullough, 1995; Denis, 1966). Therefore, a woman's first sexual experience was linked to marriage in traditional Korean culture; however, boys' premarital sex with an appropriate sex partner such as a sex worker was accepted because of traditional health beliefs in relation to the view of sexual behavior for males from China.

Chinese have believed that the world consists of *yin* and *yang*, and male and female represent them, respectively, as a microcosm. A man represents heaven and a woman represents earth, and sexual activity between a man and a woman was considered a repetition of the larger interaction of heaven and earth. Health is a balance between *yin* and *yang*, and the disparity between *yin* and *yang* is the ultimate cause of death. As people get older, *yin* and *yang* become unbalanced. Therefore, sexual behavior for a man was accepted as one way of replenishing *yang* and maintaining his health (Bullough & Bullough, 1995).

Due to the influence from Chinese medical beliefs, Asian people rely more on traditional contraceptive methods than the modern methods (Kaplan et al., 2003). Ancient Chinese believed that the most important thing for maintaining health is keeping a balance of natural body rhythms. Either condom use or taking pills has been thought to bring about the body's imbalance, which interrupts the invisible pathways through which energy flows (Goodkind & Anh, 1997). Thus, even today people are reluctant to use modern contraceptive methods (Choi, Roberts, Gomez, & Grinstead, 1999; Goodkind & Anh, 1997; Pachauri & Santhya, 2002).

Given these views, there is a double standard in relation to adolescents' sexual behavior in modern Korean society. A boy's sexual behavior is still considered an indicator of masculinity and a way to maintain his health; yet, a girl is expected to have the responsibility for appropriate sexual behavior, to be a "good girl". A child out of wedlock and premarital sex is the girl's family disgrace as well as the girl's stigma in Korea which is rooted in the Confucian values of

female chastity and a patriarchal family structure (The Alan Guttmacher Institute, 2002; Youn, 1996). Because the child who is born in out of wedlock cannot earn the patriarchal last name in Korea and people easily detect the child's secret related to the birth, the social stigma influences the child's entire life. These unique phenomena induce big gender differences in relation to premarital sex and an unusually high abortion rate in Korea.

In summary, culture mediates psychosocial factors in relation to sexual behavior and actual sexual behavior. Therefore, it is important to understand cultural schemas in terms of sexuality for developing effective sex education programs (Childstats.gov, 2002). The biggest challenge related to adolescent sexual behavior in Confucian societies, such as Korea, is how to address the adolescent desire to engage in premarital sexual behavior and how to develop a sex education program protecting adolescents from the negative outcomes of the premarital sexual behavior not accepted by the traditional cultures (Pachauri & Santhya, 2002). Only a sex education program that incorporates the cultural influences can be effective in Korea.

## **2.5. THE COMPONENTS OF THE THEORY OF PLANNED BEHAVIOR**

The Theory of Reasoned Action (TRA) and its expansion, the Theory of Planned Behavior (TpB), have been widely used to predict and explain the relationship between health-related intentions and behaviors (Albarracin et al., 2001; Bryan & Fisher, 2002; Gebhardt et al., 2003; Salabarria-Pena et al., 2003; Sutton, McVey, & Glanz, 1999). When the theory was first developed, these theories were applied mostly to populations older than adolescents (Adler et al, 1990). Before the 1990's few studies applied TRA and TpB to adolescents (Basen-Engquist & Parcel, 1992; Black, Kaljee, Ricardo, & Stanton, 1993) because researchers believed that adolescents behaved impulsively rather than with intention.

Currently, more and more researchers use the two theories to find effective models not only for adults but also for adolescents, to explain the determinants of AIDS-preventive behaviors, and to delay adolescent sexual initiation (Ajzen, 2002; Albarracin et al., 2001; Carvajal et al., 1999; Doswell et al., 2002; Fisher et al., 1995; Gillmore et al., 2002; Mulvihill, 1996; Sutton et al., 1999; Wiggers, de Wit, Gras, Coutinho, & van den Hoek, 2003). However, there remains a need to apply the TpB to various samples because of inconsistent findings according to the age of participants, ethnic groups, and genders (Bogart, Heather, & Pinkerton, 2000).

### **2.5.1. Attitudes**

The function of “attitude”, a major predictor explaining the intention of sexual behavior in the TRA and the TpB, has been verified in many studies (Bryan & Fisher, 2002; Carvajal et al., 1999; Fisher et al., 1995; Rosengard et al., 2001; Salabarria-Pena et al., 2003). Fisher and colleague (1995) examined predictors of AIDS-prevention behaviors in 5 subgroups (gay men, male and female college students, high school boys, and high school girls). The sample consisted of a multi-ethnic group with 159 gay men, 259 heterosexual college students and 265 high school students attending 9th grade. The primary ethnic group was Caucasian. In this study, attitude explained the considerable variance of all intentions of AIDS-prevention behaviors in all subgroups except heterosexual high school boys (Fisher et al., 1995). Bryan and colleague (2002) used high school students in the 9th grade and freshman college students to examine the relationships among variables based on the context of the TpB. Eighty one percent of their high school sample (n=226) was African American and Latinos. Caucasians were a predominant group in the freshman college students (n=160). Attitude toward condom use moderately predicted the intention to use condoms in both groups (Bryan & Fisher, 2002). Carvajal and

colleagues (1999) performed a longitudinal study to examine the predictors of delaying first sexual intercourse. In the beginning of the study, 910 students attending 9<sup>th</sup> grade (mean age=15.0) who never engaged in sexual intercourse (mean age=14.8) participated. Approximately 73% of the participants were Latinos and African Americans. The study found that attitude was the most influential predictor of delaying sexual debut among the three components of the TpB (attitude, perceived behavioral control and subjective norms) (Carvajal et al., 1999). Rosengard and colleagues (2001) also found that attitude was the best predictor of condom use with the 236 multi-ethnic adolescents (mean age=17.68).

In summary, attitude consistently predicted the premarital sex and condom use in previous literature which examined adolescent sexual behavior, although the studies were not conducted with an adequate sample size of Asians. Therefore, attitudes toward premarital sex and condom use are expected to explain the significant variance of the intention of premarital sex and condom use in this study as well. They both will be included as predictors in this study.

### **2.5.2. Subjective norms**

Another major component of the TpB is subjective norms. Many researchers agree that subjective norms affect adolescent sexual behavior. One study measured general subjective norms (Fisher et al., 1995; Rosengard et al., 2001), the other studies more specifically examined parental disapprovals and peer norms, which are influential for making decisions about engaging in sexual behavior in adolescence (Beausang, 2000; Carvajal et al., 1999; Dittus & Jaccard, 2000; Dolchini & Adler, 1994; Maxwell, 2002; Treboux & Busch-Rossnagel, 1995; Whitaker & Miller, 2000). Thus, both general subjective norms and specific subjective norms in relation to adolescent sexual behavior are reviewed in the following section.

### **2.5.2.1. General (or global) subjective norms**

Results of a study by Fisher and colleague (1995) showed that general subjective norms did not predict intention of using condoms and practicing only safe sex with heterosexual university men (Fisher et al., 1995). However other studies reported that general norms of condom use predicted the intention of condom use in other populations (Rosengard et al., 2001; Salabarria-Pena et al., 2003). Rosengard and colleagues (2001) examined the future intention to use condoms with 260 adolescents recruited from a municipal STD clinic (mean age=17.68). The sample was comprised of multi-ethnic groups. The participants were asked when in general they decide to do something (e.g., use a condom) whether other persons' norms are important to them. The study found that general norms influenced the adolescents' condom use (Rosengard et al., 2001). Salabarria-Pena and colleagues interviewed 175 Hispanic women aged 18 to 50, examining whether subjective norms predicted the usage of condoms by male and female. The majority of women (80%) were married or had a sex partner. The findings showed that subjective norms more significantly predicted male condom use than female condom use. Because of inconsistent findings, specific subjective norms (peer norms, parents' disapprovals and cultural norm) toward adolescent sexual behavior will be measures in this dissertation.

### **2.5.2.2. Peer (Friend) norms**

The influence of friends and parents on participation in premarital sex may be different based on adolescents' age (Treboux & Busch-Rossnagel, 1995). Treboux and Busch-Rossnagel (1995) examined the age difference in parent and peer influences on girls' premarital sex. The sample consisted of 55 girls attending 9<sup>th</sup> and 10<sup>th</sup> grade, 120 girls in 11<sup>th</sup> and 12<sup>th</sup> grade, and 88 college students. Friends' approval affected the 11<sup>th</sup> and 12<sup>th</sup> graders more than the other age groups in the study. Adolescents' peer group, specifically their "crowd", influenced sexual behavior

(Dolchini & Adler, 1994). Beausang (2000) reported that peer pressure often contributes to adolescents' sexual experimentation. According to Carvajal and colleague (1999), from their longitudinal study using 910 students to predict the intention of using condoms, peer norms to delay sexual behavior had a stronger protective effect in the youngest group and oldest group than in the 15 year-old group. A study found that use of a peer counselor in sex education is helpful in "high risk" adolescents with poor compliance with the use of contraceptives (Peremans, 2000). There is a need to examine if the impact of peer norms of adolescent sexual behavior is different based on the age and gender.

### **2.5.2.3. Parents' norms**

Parental norms toward sexual behavior have been discussed as an influential predictor of adolescent sexual behavior (Dittus & Jaccard, 2000; Miller, 2002; Treboux & Busch-Rossnagel, 1995). Treboux and Busch-Rossnagel (1995) found that parental approval indirectly predicted the adolescent sexual behavior regardless of the girls' age. Dittus and Jaccard (2000) performed a secondary data analysis to examine the relationships between maternal disapproval of sex and adolescent sexual behavior. The study used the National Longitudinal Study of Adolescent Health (Add Health) database (1994, 1995). The samples in grade 7 to 11 were recruited from schools; participants completed 2 interviews in their homes at one year interval. Around 10,000 adolescents participated. The study findings showed that the adolescents having close relationships with their mothers and who perceived maternal disapproval of sexual behavior and teen pregnancy delayed sexual debut and fewer were pregnant one year later (Dittus & Jaccard, 2000). Another study conducted by Whitaker and Miller (2000) examined the moderating effects of parent-adolescent discussions about sex and condoms using 907 adolescents aged 14 to 16. The sample was comprised of African Americans and Latinos. The study findings showed that



the effects of peer norms toward initiating sex and using condoms were buffered by the parent-teen discussions about them (Whitaker & Miller, 2000).

Given these reasons, the quality of family communication was also examined with an expectation for explaining why and when parents' norms moderate or mediate children's sexual behavior. An earlier literature found that the good quality family communication delayed affected adolescent sexual behavior (Fisher, 1987). Studies suggested that to examine parent-adolescent processes regarding the message of sexual abstinence and safer sex is important for developing sex education program (Dittus & Jaccard, 2000; Jaccard & Dittus, 2000; Meschke, Bartholomae, & Zentall, 2002). In this study, we hypothesized that if a family has a balanced system on cohesion and flexibility, they have good communication, and students are more likely to accept their parents' norm regarding sex. Otherwise, an unbalanced family on cohesion and flexibility has poor communication, and students raised in the family were less likely to accept their parents' norms.

#### **2.5.2.4. Social norms**

Social norms are an important factor in determining adolescent sexual behavior. A study by Flores and colleagues (2002) examined the prediction of general social norms toward the intention to have sex using 84 Latino girls aged 14 to 19. The study showed that general social norms were significantly correlated with intention of having sex (Flores, Tschann, & Marin, 2002).

Even though social norms in relation to sexual behavior are rapidly changing in the younger Asian generation (Pachauri & Santhya, 2002), Confucianism, which is a major source of traditional norms in Korea, still has a big influence. It teaches that women should follow men's decisions in their entire life: in childhood, a girl follows her father's decisions, a married woman

follows her husband's decisions and a widow follows her son's. These traditional norms may make women more passive regarding decisions about sex. A woman is not in a negotiating position with her partner when she engages in sexual behavior (Pachauri & Santhya, 2002), and women do not truthfully report their experience of premarital sex. An example of the effect of social norms can be seen when looking at the results of a study by Mensch and colleague (2003). They found broad differences in the reporting of premarital sexual experiences, depending on the marital status of the woman. Fifty five percent of married women aged 15-22 reported that they had premarital sex, yet only six percent of unmarried women in the same age group reported any experience with premarital sex (Mensch et al., 2003). Married women may feel comfortable reporting their experience with premarital sex, since they do not have to be concerned about the social stigma which comes with an unmarried woman having premarital sex (Mensch et al., 2003). It is clear that social norms affect adolescent sexual behavior in Korea, although we don't know how much it influences Korean college students' sexual behavior. Thus, this study will include social norms, measured by person's norms in Korean culture to engage in premarital sex, as a predictor of intention of premarital sex and condom use.

#### **2.5.2.5. Partner norms**

Partner norms of using condoms have been examined to predict condom use with the Theory of Planned Behavior (Choi et al., 1999; Glasman & Albarracin, 2003). Choi and colleague (1999) conducted semi-structured open-ended interviews to examine what factors influence use of condoms with 16 African-American, 17 Asian American, 10 Latinos, and 19 Caucasian women. Partner preference of female condom use was affected by women's decision to use it as a facilitator or a barrier. In particular, this study found that partner preference encourages the use of condom in the 29% of Asian women. Galsmen and Albarracin (2003) examined whether

partner norms predicted condom use with 101 male and female young adults (mean age= 25.95). In their study, partner norms of condom use predicted the intention of condom use ( $\beta=0.33$ ,  $p<.001$ ). However, there is a need to examine cultural differences. This study measures the parental, peer, and partner norms of condom use as predictors of intention of condom use.

Diverse types of subjective norms significantly predict the intention of sexual behavior (Beausang, 2000; Carvajal et al., 1999; Dittus & Jaccard, 2000; Dolchini & Adler, 1994; Maxwell, 2002; Treboux & Busch-Rossnagel, 1995; Whitaker & Miller, 2000) However, the significance can be different according to not only the stage of adolescence but also culture. Thus, there is a need to examine what type of subjective norms affect the Korean college students' sexual behavior.

### **2.5.3. Perceived behavioral control**

Since perceived behavioral control (PBC) and self-efficacy beliefs share the same construct (Ajzen, 2002; Wiggers et al., 2003), researchers often interchangeably measure the perceived behavior control with a self-efficacy scale in the empirical studies guided by the Theory of Planned Behavior (Bogart et al., 2000; Gebhardt et al., 2003; Rosengard et al., 2001). Trafimow (2001) examined the relationship between the PBC and intention of condom use among U.S. undergraduate students. Fifty-one undergraduate students were asked whether they control condom use when they have sexual intercourse. There was a significant relationship between the PBC and intention of condom use ( $r= 0.34$ ,  $p<0.05$ ) (Trafimow, 2001). Another study examined the effectiveness of AIDS/STDs peer education programs using Ajzen's Theory, looking at an intervention group and a control group (Caron, Godin, Otis, & Lambert, 2004). The final sample after 9 months was 698 (initial participants=945) junior school students and 306 (initial participants= 477) high school students. The students were asked to what grade they could easily

postpone sexual intercourse and use a condom. In this study, a positive change in perceived behavior control of condom use explained that the senior students used condoms more consistently after the intervention program. Rosengard and colleagues (2001) assessed the adolescents' future intention to use condoms using the TpB components. The sample consisted of 236 adolescents aged 14-19. Condom self-efficacy was measured to assess the participant's ability to suggest or insist on condom use with their partners in a variety of situations. Self-efficacy was significantly correlated with condom intention. Gebhardt and colleagues (2003) also measured the PBC using a self-efficacy scale to examine the predictors of condom use according to the level of the relationships. Seven hundred and one Dutch vocational students (mean age=18) were recruited from five Dutch vocational secondary schools. In this study, condom self-efficacy was significantly related to the lifetime numbers of sex partners, and significantly predicted condom use with casual partners (Gebhardt et al., 2003).

## **2.6. SUMMARY AND GAPS IN THE LITERATURE**

This chapter reviewed the importance of a theory-driven study in explaining sexual behavior and the relationships among the variables focusing on psychosocial cognitive predictors and TpB components.

The reported percentage of sexually active Korean adolescents compared to their U.S. counterparts is still lower which suggests that adolescent sexual behavior is not prevalent in Korea (Cha, 1999; Jang et al., 1998). However, the reported statistics must be viewed cautiously given Korean perceives adolescent sexual behavior as a moral issue. Thus, Korean adolescents may not respond candidly to questions on sexual behavior. The lack of reliable statistics makes it difficult to talk about the realities of adolescent sexual behavior in Korea.

A review of the literature and previous studies, however, support the need for theory-based interventions designed to reduce the negative outcomes associated with risky sexual behavior. One theoretical framework, the Theory of Planned Behavior (TpB) has strong evidence that assists researcher to identify potential determinants of risky sexual behavior and the framework provides a basis for the development of strategies to help adolescents delay initiation of sexual behavior in westernized cultures. Even though there is a dearth of theory-driven studies in Korea, within the last decade sexual activity among Korean adolescents has increased and Korean researchers and administrators have focused on reducing risky sexual behaviors. Furthermore, only a few studies have targeted adolescent sexual behavior with adequate sample sizes in Asia.

Additionally, cultural differences greatly impact social acceptance of adolescent sexual activities and patterns of adolescent sexual behavior. Due to cultural differences, a review of the literature supports the need to tailor sex education programs to the specific culture and sage of adolescent rather than adopt a Western-style program. Therefore, there is a need to examine whether the TpB, one of the most successful theory models utilized to predict varied behaviors, can explain adolescent sexual behavior within Asian populations well.

Based on the literature review, a number of areas were identified that required more in-depth examination in order to provide guidelines for the development of an effective sex education program in Korea. First, researchers need to identify whether an outcome behavior can also be culturally accepted as an intervention target. For example, in Korean an intervention designed to promote abstinence among college students is possible because: 1) premarital sex is not culturally accepted, 2) Koreans are reluctant to use condoms due to social stigma, and 3) abortion is considered as the best method to avoid premarital motherhood. In contrast, an

intervention targeting abstinence among college students U.S. is less feasible due to the view that among college students sex is a normative behavior. Second, researchers need to clarify whether a target behavior can be defined in terms of the four theory elements: Target, Action, Context and Time (TACT) described in the theoretical framework section. Since, the TpB was developed to change a specific behavior, not a general behavior, it is very important for researchers to clearly identify which specific behavior can also serve as a target behavior and thus become the target intervention within the identified framework. Finally, researchers need to examine the effectiveness of the TpB to explain Korean late adolescents' sexual behavior, since the significances of the TpB components and explained variances using the TpB vary according to target behaviors and populations. Therefore, this study tested the utility of the TpB to provide a preliminary insight on how to develop an effective sex education program in Korea.

### **3. CHAPTER THREE**

#### **3.1. RESEARCH DESIGN AND METHODS**

This chapter described the design of proposed study, sample, setting, data collection procedure, protection of human subjects, instruments and internal consistency of the study measures in the pilot study. In addition, it explained estimated sample size, data screening procedure, and data analysis methods.

##### **3.1.1. Design**

This study used a cross-sectional, correlational design using an exploratory survey methodology through self-reported questionnaires.

##### **3.1.2. Target population and sample**

The target population of this study was late adolescents and young adults who attended a college or a university in Seoul, Korea. In 2002, 99.6 % of middle school students went to high school and 74.17% ( 497,483 / 670,713) of high school students were admitted to a college or a universities after their graduation in Korea (Korean National Statistical Office, 2003). In other words, most of Korean adolescents are involved in a school based on developmental stages. The sample of this study was recruited from a university in Korea. The participants ranged in age from 18 to 25 years old. Because all men are drafted for a period ranging from 18 months to 3 years according to the man's general and health conditions, the mean age of male college students expected to be older than that of female college students.

The participants were recruited as follows: (1) a flyer was posted at the entrance of the student health service center, (2) a flyer was posted on a public bulletin board at a university, and (3) self-referral. Inclusion criteria are: (1) male and female students (2) 18 to 25 years old and (3) attending a college or a university in Seoul, Korea. Those who were foreign, married and /or

having visible physical problems were excluded from this study since the majority of the population is Korean and Korean society has biased view of physical impairment; physically impaired persons have very few chances to engage in premarital sex, even if they have the intention to do so. Students who are in a relationship were included for this study since sexual behavior is not socially and culturally acceptable for unmarried couples.

### **3.1.3. Setting**

There are 38 colleges or universities in Seoul, Korea in 2002, and 24.78% of college students were attending college or universities located in Seoul (Korean National Statistical Office, 2003). The university where subjects were recruited was at the middle level among the universities in Seoul, Korea. The researcher recruited the subjects for pilot study from the same university. There are around 20,000 undergraduate students in this university. Because of the cultural views of premarital sex, the university is reluctant to reveal the university name in the any part of this research.

### **3.1.4. Sample size justification**

Research Question 7 -Are there significant gender differences in the prediction of condom use between independent variables (attitude of condom use, subjective norms of condom use and condom efficacy) and dependent variable (intention of condom use) (s, t, u, v, w, x, y, z, I, II, III and IV; see Figure 4)?- was used for calculating estimated sample size. It is believe that structure equation modeling requires large sample size, but it is hard to say what sample size is large. Type of model, type of estimation algorithm and number of estimation method decide the appropriate sample size for each study.

There are several ways to calculate sample size for conducting structural equation modeling. The first method is using the guideline of absolute sample size. Generally, less than



100 could be considered “small”, between 100 and 200 cases could be considered “medium” and more than 200 subjects is regarded as “large” sample size for testing small and medium models (Kline, 1998, p 12). The second method is for the path analysis. In a path analysis, model sample size should be decided by the complexity of the model. “A desirable sample size is to ratio of the number of subjects to the numbers of model parameters be 20:1; a 10:1 ratio, however, may be a more realistic” (Kline, 1998, p112). The numbers of estimated free parameters in the third hypothesized model (condom use model; Figure 4), which is the most complex model in this study are 24. Thus, the ideal sample size is 480 subjects, and the realistic sample size is 240 subjects for this study based on this method. However, the estimated sample size based on the second method is not static as the numbers of free parameters may be changed during the process of finding an appropriate model based on research questions (Kline, 1998). Therefore, a model created in the process of developing an appropriate model would have different number of free parameters. Given this reason, the third method which uses the following equation was used to estimate stable estimated sample size for this study:  $([\text{numbers of variance and covariance}] * 2 \text{ or } 3)$ .

The sample size is appropriate to test the proposed model (Research Question 7) with multi-sample structural equation modeling because the researcher had 165 males and 133 females (less than 3:1 discrepancy of the groups) for final data analysis. Since the university where the researcher recruited participants for this study had around 20,000 undergraduate students, there was no problem recruiting adequate numbers of potential participants. In this study, 58.18% of distributed questionnaires were returned within two weeks.

### **3.1.5. Procedure for data collection**

Potential participants received a study packet of questionnaires through the following: the potential participants picked up a study packet in the student health service center. The packet included all instruments, an informational letter, and a small gift as a subject incentive (\$3). Each packet had a unique ID number. Anonymity of response was stressed. The packet was returned after completion through use of a self-addressed stamped envelope or through a deposit to a collection box at the health service center within two weeks.

### **3.1.6. Protection of human subjects**

Like other Asian countries (e.g., Thailand), approval from an Institutional Research Board (IRB) for conducting a survey study is a new concept in Korea. Only a few hospitals have established boards to review survey studies in Korea. There is no regulation or formally organized review process for a survey conducted outside of hospitals. Thus, researchers received a permission letter from a university administrator in Seoul, Korea to conduct the proposed study prior to beginning to the study instead of receiving the University IRB approval. Afterwards, the study protocol received approval from the University of Pittsburgh IRB.

The participants' name and university's name were not recorded anywhere since discussing premarital sex is more sensitive topic in Korea like in other Asian countries than in Western society. Completed questionnaires were kept in a locked file cabinet. The findings will be published based on the group findings not individual findings.

### **3.1.7. The amount of time to complete questionnaires**

The median time to complete the questionnaires for 320 students was 30 minutes (mean: 38.82, SD: 16.87 minutes). The quickest time for completing the test was 10 minutes, and the longest was 120 minute.

## **3.2. VARIABLES**

The variables used in this study were derived from the Theory of Planned Behavior (TpB). All instruments, except the Condom Attitude Scale, which was originally in Korean, were examined in relation to the post-English-to-Korean translation reliability in the pilot study. As this study is a cross-sectional study, the direction between intention and actual behavior for which the TpB initially was suggested can not be examined. Thus, actual behavior was not included in the models for testing primary aims. However, an examination of the relationship between the intentions and the behaviors was examined as a secondary aim using Spearman rank correlations.

### **3.2.1. Background and sexual behavior**

Items related to eligibility screening, demographic information (e.g., social economic status), sexual behavior history (first sexual behavior, STDs, abortion, and condom use during the prior 3 and 12 months) and perceived vulnerability (risks) of risky sexual behavior were included in the “Background and Sexual Behavior Questionnaire (BSBQ)” developed by the investigator. In addition, the participants were asked about the completeness, accuracy and honesty of the responses in the final page of the questionnaires.

#### **3.2.1.1. Perceived risk of sexual behavior**

Because this study hypothesized that adolescents and adults have a different perception regarding the risk of sexual behavior, perceived risk of sexual behavior was measured with 4 items: 1) Is having unprotected sex dangerous?; 2) What is the chance that you will get an STDs or HIV? ; 3) What is the chance you or your partner could be pregnant?; and 4) How does your risk compare to other? Students were asked to write a score as they perceived the level of risk. The expected responses ranged from 1 to 10. A higher number indicated higher perceived risk. Although four items were not originally developed using a scale, the researcher examined internal consistency

of the items and item analysis. The internal consistency with the 4 items was 0.55. Inter-item correlations between item 1 and items 2, 3, and 4 ( $r = 0.008 - 0.082$ ) suggested to remove item 1 from the measure. Thus, the researcher examined the internal consistency of item 2, item 3, and item 4 only ( $\alpha = 0.69$ ). The item total correlations among items 2, 3, and 4 ranged from 0.39 to 0.48. In this study, the perceived risks of sexual behavior were examined three ways; 1) comparing each item mean difference by gender, 2) getting a composite score with 4 items, and 3) getting a composite score with item 2, item 3, and item 4.

### **3.2.2. Quality of parent-adolescent communication**

“The parent-Adolescent Communication Scale” was used for assessing the quality of family communications and interaction in the family structure. This 20-item self-report scale assesses the views of adolescents regarding their perceptions and experience of communication with their mothers and fathers. Both scales measured on a 5-point Likert Scale (strongly disagree [1] to strongly agree [5]). Two subscales, open family communication and problems in family communication scales, measured both positive and negative aspects of parent-adolescent communication, but a composite score was used for this study. Cronbach’s alpha was 0.87 for open family communication scale, 0.78 for the problems in family communication scale and 0.88 for the total scale (Barnes & Olson, 2003).

### **3.2.3. Independent variables**

#### **3.2.3.1. Attitude**

Attitude were measured by the modified Premarital Sexual Attitude Scale (PSAS) (Treboux & Busch-Rossnagel, 1995) and Condom Attitude Scale (CAS; Kang, 2001). The mPSAS has been modified from the Treboux Premarital Sexual Attitude Scale. The original scale consisted of 16 items measured on a 4-point Likert scale (strongly disagree [1] to strongly disagree [4]) for

assessing adolescent acceptance of sexual behavior (e.g., kissing, light and heavy petting, sexual intercourse) at 4 levels of relationships (casual partner, steady partner, lover, fiancée). Cronbach's alpha was 0.89 in their study (Treboux & Busch-Rossnagel, 1995). For this study, the researcher added "sexual worker", as they would be referred to in Korea or "prostitute" as they are called in the U.S., as the 5th level of relationship for assessing acceptance of each level of sexual behavior. A higher score indicates more conservative premarital sexual attitude. In a pilot study which used the same scale with the current study, Cronbach's alpha was 0.95.

The Korean version of CAS, which consisted of 16 items, was used for assessing condom attitude (Kang, 2001). The CAS using a 5-point Likert format ranged from strongly disagree (1) to strongly agree (5). A higher score indicates more positive attitude toward using condoms. Cronbach's alpha was 0.88 among Korean sexually active college students. This scale showed good convergent validity and factorial validity with Korean college students (Kang, 2001).

### **3.2.3.2. Subjective norms**

Subjective norms regarding premarital sex and condom use were measured using two scales. The Referent group Approval of Sexual Behavior Scale (RgASB) was modified from the Parental and Friends' approval of Sexual Behavior Scale (PFRASB) from the Treboux's study (Treboux & Busch-Rossnagel, 1995). The original questionnaire consists of 48 items measured on a 5-point Likert scale ([1] would strongly approve to [5] would strongly disapprove) for assessing adolescent perceptions of their parents' and friends' approval of sexual behavior (kissing, light and heavy petting, sexual intercourse) at four levels of relationships (casual boy, steady boy, lover, fiancée). Cronbach's alphas have ranged 0.84 to 0.90 for this scale in the English version (Treboux & Busch-Rossnagel, 1995). In this study, a subjective norm was established by the assessment of the approval of sexual behaviors by "people in Korean culture

in general". Furthermore, sexual worker was added as a 5th level of relationship. In the researcher's pilot study, Cronbach's alpha of the overall scales and the four subscales were 0.91 to 0.98.

The subjective norms for condom use were measured using a modified Norms for Condom Use Scale. The original scale was a subscale of Sexual Risk Behavior Belief and Self-efficacy (SRBBS) Scale developed by Basen-Engquist and her colleagues (Basen-Engquist et al., 1999). The original scale consists of 3 items with 4-point Likert scale (definitely no [1] to definitely yes [4]) to assess friends' perception about condom use. A higher score indicates a higher perception of peer norms using condom. The original scale in its English version showed a good internal consistency with U.S students in grades 9-12 ( $\alpha = 0.84$ ). Additionally, convergent validity was verified in the same study (Basen-Engquist et al., 1999). Cronbach's alpha of the translated original version testing Korean college students was 0.74 in the researcher's pilot study with Korean college students. For the dissertation, the norms of father, mother and sex partner toward condom use were added.

### **3.2.3.3. Perceived behavioral control (Self-efficacy)**

Participants were asked about their perceived behavioral control with respect to sexual abstinence and condom use. Because perceived behavioral control (PBC) and self-efficacy are the same concept; only an operational difference exists (Ajzen, 2005), PBC was measured using self-efficacy scale in this study.

To examine the perceived behavioral control for sexual abstinence, Norris's Sexual Abstinence Self-efficacy was used. Norris and her colleague examined this scale for content validity (Norris et al., 2003). Originally this scale consisted of 7 items and an optional item. Optional item is only asked of students having engaged in sexual behavior, but refraining from it.

The Cronbach's alpha for this study was measured using 7 items, excluding the optional item. The Cronbach's alphas of the original version (Norris et al., 2003) and the Korean version in the pilot study conducted on Korean college students were both 0.83. Response options range from 1 (not at all sure) to 4 (extremely sure).

The Condom Self-efficacy Scale was modified from Hanna's original scale of 14 items. Hanna examined factorial validity with her scale and verified the validity with 209 participants aged 13 to 26. The Cronbach's alpha of the original study was 0.85 (Hanna, 1999). For this study, the researcher added one item, self-efficacy for purchasing condom. Possible item response ranges from "very unsure [0]" to "very sure [4]". The Cronbach's alpha of Korean version in the pilot study among Korean college students was 0.91.

#### **3.2.4. Dependent variables**

Intention was measured using a modification of Doswell's Intention of Sexual Behavior Scale. Participants were asked whether they have an intention to engage in premarital sex and whether they intend to use a condom if they engage in premarital sex with the use of two subscales. The original scale, the Intention of Sexual Behavior Scale, was developed by Doswell to assess the intention of premarital sex for the middle adolescent girls (Doswell, NIH/NINR K01NR00112). The original scale consisted of 16 items measured on a 4-point Likert scale ([1] strongly disagree to [4] strongly disagree). The modified IPSB was patterned after mPSAS and RgASB in content and format. The Cronbach's alphas were 0.84 (n=106) in her preliminary study (Doswell et al., 2002). For this study, response options range from 1 (strongly agree) to 4 (strongly disagree) for intention to engage in premarital sex. Higher scores indicated an intention to delay sexual activity until marriage. In the pilot study, Cronbach's alpha was 0.96. The Intention of Condom Use Scale measured the intention of condom use with sexual partners in the five levels of

relationships. Possible response ranges from 1 (strongly agree) to 4 (strongly disagree). Lower scores indicated an intention to use condom in the premarital sexual relationships. Cronbach's alpha of this subscale was 0.80 in the researcher's pilot study.

### **3.2.5. Feedback questionnaire**

In the feedback questionnaire, participants were asked to: (1) reveal the time it took to fill out the questionnaires, (2) identify the differences between the terms sexual worker and causal partner, (3) identify the difference between the mPSAS and the mIPSB, (4) report their honesty of the responses, and (5) suggestions for a next study.

## **3.3. DATA SCREENING PROCEDURE**

SPSS 12.0 (SPSS Inc, Chicago, IL) was used for the data screening. Exploratory data analysis was performed to assess data accuracy and missing values. Frequency tables and histograms identified univariate outliers and influential observations. For detecting the multivariate outliers, residual analysis, distance and influence diagnostics were performed. Interaction effects and underlying assumption were evaluated. A multiple linear regression analysis (residual analysis) was conducted

### **3.3.1. Outlier assessments and checking underlying assumptions**

Linearity and homoscedasticity were assessed for using structure equation modeling. Graphical representation and inferential statistics were performed to examine the data for specific aim 1, 2 and 3. Any values of any variables that were extremely high or low were reconfirmed to ensure that they had been accurately entered. The influential outlier were assessed using standardized DFBETAs ( $|DFBETAs| > 2$ ), Cook's distance ( $\geq 1$ ), leverage ( $\geq (2 * (\text{the number of predictors} + 1) / \text{sample size})$ ) and Mahalanobis distance ( $p < 0.001, \chi^2$  (the number of variables)) (Kleinbaum, Kupper, Muller, & Nizam, 1998). Skewness and kurtosis were checked to assess the



shape of the data distribution. Residual analysis was performed for assessing the normality of the residuals that indicate the homogeneity and independence of the residuals. Singularity and multicollinearity were assessed with Variance Inflation Factors ( $VIF \geq 10$ ), condition indices ( $CN \geq 30$ ), and variance proportions ( $> 0.5$ ) for the predictors of the hypothetical models (Kleinbaum et al., 1998). Because some variables in the models were skewed Spearman rank correlation was used for examining correlations among the variables. The robust method was used to examine model fit indices because multivariate kurtosis ( $> 3.29$ ) indicated the data were skewed.

### **3.3.2. Treatment of missing data**

Because of small amount of missing data (6.88%), listwise deletion was performed. Missing values were reviewed to examine the missing pattern. The missing pattern was completely at random (MCAR). No specific method was needed since the ratio of male to female was less than 3:1 ratio.

## **3.4. DESCRIPTIVE STATISTICS**

The averages of abstinence efficacy, premarital sexual attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, norms of condom use, and condom efficacy, intention of premarital sex, and intention of condom use were examined. Additionally, demographic data, and history of premarital sexual behavior were described by gender as followings:

1. Dispersion: Continuous variables were examined for standard deviation, variances, minimum and maximum values, and ranges
2. Central tendency: Continuous variables were examined with mean, median and mode.

3. Distribution: Continuous variables were examined using frequency tables, measures of skewness and kurtosis, and histograms. Discrete variables (nominal and ordinal level) were examined using their frequency distribution (frequency counts and percentages).

### **3.5. DATA ANALYSIS PROCEDURE**

#### **3.5.1. Data analysis for preliminary aims**

One or two –tailed tests were performed based on the hypotheses. SPSS 12.0 for windows (SPSS Inc, Chicago, IL) was used to examine specific aim 1 to specific aim 4, specific aim 11, and the secondary aims. For the specific aims 5 to 10, EQS 6.1 for windows (Multivariate software Inc, Encino, CA) was used.

*Specific Aim #1: To obtain descriptive information on the Korean college students' risky sexual behavior.* Data from students who completed the questionnaires were analyzed by gender for sexual history (e.g., premarital sex and condom use). Descriptive statistics were reported for the entire group as well as for each gender. Comparative analyses between male and female students were performed using t-tests or chi-square test of independence on the variables in relation to demographic variables such as age and prior sexual behavior experiences.

*Specific Aim #2: To examine the mean differences in age, parent- adolescent communication, and the components of TpB (premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, the intention of sexual behavior, premarital sex and condom use) between genders.* Comparative analyses between male and female students were performed using t-tests.

*Specific Aim #3: To examine the bivariate association among age, perceived risks, premarital sexual attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, parent- adolescent communication, the intention of premarital sex and condom use for each gender. After checking the parametric assumptions, Spearman rank correlations were performed within each gender since some variables did not meet parametric assumption. To examine gender differences in correlation coefficients in terms of the hypotheses related to Research Question 3, Fisher r to z transformation was performed.*

*Specific Aim #4: To examine the internal consistencies of all instruments measuring the TpB components ( premarital sex attitude scale, condom attitude scale, subjective norms of premarital sex scale, subjective norms of condom use scale, abstinence efficacy scale, condom efficacy scale, and intention of sexual behavior scale including its two subscales) and Parent-Adolescent Communication. Cronbach's coefficient alphas were used for measuring internal consistency.*

*Specific aim # 5 to 10: Multi-sample structural equation modeling (EQS 6.1 for windows) was used for testing differences in model constructs. Several fit indices and the Satorra-Bentler Scaled Chi-square (S -B  $\chi^2$ ) were used to assess model fit. Greater than 0.95 of the comparative fit index (CFI) and less than 0.06 of the root mean-square error of approximation (RMSEA) were accepted as the cutoff values for using this method (Hu & Bentler, 1999; Kline, 1998). To compare between the baseline model and the constrained model, the Lagrange Multiplier (LM) test and the Satorra Bentler scaled  $\chi^2$  difference test ( $\Delta\chi^2_{SB}$ ) were performed.*

*Specific aim 11: To explore whether military service affected students' risky sexual behavior.* Comparative analysis between persons who took military service and who did not take military service was performed using Chi-square test.

### **3.5.2. Data analysis procedure for secondary aims**

For the secondary aims, two-tailed tests were performed using SPSS 12.0 for windows (SPSS Inc, Chicago, IL). The level of significance was set at 0.05.

*Secondary aim1: To explore where students receive sex education in Korea.* Descriptive statistics were used to answer this question. Students were asked where the major resources to get sex education had been.

*Secondary aim2: To describe contents of sex education which Korean college students have received.* To answer this question, descriptive statistics were used. The percentage of each type of content which students received was reported.

*Secondary aim3: To examine the relationships between intentions and actual sexual behaviors (premarital sex and condom use, respectively)* Spearman rank correlations were performed to answer this question. To examine gender differences in correlation coefficients, Fisher r to z Transformation was performed.

#### **4. CHAPTER FOUR: PILOT STUDY**

A pilot study was conducted with 36 Korean college students (male=15, female=21). The purpose of this feasibility study was to evaluate the reliabilities of six translated instruments using back translation method and to examine the sexual behavior among Korean college students for the proposed study. Specific aims of this pilot study were to: (1) estimate the internal consistency of instruments translated from English to Korean; (2) assess the feasibility of recruitment methods; (3) obtain descriptive information on Korean college students' risky sexual behavior; (4) identify possible predictors (Abstinence-efficacy, premarital attitude and subjective norms of premarital sex) of the intention to engage in premarital sex; and (5) identify possible predictors (peer norm of condom use and condom efficacy) of the intention to use condoms (dependent variable). The hypotheses were: (1) Women have more conservative value of premarital sex than the men (2) There are differences of the variables regarding condom use.

##### **4.1. THE PROCEDURE OF BACK TRANSLATION METHOD**

There is a need for international researchers to be familiar with the problems of translated measures before conducting cross-cultural studies. According to Sechrest and Fay (1972), researchers using translated instruments should consider vocabulary, idiomatic, grammatical-syntactical, experiential, and conceptual equivalences between original and translated versions.

A problem with vocabulary equivalence can happen when a word does not exist in a target language. This problem may be solved with a comparable word or a group of words (Sechrest & Fay, 1972). For instance, in this study the Sexual Abstinence Efficacy Scale (SAES), which measures sexual abstinence self-efficacy, contains the term "party"; Korean, however, does not have the same term. Thus, we had several words as an equivalent in the Korean version

instrument instead of just one word. Second, idiomatic equivalence cannot be obtained when researchers employ direct translation with an idiom because it would not make sense at all (Sechrest & Fay, 1972). Therefore, translators and back-translators should be familiar with the real meanings of the idioms to keep idiomatic equivalence. Third, a violation of grammatical-syntactical equivalence often happens since each language has different grammar and syntax. Different languages present different problems in this area. The problem of grammatical-syntactical equivalence more often occurs when long passages are translated (Sechrest & Fay, 1972). For instance, when translating from English to Korean, the order of words, comma usage, and verb nuance and tense are main problems of this area. Obtaining experiential equivalence is difficult because statements can be differently interpreted based on cultural knowledge. This problem can be overcome when researchers employ “cultural translation” (Sechrest & Fay, 1972). For instance, in Korean “I want to go to a temple” may need to be interpreted as a person is very unsatisfied with everyday life, so he/she wants to run away from routine. Thus, cultural translation is needed with this case. Lastly the problem of conceptual equivalence can occur when two languages have the same word, but the word has different meanings in a situation (Sechrest & Fay, 1972). For instance, in Korean, “love” can be interchangeably used with “really like” when the object is same gender, friends, or things, and with “respect” when the object is an older person. Therefore, there is a need to identify whether conceptual differences of a word exist in the two languages.

Researchers agree that the back-translation method is a way to maintain equivalence between original and translated versions. Therefore, the use of the same scale across cultures often requires translation and back-translation because the back-translation method may

guarantee the accuracy of the translation of the scale from one language to another (Behling & Law, 2000).

In this study, the back-translation method was employed for verifying content equivalence. The translation process of the back-translation method involves following steps: First, three independent persons, including the researcher, translated the instruments: Premarital Sexual Attitude Scale (PSAS), Referent group Approval toward Sexual Behavior Scale (RgASB), Subjective norms for Condom Use Scale, Condom Self-efficacy Scale, Sexual Abstinence Self-efficacy Scale and Intention Scale. Second, a bilingual undergraduate student translated the translated Korean versions back into English. Third, a monolingual person compared the original English version and the back-translated English version. Additionally, the author of Sexual Abstinence Self-efficacy Scale collaborated as a consultant on the abstinence self-efficacy scale. Finally, three translators reviewed any differences between original and back-translated versions. After the discussion, the Korean versions instruments were modified to produce the most appropriately expressed original questions.

#### **4.2. SAMPLE**

Subjects were recruited from a University in Korea. The participants were recruited as follows: (1) a poster being posted in the entrance of the student health service center (2) advertisement during class time with a cooperation of an instructor. Inclusion criteria were: (1) male and female unmarried Korean students (2) 18 to 24 years old (3) attending a college or a university in Seoul, Korea.

### **4.3. PROCEDURE**

Eighty of potential participants had the packet of a study through two ways: 1) a researcher distributed twenty-nine packets in a classroom after a class with an instructor approval, and 2) The potential participants picked up a packet in the student health service center (n=51). The potential participants were asked to complete all instruments and return the packet within one week through a self- addressed envelope or to a collecting box of the student health service center. The packet included 6 questionnaires, an informational script and a small gift. The informational script was comprised of purpose of study, confidentiality of data, right to withdraw, risk/ benefit ratios, and researcher's contact information. Students were asked to return the survey packet within a week. Each instrument had a unique ID according to a packet. Anonymity of response was stressed. In the pilot study, 47.5% of distributed questionnaires were returned within a week.

### **4.4. RELIABILITY OF MEASURES**

Table 1 shows the reliability of the measures. Premarital sexual attitude scale showed very high internal consistency ( $\alpha =.95$ ). For examining the internal consistency of abstinence efficacy scale, only original 7 items excluding the optional question were used. Cronbach's alpha of was 0.83. Condom efficacy scale included the three sub-scales. Cronbach's alphas were assessed with condom efficacy scale and its three sub-scales, consistency scale, correct use scale and communication scale. Condom efficacy scale showed high Cronbach's alpha ( $\alpha =0.95$ ) and three subscales also showed good internal consistencies (0.81 - 0.87). Cronbach's alpha of condom-norm scale was lower than the other scales of this feasibility study, but it is still acceptable. The measures that examined the reference norms of premarital sex showed very high internal



consistency (0.91 - 0.98). Cronbach's alphas of intention scale were assessed with overall scale as well as its two subscales. Intention of premarital sex scale showed high internal consistency ( $\alpha=0.96$ ) and intention of condom use scale showed good internal consistency ( $\alpha= 0.80$ ).

Bootstrapping method was implemented to compensate for the small sample size. This method regards the researcher's original sample as the population. Cases from the original data file are randomly selected with replacement to generate other data sets (Bollen & Stine, 1993). One thousand bootstrap replications were conducted using SPSS to estimate the empirical distributions of the internal consistency of the translated measures in the pilot study as well as the current dissertation (see Table 18).

**Table 1.** Reliabilities (internal consistencies) of measures in the pilot study

	Developer (s) / year	Original study		The pilot study reliability ( $\alpha$ ; n=36)
		Sample description	Reliability ( $\alpha$ )	
Premarital attitude scale	Treboux (1995)	High school and college - aged female students (n=267)	0.89	0.95
Abstinence Efficacy Scale	Norris (1998)	Boys and girls African American seventh-grade students (n=113); middle and upper income college students	0.80 -0.83	0.83
Condom efficacy	Hanna(1999)	Adolescent and young adults aged 13 to 26 (n=209)		0.91
--Consistency			0.85	0.81
--Correct use				0.87
--Communication				0.84
Condom_norm	Basen-Engquist et al., (1999)	Boys and girls grade 9-12 (n=6213); White, African American, Asian and other	0.84	0.74
Reference norm	Treboux (1995)	High school and college - aged female students (n=267)	Parental approval= 0.95	0.98
-- Mother			Friends approval= 0.90	0.91
-- Father				0.94
-- Friend				0.94
-- People in my culture				0.94
Intention scale	Doswell (1997)	African American girls aged 11 to 14.3 (n=106)	Intention of engaging in sex	0.93
-- Premarital sex				0.96
-- Condom use			0.84	0.80

## **4.5. FACE VALIDITY**

Because all instruments were translated from English to Korean, face validity was examined to determine whether the instruments would be acceptable in the Korean culture. Face validity was tested using students of both genders who attended the same school as the study participants in this feasibility study. Only male students identified a difference in the level of relationship between a casual partner and a sex worker and agreed that the items related to a casual partner were appropriate for assessing acceptance of sexual relationships. The items in the survey related to casual partners need further clarification in a larger study.

## **4.6. FINDINGS**

### **4.6.1. Feasibility of subject recruitment**

With regard return rate of questionnaires, the students who were recruited from classrooms showed a slightly higher return rate than with a flyer (51.7% vs.45.1%). Overall, both recruitment methods worked well.

### **4.6.2. Sample description**

Male college students (mean age=22.98) were significantly older than female students (mean age=21.43) at  $p < 0.05$ . Around 95% of girls and 60% of boys lived with their family. Parent's income and student's allowance, which measure social economical status, were not significantly different by gender. With regard to the description of sexual behavior measures, there were significant differences by gender. Around forty percent of male students perceived that more than half of their friends were already engaged in sexual intercourse, but only 15% of female students perceived that a half of their friends have engaged in sexual intercourse. The boys engaged in sexual intercourse more than girls, but there was no difference in terms of the age at

first sexual intercourse. Only six students used condoms as a form of contraceptive. Most of students did not use condoms when they engaged in sexual intercourse. More than 66% of sexually active boys had two and more partner during the last year, but all girls who experienced sexual intercourse during the last year had only one sex partner. The participants having multi-sexual partners were older (mean age: 23.47), had a lower abstinence efficacy ( $1.68 \pm 0.73$ ), more liberal premarital sexual attitude ( $30.25 \pm 8.73$ ), higher intention of premarital sex and much higher intention of condom use ( $11.50 \pm 1.73$ ) than the participants being virgin or only one sex partner. The students having multi-sexual partner perceived higher approval of premarital sex from referent groups than students being virgin and only one sex partner. In particular, they perceived higher approval of premarital sex from peers. One male student reported that his partner had had two pregnancies and two abortions (see Table 2).

**Table 2.** Sample characteristics in the pilot study

Variables	Male (n=15)	Female (n=21)
	Mean $\pm$ SD / n (%)	Mean $\pm$ SD / n (%)
Age (in years)**	22.98 $\pm$ 1.50	21.43 $\pm$ 1.88
Where to live		
--Parent's house	8 (53.3%)	15 (71.4%)
--Off campus house without parents	7 (46.7%)	6 (28.6%)
Who do you live with		
--By myself	6 (40.0%)	1 (4.8%)
--With my parents	8 (53.3%)	15 (71.4%)
--With siblings without parents	1 (6.7%)	5 (23.8%)
Parents' income per month		
--Less than 1,000,000 won	0 (0.0%)	3 (15.8%)
--1,000,001—2,000,000 won	3 (20.0%)	5 (26.3%)
--2,000,001—3,000,000 won	7 (46.7%)	5 (26.3%)
--3,000,001—4,000,000 won	3 (20.0%)	3 (15.8%)
More than 4,000,000 won	2 (13.0%)	3 (15.8%)
Subjects' allowances		
--100,001-200,000 won	2 (13.3%)	3 (15.8%)
--200,001-300,0000 won	4 (26.7%)	12 (63.2%)
--300,001-400,0000 won	7 (46.7%)	1 (5.3%)
--400,001-500,0000 won	1 (6.7%)	3 (15.8%)
--More than 500,0000 won	1 (6.7%)	0 (0.0%)
Have you finished military service?		
--Yes	10 (66.7%)	NA
--No	5 (33.3%)	
Perceived sexual activity of friends		
--None	2 (13.3%)	7 (33.3%)
--A few of them	3 (20.0%)	5(23.8%)
--Some of them	4 (26.7%)	6 (28.6%)
--A half	1 (6.7%)	3 (14.3%)
--Most of them	5 (33.3%)	0 (0.0)
Experience of sexual intercourse		
--Yes	8 (53.3%)	5 (23.8%)
--No	7 (46.7%)	16 (76.2%)
Age of first sex (in years)	20.57 $\pm$ 1.27	20.40 $\pm$ 1.34

Type of contraceptives used (multiple answers)	n=8	n=5
--None		
--Condom	3(37.5%)	3(60.0%)
--Withdrawal	3(37.5%)	1(20.0%)
--Natural family planning	2(25.0%)	0(0.0%)
Frequency of condom use in the last 3 months	n=6	n=4
--Never	2(33.3%)	1(25.0%)
--Sometimes	3(50.0%)	0(0.0%)
--Often	0( 0.0%)	1(25.0%)
--Always	1(16.7%)	2(50.0%)
Frequency of condom use with the current partner	n=6	n=4
--Never	2 (33.3%)	0 (0.0%)
--Sometimes	2 (33.3%)	0 (0.0%)
--Half of time	0 (0.0%)	1 (25.0%)
--Often	0 (0.0%)	1 (25.0%)
--Always	1(16.7%)	2 (50.0%)
--No response	1(16.7%)	0 (0.0%)
Number of sex partners during the last year	n=6	n=5
--1	2 (33.3%)	5 (100.0%)
--2	2 (33.3%)	0 (0.0%)
--3	1 (16.7%)	0 (0.0%)
--6	1 (16.7%)	0 (0.0%)
Frequency of pregnancy	n=8	n=5
--Never	7 (87.5%)	5 (100.0%)
--Yes, twice	1 (12.5%)	0 (0.0)
Frequency of abortion	n=8	n=5
--Never	7 (87.5%)	5 (100.0)
--Yes, twice	1 (12.5%)	0 (0.0)

\* p< 0.05 ; \*\* p<0.01

#### 4.6.3. Analyses for study variables

The differences of the measures between males and females were examined using t-tests and effect size  $r$ . Most of measures showed moderate and large effect sizes by gender (see Table 3). Premarital sexual attitude were very highly correlated with the intention of premarital sex ( $r=0.90$  - $0.91$ ) for both genders (see Table 4). Students who intend to have sex before marriage were higher condom efficacy and intention of condom use than students who had no intention of premarital sex. That is, students being more conservative attitude toward premarital sex had lower condom efficacy in both genders. Additionally, higher abstinence efficacy is correlated with lower condom-efficacy in both genders. Fathers' norm and mothers' norms of premarital sex were very highly correlated among Korean students ( $r=0.86$  -  $0.92$ ,  $p < 0.01$ ). The peer norm was the most influential norms to have intention of premarital sex in male student, yet the mother's norm was most influential subjective norms for girls. The students who had higher abstinence self-efficacy were more conservative premarital sex attitude and lower intention of premarital sex. The students, who had lower intention of premarital sex showed lower condom, especially girls having lower intention of condom use when they engage in premarital sex had lower condom efficacy. Male student who perceived higher peer norm of condom use had lower intention of premarital sex ( $r = -0.70$ ), but peer norm of condom use was not highly correlated with intention of condom use for both gender (for boy  $r = -0.09$ ; for girls  $r = -0.11$ ). There is no relationships between peer norm of condom use and intention of premarital sex ( $r = 0.03$ ) in the female group (see Table 4 & Table 5).

Table 3. Descriptive statistics of measures in the pilot study

	Male (n=15) Mean ± SD	Female (n=21) Mean ± SD	t	df	P- value	Effect size(r)
Abstinence self-efficacy						
--sum of original items (aes1 to aes7)***	14.33 ± 4.01	20.19 ± 3.19	-4.88	34	<.001	0.64
--average of aes1 to aes8 ( including an optional question)***	2.04 ± 0.56	2.87 ± 0.47	-4.83	34	<.001	0.64
Condom efficacy	2.39±0.70	2.16 ±0.79	0.96	34	.35	0.16
--consistency	2.30 ± 0.92	1.73 ± 0.93	1.94	34	.06	0.32
--correct use	2.57 ± 0.75	2.29 ± 0.81	1.02	34	.31	0.17
-- communication	2.25 ± 0.76	2.34 ± 1.07	-0.28	34	.78	0.05
Condom norm*	2.80 ± 0.49	2.32 ± 0.62	-2.52	34	.02	0.40
Premarital sexual attitude**	2.04 ± 0.50	2.57 ± 0.59	-2.86	34	.01	0.44
Reference norms**	2.78 ± 0.65	3.51 ± 0.39	-3.87	21	<.001	0.55
--mother*	3.51 ± 0.61	3.97 ± 0.54	-2.40	34	.02	0.38
--father**	3.25 ± 0.77	4.04 ± 0.58	-3.52	34	.001	0.52
--friends**	2.06 ± 0.78	2.89 ± 0.46	-3.80	21	.000	0.55
--people in my culture**	2.35 ± 0.82	3.14 ± 0.45	-3.43	20	.001	0.51
--intention of premarital sex***	1.99 ± 0.62	2.69 ± 0.54	-3.63	34	.001	0.53
--condom use**	1.72 ± 0.51	1.31 ± 0.41	-3.55	34	.010	0.52

\* p<0.05 ; \*\* p< 0.001



Table 4. Correlations among variables for male students in the pilot study (n=21)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Premarital Attitude	-												
2. Abstinence self efficacy	.58*	-											
3. Condom efficacy: consistency	-.52*	-.31	-										
4. Condom efficacy: correct use	-.73**	-.18	.69**	-									
5. Condom efficacy: communication	-.40	-.14	.63*	.62*	-								
6. Norms toward premarital sex (sum)	.40	.15	-.38	-.28	-.12	-							
7. Norms toward premarital sex (mother)	.08	-.21	-.29	-.12	-.08	.84**	-						
8. Norms toward premarital sex (father)	.09	-.01	-.24	-.04	.00	.88**	.86**	-					
9. Norms toward premarital sex (friends)	.70**	.38	-.44	-.44	-.16	.84**	.51	.55*	-				
10. Norms toward premarital sex (people in the culture)	.44	.33	-.32	-.33	-.17	.90**	.61*	.67**	.80**	-			
11. Norm of condom use	.81**	.55*	-.16	-.43	-.17	-.19	-.19	-.04	.41	.20	-		
12. Intention of premarital sex	.90**	.60*	-.65	-.78**	-.39	.53*	.18	.29	.70**	.58*	.70**	-	
13. Intention of condom use	-.31	-.16	.00	.23	.07	.12	-.08	.20	-.09	.15	-.09	-.11	-

. \* p<.05 ; \*\* p<.001

Table 5 .Correlations among variables for female students in the pilot study (n=15)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Premarital Attitude	-												
2. Abstinence self efficacy	.55*	-											
3. Condom efficacy: consistency	-.37	-.12	-										
4. Condom efficacy: correct use	.43	-.27	.59**	-									
5. Condom efficacy: communication	-.68	-.51	.58**	.57**	-								
6. Norms toward premarital sex (sum)	.45*	.15	-.09	-.40	-.33	-							
7. Norms toward premarital sex (mother)	.49*	.23	-.13	-.23	-.24	.87**	-						
8. Norms toward premarital sex (father)	.43*	.17	-.12	-.25	-.30	.84**	.92**	-					
9. Norms toward premarital sex (friends)	.23	-.04	-.10	-.63**	-.21	.74**	.38	.38	-				
10. Norms toward premarital sex (people in the culture)	.20	.07	.08	-.16	-.27	.63**	.29	.18	.62	-			
11. Norm of condom use	-.03	.15	-.03	-.13	.23	-.17	-.27	-.35	.15	.02	-		
12. Intention of premarital sex	.91**	.47*	-.48*	-.55**	-.68**	.45*	.44*	.38	.34	.23	.03	-	
13. Intention of condom use	.05	.14	-.70**	-.16	-.50*	-.16	-.13	-.08	-.21	-.08	-.26	.25	-

. \* p<0.05 ; \*\* p<0.001

#### **4.7. SUMMARY**

The pilot study showed that all instruments had good internal consistency among Korean college students. Because all instruments except condom attitude scale were translated from English to Korean, face validity was examined whether instruments were accepted by the Korean culture. The findings suggested that the items in the survey in relation to casual partners were needed to further investigations to examine face validity and content validity for girls. Overall, the pilot study showed that the data collection method proposed in this study was feasible.

## 5. CHAPTER FIVE

In chapter five, sample characteristics, answers to each primary research question, specific aim, and to relate hypotheses are presented with applied statistical approaches under a subheading, each research question. Alternative models of the each proposed model are presented in the same section of the initial proposed models. The findings of the three secondary aims are presented under the subheading of “secondary research aims.”

### 5.1. SAMPLE CHARACTERISTICS

To describe sample characteristics, descriptive statistics, t-tests and chi-square tests were used. Three hundred twenty of 550 students (58.18%) who expressed interest returned the questionnaire packets. With regard to missing data, listwise deletion was performed because of a small amount of missing rate (6.88 %). The differences between missing group (n=22) vs. the non-missing group (n=298) were examined before applying listwise deletion. There were no significant differences in age ( $t(318) = 0.54, p=0.59$ ), gender ( $\chi^2(1) = 0.24, p=0.63$ ), grade ( $\chi^2(3)=0.76, p=0.89$ ), family income ( $\chi^2(5)=6.12, p=0.30$ ), and initiating sexual behavior ( $\chi^2(1)=1.65, p=0.23$ ) between the two groups. Thus, only students who completed the entire instruments were included in the final data analyses.

The overall mean age of participants was 21.78 (SD=2.17; median: 21.63). As the researcher expected, male students were statistically significantly older (mean=22.68, SD=2.12) than the female students (mean=20.67, SD= 1.67),  $t(296) =9.19, p<0.001$  (see Table 8). There was significant difference in grade level of the male and female students as well ( $\chi^2(3)=19.72, p< 0.001$ ). Female students were more likely to live with their parents than male students ( $\chi^2(1) =8.11, p< 0.01$ ).

Approximately 88% participants were financially dependent to their parents. Two thirds of the students reported their monthly allowances from 200,000 won (\$200) to 400,000 won (\$400). More than half of the students' family income per month ranged from 2,000,000 won (\$2,000) to 4,000,000 won (\$4,000). Only 5% of the male students reported they were not responsible for military service. Half of the students who were eligible for military service had not finished their duty yet (see Table 6).

Table 6. Sample characteristics

	Overall (n=298)	Male (n=165)	Female (n=133)
	N (%)	N (%)	N (%)
Grade**			
--Freshman	88(29.5)	33(20.0)	55(41.4)
--Sophomore	64(21.5)	36(21.8)	28(21.1)
--Junior	59(19.8)	36(21.8)	23(17.3)
--Senior	76(25.5)	54(32.7)	22(16.5)
--Missing	11(3.7)	6(3.6)	5(3.8)
Living status			
--Dormitory	15 (4.7)	5(2.8)	10(6.9)
--Parent's house	187(58.4)	91(51.8)	96(66.7)
--Relative's house	9 ( 2.8)	6(3.4)	3(2.1)
--Off campus house without parents	112(34.0)	74(42.0)	35(24.3)
Who do you live with			
--By myself	58 (19.5)	42(25.5)	16(12.0)
--With my parents	177(59.4)	86(52.1)	91(68.4)
--With siblings without parent	25 ( 8.4)	11( 6.7)	14(10.5)
--With friend	26( 8.7)	19(11.5)	7( 5.3)
--With boy/girl friend	2 ( 0.7)	1( 0.6)	1( 0.8)
--With relatives	10 ( 3.4)	6( 3.6)	4( 3.0)

Parents' income per month			
--Less than 1,000,000 won	18(6.0)	10(6.1)	8(6.0)
--1,000,001—2,000,000 won	49(16.4)	32(19.4)	17(12.8)
--2,000,001—3,000,000 won	87(29.2)	52(31.5)	35(26.3)
--3,000,001—4,000,000 won	74(24.8)	34(20.6)	40(30.1)
--4,000,001—7,000,000 won	53(17.8)	27(16.4)	26(19.5)
-- more than 7,000,000 won	9(3.0)	5(3.0)	4(3.0)
Subjects' allowances			
--less than 100,000won	11(3.7)	5(3.0)	6(4.5)
--100,001-200,000 won	31(10.4)	16(9.7)	15(11.3)
--200,001-300,0000 won	116(38.9)	64(38.8)	52(39.1)
--300,001-400,0000 won	82(27.5)	48(29.1)	34(25.6)
--400,001-500,0000 won	40(13.4)	24(14.50)	16(12.0)
--500,001-700,0000 won	8(2.7)	4(2.4)	4(3.0)
--700,001-1,000,0000 won	4(1.3)	2(1.2)	2(1.5)
--more than 1,000,001 won	4(1.3)	1(0.6)	3(2.3)
Source of allowance(multiple answers)			
--Parents	262(87.9)	145(87.9)	117(88.0)
--Part-time job	56(18.8)	33(20.0)	23(17.3)
Type of military service			
--Defense Military	NA	149(90.9)	NA
--City Military		7(2.3)	
--Exemption		8(2.7)	
Have you finished military service?			
--Yes	NA	69(47.9)	NA
--No		75(45.5)	
--No response		13(7.9)	

## 5.2. RESEARCH QUESTION #1:

*What is the prevalence of premarital sexual behavior and condom use among Korean college students?*

To obtain descriptive information on Korean college students' risky sexual behavior, descriptive statistics, t-test and chi-square were used. Table 7 shows the reported prevalence of sexual behavior in this study. All male students reported their sex orientation as heterosexual, but three

female students reported they were homosexual or bisexual. Female students had reported they have more Confucian views toward sexuality than male students ( $\chi^2(3) = 9.32, p < 0.05$ ; see Table 7). Approximately 40% of male students perceived more than half of their friends were already engaged in sex. There was significant gender difference in terms of virginity status. Eighty one of 165 (49.1%) male students and 16 of 133 (12.0%) female students reported they had engaged in sex ( $\chi^2(1) = 46.07, p < 0.001$ ). Of students who reported they engaged in vaginal intercourse, more than 70% them also reported they engaged in oral sex. Approximately 5% of male non-virgin students reported they had STDs.

Although the first sex partners of all female students were their boyfriends, only 70% of male students reported their first sex partners were their girlfriends. Half of non-virgin students reported they did not use any contraceptive at the first time they had sex. Condom use was reported by only one-fourth of them. Among students who had engaged in sex during the previous 12 months, males had 1 to 6 sex partners, while females had 1 to 2. Sixty students were sexually active during the previous 3 months; yet, only 45 of those students (75%) had used condoms during that time. Additionally, only about 37% sexually active students ( $n=22$ ) consistently used condoms during the previous 3 months (more than often condom users). Although 17.2% of non-virgin male students reported their partners had been pregnant and had abortion(s), no female students reported such incidents (see Table 7).

Perceived risk of sexual behavior was measured with 4-items : 1) general perceived risk of unprotected sex (having unprotected sex is dangerous?), 2) chance of getting STDs and HIV, 3) chance of becoming pregnant, and 4) their risks comparable to others. There were no significant gender differences according to the risk of contracting STDs and HIV, or the risk of

pregnancies. However, male students perceived less risk related to unprotected sex than female students ( $t(290) = -5.67, p < 0.001$ ).

Students who were virgins were significantly younger than non-virgins ( $t(213) = 10.53, p < 0.001$ ; see Table 8). Although the perceived risk of contracting STDs and HIV was not significantly different by the two groups ( $t(293) = 0.83, p = 0.42$ ), the non-virgin group perceived greater dangers of unprotective sex ( $t(292) = -2.38, p < 0.05$ ), risk of pregnancy ( $t(292) = 2.93, p < 0.01$ ) and risk to themselves when compare to others with regard to sexual behavior ( $t(292) = 3.04, p < 0.01$ ). Unfortunately, many non-virgin students did not use condoms during either their first sex or current sexual experiences (See Table 7 ).

Table 7: Reported sexual behavior

	Overall (n=298)	Male (n=165)	Female (n=133)
	N (%)	N (%)	N (%)
Sex-orientation			
-heterosexual	295(99.0)	165(100.0)	130(97.7)
-homosexual	2(0.7)	0(0.0)	2(1.5)
-bisexual	1(0.3)	0(0.0)	1(0.8)
Views toward the sexuality			
--Very Confucian(Asian) view	10(3.4)	3(1.8)	7(5.3)
-- Confucian(Asian) view	165(55.4)	82(49.7)	83(62.4)
--Westernized view	114(38.3)	74(44.8)	40(30.1)
--Very westernized view	9(3.0)	6(3.6)	3(2.3)
Perceived sexual activity of friends			
--None	45(15.1)	4(2.4)	41(30.8)
--A few of them	59(19.8)	19(11.5)	40(30.1)
--Some of them	71(23.8)	38(23.0)	33(24.8)
--A half	57(19.1)	40(24.2)	17(12.8)
--Most of them	66(21.1)	64(38.8)	2(1.5)
Experience of sexual intercourse			
--Yes	97(32.6)	81(49.1)	16(12.0)
--No	201(67.4)	84(50.9)	117(88.0)



Have you diagnosed STDs?	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--Yes	4(4.1)	4(4.9)	0(0.0)
--No	93(95.9)	77(95.1)	16(100.0)
Type of sex (multiple answers)	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--Vaginal intercourse	96(99.0)	80(98.8)	16(100.0)
--Anal intercourse	5(5.2)	5(6.17)	0(0.0)
--Oral intercourse	69(71.1)	56(69.1)	13(81.3)
First sex partner	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--Boy/girl friend	70(72.2)	54(67.5)	16(100.0)
--A friend	6(6.2)	6(7.5)	0(0.0)
--Acquaintance	6(6.2)	6(7.5)	0(0.0)
--sex worker	11(11.3)	11(13.8)	0(0.0)
--A person I have gone out with once or twice	2(2.1)	2(2.5)	0(0.0)
Type of contraceptives used in the first sex (multiple answers)	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--None	46(47.4)	45(55.6)	1(6.3)
--Condom	24(24.7)	18(22.2)	6(37.5)
--Withdrawal	33(34.0)	24(29.6)	9(56.3)
--Natural family planning	7(7.2)	5(6.2)	2(12.5)
--Oral pills	1(1.0)	0(0.0)	1(6.3)
Type of contraceptives used in the previous 3 months (multiple answers)	<b>(n=60)</b>	<b>(n=48)</b>	<b>(n=12)</b>
--None	13(21.7)	11(22.9)	2(16.7)
--Condom	36(60.0)	28(58.3)	8(66.7)
--Withdrawal	20(33.3)	14(29.2)	6(50.0)
--Natural family planning	10(16.7)	7(14.6)	3(25.0)
--Oral pills	3(5.0)	2(4.2)	1(8.3)
Frequency of condom use in the previous 3 months	<b>(n=60)</b>	<b>(n=48)</b>	<b>(n=12)</b>
--Never	14(23.3)	12(25.0)	2(16.7)
--Rare	16(26.7)	15(31.3)	1(8.3)
--Half of some	7(11.7)	3(6.3)	4(33.3)
--Often	6(10.0)	4(8.3)	2(16.7)
--Always	16(26.7)	13(27.1)	3(25.0)

# of sex partners during the previous 12 months (ranges 1 to 6)	<b>(n=86)</b>	<b>(n=71)</b>	<b>(n=15)</b>
--no response	5(5.8)	5(7.0)	0(0.0)
--1	51(59.3)	38(53.5)	13(86.7)
--2	17(20.0)	15(21.1)	2(13.3)
--3	6(7.0)	6(8.5)	0(0.0)
--4	2(2.3)	2(2.8)	0(0.0)
--5	1(1.2)	1(1.4)	0(0.0)
--More than 6	4(4.7)	4(5.6)	0(0.0)
Frequency of pregnancy	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--no response	2(2.1)	2(2.5)	0(0.0)
--Never	80(82.5)	64(79.0)	16(100.0)
--yes, once	12(12.4)	12(14.8)	0(0.0)
--Yes, twice	1(1.0)	1(1.2)	0(0.0)
--yes, three times	1(1.0)	1(1.2)	0(0.0)
--I do not know	1(1.0)	1(1.2)	0(0.0)
Frequency of abortion	<b>(n=97)</b>	<b>(n=81)</b>	<b>(n=16)</b>
--no response	2(2.1)	2(2.5)	0(0.0)
--Never	80(82.5)	64(79.0)	16(100.0)
--yes, once	12(12.4)	12(14.8)	0(0.0)
--Yes, twice	1(1.0)	1(1.2)	0(0.0)
--yes, three times	1(1.0)	1(1.2)	0(0.0)
--I do not know	1(1.0)	1(1.2)	0(0.0)

Table 8. Participant s' age and perceived risks of sexual behavior

	Mean ± SD	Mean ± SD	t-value	df	p-value (two-tailed)
	Male (n=163)	female (n=132)			
Age***	22.68 ±2.12	20.67±1.67	9.19	296	<0.001
Perceived risk of sexual behavior	Ranges: 1-10	Ranges: 1-10			
--General perception of unprotected sex ***	7.65 ±2.25	8.95 ±1.66	-5.67	290	<0.001
--Chances of getting STDs &HIV	2.01 ±1.54	2.34 ±2.03	-1.54	240	0.12
--Chances of getting progenies	3.93 ±2.30	3.48 ±2.24	1.66	292	0.99
--Risks comparable to others	3.14 ±2.12	3.10 ±2.21	1.65	292	0.87
	Virgin(n=197)	Non-virgin(n=97)			
Age***	21.02±1.95	23.36 ±1.72	10.53	213	<0.001
Perceived risk of sexual behavior	(Ranges: 1-10)	(Ranges: 1-10)			
--General perception of unprotected sex *	8.43 ±2.00	7.81 ±2.28	-2.37	292	0.018
--Chances of getting STDs &HIV	2.10 ±2.78	2.28 ±1.79	0.80	293	0.42
--Chances of getting progenies**	3.46 ±2.25	4.28 ±2.26	2.94	292	0.004
--Risks comparable to others**	2.86 ±2.02	3.66 ±2.34	2.89	168	0.004

\* p<0.05;\*\* p<0.01;\*\*\* p<0.001

### 5.3. RESEARCH QUESTION #2:

*Are there mean differences in age, parent- adolescent communication, and the components of TpB( premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, the intentions of sexual behavior such as premarital sex and condom use) between genders?*

For answering Research Question 2, t-test was performed (See Table 9). Overall, age and measures (TpB components and parent-adolescent communication) showed significant gender differences in this study. With regard to the quality of parent-child communication, female students reported they had higher quality of mother-adolescent communication than male students ( $t(296) = -2.15$ ,  $p < 0.05$ ); however, there was no significant gender difference with regard to quality of father-adolescent communication ( $t(296) = -0.38$ ,  $p = 0.70$ ).

Female students reported having more conservative attitude than males; however, female students also had more positive attitude toward using condoms than male students. Thus, Hypotheses 2.1 and 2.2 were accepted. Both variables regarding attitude toward premarital sex ( $t(296) = -10.82, p < 0.001$ ) and condom use ( $t(296) = -5.07, p < 0.001$ ) showed significant gender differences.

Like the pilot study, female students reported higher abstinence self-efficacy than male students. Female students were more confident in expressing their desire to remain celibate than male students ( $t(263) = -11.52, p < 0.001$ ). Thus, hypothesis 2.3 was confirmed. With regard to the hypothesis 2.4, the hypothesis was partially accepted. Male students reported a higher confidence to use condoms in terms of overall score ( $t(296) = 4.23, p < 0.001$ ), consistent use ( $t(296) = 4.51, p < 0.001$ ), and correct use ( $t(296) = 6.23, p < 0.001$ ) than female students. However, there was no gender difference with respect to the communication of the condom efficacy ( $t(296) = 0.20, p = 0.98$ ; See Table 9). Reported scores indicated that most students had moderate confidence to use condoms.

Female students more greatly perceived conservative norms regarding premarital sex than male students ( $t(296) = -13.84, p < 0.001$ ), so hypothesis 2.5 was confirmed. Parental norms, especially fathers' for females and mothers' for males, were the highest conservative norms among the subscales of premarital sex. With regard to the perceived norms of condom use, female students perceived more supportive peer norms regarding consistent using condoms than male students ( $t(252) = -5.13, p < 0.001$ ). However, more than half of students (51% to 58%) regardless of gender reported that they did not know what parental norms of condom use are.

The sixth hypothesis (2.6), female students had lower intention to engage in premarital sex than males, was confirmed. In this study, female students reported lower intention to engage

in premarital sex than male students ( $t(296) = -12.52, p < 0.001$ ). However, female students reported having higher intention of using condom when they had a chance to engage in premarital sex than male students ( $t(244) = 3.19, p < 0.01$ ).

As secondary aims, mean differences in the parent-adolescent communication and the components of the TpB were examined between virgins and non-virgins (see Table 10). First, there were no significant differences between the two groups on parent-adolescent communications. Second, variables related to attitude, premarital sexual attitudes had a significant difference between virgin and non-virgin group ( $t(296) = -11.00, p < 0.001$ ), but there was no significant difference in condom attitude between the two groups. With regard to the volitional control which was measured by self-efficacy, there were significant group differences in abstinence efficacy and condom efficacy. The virgin-group had a higher abstinence efficacy and a lower condom efficacy than the non-virgin group. Perceived norms also showed the group difference in both constructs (norms regarding premarital sex and condom use). Non-virgin group showed a higher intention to engage in premarital sex than the virgin group, but there was no significant difference related to using condom in two groups

Table 9. Mean differences of study measures between male and female students

		Male (n=165)	Female (n=133)	t-value	df	p-value
		Mean ± SD	Mean ± SD			
Communi- cation	Mother-adolescents*	3.19±0.49	3.31±0.48	-2.15	296	0.03
	Father-adolescents	3.05±0.48	3.07±0.50	-0.38	296	0.70
Efficacy of	Abstinence (average of aes1 to aes8:including an optional question)***	2.15 ± 0.52	2.91 ± 0.60	-11.52	263	<0.001
	+Condom use(CES)***	2.42±0.65	2.08±0.72	4.23	296	<0.001
	-consistency***	2.43±0.82	1.99±0.85	4.51	296	<0.001
	-correct use***	2.63±0.73	2.08±0.80	6.23	296	<0.001
	-communication	2.16±0.77	2.15±0.78	0.02	296	0.98
Attitude toward	+Premarital sexual attitude (mPAS)***	1.93 ± 0.56	2.61 ± 0.51	-10.82	296	<0.001
	Condom use (CAS)***	3.33±0.56	3.66±0.58	-5.01	296	<0.001
Subjective Norms of	+Premarital sex(SNP)***	2.68 ± 0.56	3.57 ± 0.55	-13.84	296	<0.001
	--mother***	3.33 ± 0.73	4.04 ± 0.56	-9.57	296	<0.001
	--father***	3.27 ± 0.75	4.08 ± 0.54	-10.91	292	<0.001
	--friends***	1.91 ± 0.72	3.08 ± 0.73	-13.95	296	<0.001
	--people in my culture***	2.20 ± 0.67	3.08 ± 0.74	-10.88	296	<0.001
	Condom use***	2.94±0.63	3.38±0.78	-5.13	252	<0.001
	--mother*	3.23±0.75	3.44±0.94	-2.07	249	0.018
	--father	3.24±0.72	3.35±0.89	-1.22	252	0.12
Intention toward	--peers***	2.42±0.87	3.38±0.92	-9.16	296	<0.001
	--partner	2.76±1.03	2.65±0.91	0.40	93	0.35
	+Premarital sex(mIPSB1)***	2.04 ± 0.62	2.85 ± 0.50	-12.52	296	<0.001
	Condom use(mIPSB2)**	1.95 ± 0.65	1.67 ± 0.84	3.19	244	0.002

\* p< 0.05; \*\* p<0.01;\*\*\*p<.001

+One-tailed test

Table 10. Mean differences of study measures between virgins vs. non-virgins

		Virgin (n=201)	Non-virgin (n=97)	t-	df	p-value
		Mean ± SD	Mean ± SD	value		(2-tailed )
Communi- cation	Mother-adolescents*	3.27±0.46	3.18±0.54	-1.43	165	0.16
	Father-adolescents	3.06±0.51	3.05±0.47	-0.11	296	0.91
Efficacy of	Abstinence (average of aes1 to aes8:including an optional question)***	2.64 ± 0.69	2.16 ± 0.53	-6.69	242	<0.001
	Condom use(mCES)***	2.11±0.66	2.59±0.68	5.83	296	< 0.001
	-consistency***	2.15±0.74	2.57±0.87	4.94	296	< 0.001
	-correct use***	2.63±0.73	2.85±0.74	7.68	296	< 0.001
	-communication	2.09±0.74	2.29±0.82	2.14	296	0.03
Attitude toward	Premarital sexual attitude (mPAS)***	2.47 ± 0.57	1.74 ± 0.46	-11.00	296	0.000
	Condom use (CAS)	3.52±0.55	3.41±0.65	-1.54	296	0.13
Norms for	Premarital sex(RASB)***	3.24 ± 0.74	2.74 ± 0.52	-6.88	257	< 0.001
	--mother***	3.72 ± 0.74	3.48 ± 0.74	-2.70	296	0.007
	--father***	3.73 ± 0.77	3.43 ± 0.76	-3.18	296	0.002
	--friends***	2.72 ± 0.91	1.83 ± 0.63	-9.87	261	< 0.001
	--people in my culture***	2.79 ± 0.87	2.20 ± 0.56	-7.10	272	< 0.001
	Condom use***	2.94±0.63	3.38±0.78	-5.13	252	<0.001
	--mother*	3.41±0.88	3.14±0.73	-2.63	225	0.005
	--father	3.35±0.83	3.16±0.72	-2.00	215	0.057
	--peers***	3.04±0.96	2.46±1.01	-4.76	296	<0.001
	--partner	NA	2.65±0.91	NA	NA	NA
Intention toward	Premarital sex(mIPSB1)***	2.64 ± 0.64	1.90 ± 0.53	-9.95	296	<0.001
	Condom use(mIPSB2)**	1.78 ± 0.79	1.92 ± 0.67	1.52	296	0.13

\* p< 0.05; \*\* p<0.01;\*\*\*p<.001

#### 5.4. RESEARCH QUESTION #3:

*What are the bivariate relationships among age, perceived risks of sexual behavior, premarital sex attitude, condom attitude, subjective norms of premarital sex, norms of condom use, abstinence efficacy and condom efficacy, parent- adolescent communication, and intentions of premarital sex and condom use for each gender?*

As a preliminary data analysis, bivariate correlations among “age”, “perceived risks of sexual behavior”, “parent-adolescent communications”, and the TpB component variables were examined with the two outcome variables (premarital sex and condom use; see Table 13, Table 14, Table 15 & Table 16) for each gender. Because some variables (e.g., abstinence efficacy and intention to condom use) showed non-normal distribution, Spearman rank correlations were used. Reported p-values came from one-tailed or two-tailed tests based on the hypotheses. To examine gender differences in correlation coefficients in terms of the Research Question 3, hypotheses 3.1 to 3.13.2, Fisher r to z transformation was used. Table 17 shows the Z-scores in correlation coefficients between male and female groups according to the hypotheses.

Two types of composite scores regarding perceived risks of sexual behavior were used for this research question. First, the bivariate correlations between the composite score of perceived risks of sexual behavior with 4-items, “general perceived risks of sexual behavior”, and other variables were examined in Table 11 & Table 12. Second, the composite score with more specific items (3 items; perceived risks of HIV/AIDS, perceived risks of pregnancy, and risks comparable to others) was used to examine associations with the variables related to premarital sex and condom use in Table 13, Table 14, Table 15 & Table 16, respectively. The second composite score using 3 items is called “specific perceived risks of sexual behavior” in this study. There were significant relationships between age and perceived risks of sexual



behavior, premarital sexual attitude, peers norms of premarital sex, intention of premarital sex and condom efficacy (see Table 11 & Table 12).

In terms of perceived risks of sexual behavior, Table 11 and 12 show correlation coefficients between “general perceived risk of sexual behavior” and the TpB components. Male students who perceived a higher “general perceived risks of sexual behavior” had a negative condom attitude ( $r = -0.16$ ,  $p < 0.05$ ). Female students, who perceived a higher “general perceived risks of sexual behavior” had a higher condom efficacy ( $r = 0.21$ ,  $p < 0.05$ ). However, these findings were slightly different when the researcher examined the associations between “specific risks of sexual behavior” and the TpB component of each outcome variable (see Table 13, Table 14, Table 15 & Table 16 ). Students who had a liberal attitude of premarital sex were had lower “perceived the specific risks of sexual behavior” (pregnancy, STDs and HIV and comparable risk of others); however, there was no gender difference ( $Z = 0.36$ ,  $p = \text{NS}$ ). Male students who had lower perceived the “specific risk of sexual behavior” had a significantly higher “intention of premarital sex” ( $r = -0.16$ ,  $p < 0.05$ ).

Parent-adolescent communication was measured with two subscales: mother-adolescent communication and father-adolescent communication. There were several interesting findings in this study. Table 13 and Table 14 show the correlations among the variables of premarital sex in the current study. For the male students, the quality of father-adolescent communication was positively correlated with peer norm of premarital sex not father’s norm; a student who had higher quality of father-adolescent communication perceived greater friend’s disapproval of premarital sex ( $r = 0.16$ ,  $p < 0.05$ ; See Table 13). However, for female students, the quality of mother-adolescent communication was negatively correlated with mother norms of premarital sex ( $r = -0.19$ ,  $p < 0.05$ ; See Table 14). A lower quality of communication with their mother was

significantly correlated with a higher perceived conservative norm from the mothers. Furthermore, a higher quality of communication with mothers was associated with a lower intention of premarital sex for female students ( $r=0.20$ ,  $p<0.05$ ; See Table 14).

With regard to the relationships between “intention of premarital sex” and the TpB components related to premarital sex (premarital sexual attitude, abstinence efficacy, subjective norms regarding premarital sex), the first hypothesis (3.1) - premarital sexual attitude will be positively correlated with the intention of premarital sexual behavior with a stronger relationship for females than males- was not confirmed ( $Z= -0.295$ ,  $p=NS$ ; see Table 17). Hypothesis 3.2 – Abstinence efficacy will be positively correlated with the intention of premarital sexual behavior with a stronger relationship for females than males- was rejected; male students showed a stronger relationship. Unexpectedly, abstinence efficacy was positively correlated with the intention of premarital sexual behavior for male student, but it was not correlated with the intention of premarital sex for female students ( $Z= 2.222$ ,  $p<0.05$ ; See Table 17). Hypothesis 3.3 - *subjective norms regarding premarital sex will be positively correlated with the intention of premarital sex with a stronger relationship for males than females-* was not accepted either. There was a higher correlation for female than male students ( $Z= -1.984$ ,  $p< 0.05$ ; See Table 17).

The relationships among predictors related to premarital sex (Hypotheses 3.4, 3.5, and 3.6) were tested. The magnitude of male students’ correlation between premarital sexual attitude and abstinence self-efficacy was not significantly different than female students ( $Z=0.635$ ,  $p=NS$ ). Thus, hypothesis 3.4 was not confirmed in this study. Same patterns existed in the Hypothesis 3.5 as well. The magnitude of female students’ correlation between premarital sexual attitude and subjective norms of premarital sex was greater with a stronger relationship for females than male students, however, there was no significant gender differences (male students:

0.35, female students: 0.50;  $Z = -1.539$ ,  $p = \text{NS}$ ). In relation to Hypothesis 3.6, abstinence efficacy was showed a weak relationship for males ( $r = 0.16$ ,  $p < 0.05$ ), and no relationship for females with subjective norms, but there was no significant difference in the correlation coefficient between male and female students ( $Z = 0.689$ ,  $p = \text{NS}$ ). Thus, hypothesis 3.6 was rejected.

With regard to the relations between “intention to use condoms” and the predictors related to condom use from the TpB (condom attitude, condom efficacy, subjective norms regarding condom use), hypothesis 3.7 “Condom attitude will be positively correlated with the intention of condom use with a stronger relationship for males than females” was not accepted (see Table 15 & Table 16). Students who had a positive attitude toward using condoms more strongly intended to use condoms, but no gender differences were found ( $Z = -0.377$ ,  $p = \text{NS}$ ; See Table 17). The next hypothesis - 3.8. higher condom efficacy will be significantly correlated with higher intention of condom use with a stronger relationship for males than females- was not confirmed with Z-scores ( $Z = -0.890$ ,  $p = \text{NS}$ ; See Table 17).

In terms of examining relationships between perceived norms for using condoms and variables related condom use, only peer norm was used to measure perceived norms regarding condom use because limited students have perceived the norms of condom use from mothers, fathers, and partners. The followings were the results based on hypotheses. First, the male students who perceived higher peers’ norms to use condoms had a higher intention to use condoms, but not for female students; there was a gender difference ( $Z = -1.761$ ,  $p < 0.05$ ; See Table 17); hypothesis 3.9 was confirmed. Second, the relationship between condom attitude and condom efficacy was significant for both genders; but, there was no gender difference ( $Z = -0.978$ ,  $p = \text{NS}$ ; See Table 17). Thus, Hypothesis 3.10 was rejected. Third, the relationship between the peer norms and condom attitude were significant for both genders with same magnitude

( $r=0.21$ ,  $p < 0.05$ ): Hypothesis 3.11 was confirmed. Last, the relationship between the peer norms and condom efficacy was not significant for both genders, thus hypothesis 3.12 was not confirmed in this study.

Table 11. Correlations among the variables by constructs (Males; n=165)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Mother-adolescent communication	0.14	-										
3. Father-adolescent communication	-0.09	0.44**	-									
4. General perceived risks of sexual behavior	0.17*	-0.02	0.02	-								
5. Premarital attitude	-0.24**	0.00	0.03	-0.12	-							
6. Condom attitude	-0.04	0.07	0.04	-0.16*	0.10	-						
7. Abstinence efficacy	-0.15	0.06	0.10	-0.03	0.29**	0.03	-					
8. Condom efficacy	0.23**	0.20*	0.18*	0.07	-0.24**	0.32**	0.00	-				
9. Norms in terms of premarital sex	-0.17*	0.01	0.08	0.00	0.35**	-0.06	0.16*	-0.15	-			
10. Peer norms in terms of condom use	-0.09	0.03	0.12	0.04	0.23**	0.21*	0.11	0.09	0.23*	-		
11. Intention to engage in premarital sex	-0.19*	0.01	0.04	-0.07	0.70**	0.08	0.40**	-0.16*	0.46**	0.23**	-	
12. Intention of condom use	-0.14	-0.18*	-0.07	-0.03	-0.00	-0.34**	-0.08	-0.43**	0.01	-0.28**	-0.02	-

Male students (n=165, lower Diagonal) and female students (n=133, upper Diagonal); \* p< 0.05; \*\*p< 0.01

Table 12. Correlations among the variables by constructs (Females; n=133)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Mother-adolescent communication	0.04	-										
3. Father-adolescent communication	-0.10	0.37**	-									
4. General perceived risks of sexual behavior	-0.01	-0.10	-0.04	-								
5. Premarital attitude	-0.07	0.13	-0.01	-0.21*	-							
6. Condom attitude	-0.05	0.03	0.10	0.04	-0.04	-						
7. Abstinence efficacy	-0.11	0.16	0.05	0.06	0.22*	0.14	-					
8. Condom efficacy	0.01	-0.08	-0.05	0.21*	-0.30**	0.42**	0.16	-				
9. Norms in terms of premarital sex	-0.16	-0.07	-0.10	0.13	0.50**	-0.02	0.08	-0.22*	-			
10. Peer norms in terms of condom use	-0.21*	-0.05	-0.01	0.05	0.06	0.21*	0.13	0.15	0.08	-		
11. Intention to engage in premarital sex	-0.21*	0.20*	0.07	-0.08	0.72**	-0.05	0.16	-0.38**	0.63**	0.12	-	
12. Intention of condom use	-0.00	0.02	0.07	-0.08	0.05	-0.30**	-0.46**	-0.34**	0.06	-0.08	0.05	-

\* p< 0.05; \*\*p< 0.01

Table 13. Correlations among variables of premarital sex in the current study (Males; n=165)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Age	-										
2. Specific perceived risks	0.14	-									
3. Mother-Adolescent communication	0.14	-0.08	-								
4. Father-Adolescent communication	-0.09	-0.00	0.44**	-							
5. Premarital Attitude	-0.24**	-0.19*	0.00	0.03	-						
6. Abstinence self efficacy	-0.15	-0.09	0.06	0.10	0.29**	-					
7. Norms of premarital sex (mother)	-0.07	-0.10	-0.09	0.03	0.08	-0.03	-				
8. Norms of premarital sex (father)	-0.09	-0.09	-0.04	0.04	0.12	0.01	0.92**	-			
9. Norms of premarital sex (friends)	-0.22**	-0.06	0.15	0.16*	0.52**	0.31**	0.23**	0.31**	-		
10. Norms of premarital sex (people in the culture)	-0.14	0.02	0.07	0.08	0.41**	0.26**	0.29**	0.33**	0.75*	-	
11. Intention to engage in premarital sex	-0.19*	-0.16*	0.01	0.04	0.70**	0.40**	0.12	0.18*	0.64**	0.56**	-

\*  $p < 0.05$ ; \*\* $p < 0.01$

Table 14. Correlations among variables of premarital sex in the current study (Females; n=133)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Age	-										
2. Specific perceived risks	-0.02	-									
3. Mother-Adolescent communication (mother )	0.04	-0.12	-								
4. Father-Adolescent communication	-0.10	-0.09	0.37**	-							
5 Premarital Attitude	-0.07	-0.23**	0.13	0.01	-						
6. Abstinence self efficacy	-0.11	0.06	0.16	0.05	0.22*	-					
7. Norms of premarital sex (mother)	-0.01	-0.03	-0.19*	-0.10	0.35**	0.08	-				
8. Norms of premarital sex (father)	0.04	-0.01	-0.14	-0.13	0.35**	0.05	0.95**	-			
9. Norms of premarital sex (friends)	-0.22*	-0.09	0.03	-0.06	0.53**	0.06	0.50**	0.49**	-		
10. Norms of premarital sex (people in the culture)	-0.27**	-0.12	0.05	0.07	0.51**	0.05	0.47**	0.49**	0.84**	-	
11. Intention to engage in premarital sex	-0.19*	-0.12	0.20*	0.07	0.72**	0.16	0.40**	0.40**	0.70**	0.60**	-

\* p< 0.05; \*\*p< 0.01



Table 15. Correlations among variables of condom use in the current study (Males; n=165)

	1	2	3	4	5	6	7	8	9	10
1. Age	-									
2. Specific perceived risks	0.14	-								
3. Mother-Adolescent communication	0.14	-0.08	-							
4. Father-Adolescent communication	-0.09	-0.00	0.44**	-						
5. Condom attitude	-0.04	-0.23**	0.07	0.04	-					
6. Condom efficacy(consistency)	0.25**	-0.03	0.18*	0.13	0.30**	-				
7. Condom efficacy(correct use)	0.22**	-0.02	0.16*	0.15	0.27**	0.62**	-			
8. Condom efficacy(communication)	0.08	-0.05	0.18*	0.18*	0.29**	0.49**	0.61**	-		
9. Perceived peer norms regarding condom use	-0.09	-0.03	0.03	0.12	0.21*	0.10	0.03	0.13	-	
10. Intention of condom use	-0.14	0.08	-0.18*	-0.07	-0.34**	-0.38**	-0.40**	-0.34**	-0.28**	-

\* p< 0.05; \*\*p< 0.01;\*\*\*p<0.001

Table 16. Correlations among variables of condom use in the current study (Females; n=133)

	1	2	3	4	5	6	7	8	9	10
1. Age	-									
2. Specific perceived risks	-0.02	-								
3. Mother-Adolescent communication	0.04	-0.12	-							
4. Father-Adolescent communication	-0.10	-0.09	0.37**	-						
5. Condom attitude	-0.05	-0.05	0.03	0.10	-					
6. Condom efficacy(consistency)	-0.09	0.10	-0.09	-0.02	0.44**	-				
7. Condom efficacy(correct use)	0.07	0.15	0.02	-0.06	0.32**	0.63**	-			
8. Condom efficacy(communication)	0.04	0.17	-0.19*	-0.03	0.34**	0.66**	0.62**	-		
9. Perceived peer norms regarding condom use	-0.21*	0.00	-0.05	-0.01	0.21*	0.18*	0.09	0.12	-	
10. Intention of condom use	-0.00	0.02	0.02	0.07	-0.30**	-0.26**	-0.34**	-0.27**	-0.08	-

\* p< 0.05; \*\*p< 0.01;\*\*\*p<0.001

Table 17. Z-scores in correlation coefficients between male and female students

Related to hypotheses	Male (n=165)	Female (n=133)	Z-Scores
3.1. Premarital attitude & Intention of premarital sex	0.70	0.72	-0.295
3.2. Abstinence efficacy & Intention of premarital sex*	0.40	0.16	2.222
3.3. Subjective norms of premarital sex & Intention of premarital sex*	0.46	0.63	-1.984
3.4 Premarital attitude & Abstinence efficacy	0.29	0.22	0.635
3.5. Premarital attitude & Subjective norms of premarital sex	0.35	0.5	-1.539
3.6. Abstinence efficacy & Subjective norms of premarital sex	0.16	0.08	0.689
3.7. Condom attitude & Intention of condom use	-0.34	-0.3	-0.377
3.8. Condom Efficacy & Intention of condom use	-0.43	-0.34	-0.890
3.9 Peer norms of condom use & Intention of condom use*	-0.28	-0.08	-1.761
3.10. Condom attitude & Condom efficacy	0.32	0.42	-0.978
3.11. Condom attitude & Subjective norms of condom use	0.21	0.21	0
3.12. Subjective norms of condom use & Condom Efficacy	0.09	0.15	-0.517
3.13.1. Mother-adolescent communication & mother's norms of premarital sex	-0.09	-0.19	0.867
3.13.2. Father-adolescent communication & Father's norms of premarital sex	0.04	-0.13	1.450

\*p < 0.05

#### 5.5. RESEARCH QUESTION #4:

*What are the internal consistencies of all instruments measuring the TpB components (premarital sex attitude scale, condom attitude scale, subjective norms of premarital sex scale, subjective norms of condom use scale, abstinence efficacy scale, condom efficacy scale, and intention of sexual behavior scale including its two subscales) and Parent-Adolescent Communication ?*

Internal consistency was measured using Cronbach's alpha. Table 18 shows the Cronbach's alphas for the all instruments which were used in this study as well as the pilot study. Additionally, confidence intervals for bootstrap statistics with one thousand replications using the pilot sample (n=36) were presented in Table 18. The ranges of internal consistency for the scales from 0.77 to 0.98; all scales were reliable.

The reported cronbachs' alphas of all instruments in this study, except the two scales measuring intention of condom use and peer norms of condom use, showed similar values to the pilot study. Although the instrument measuring peer norms of condom use showed a difference between in the pilot study ( $\alpha=0.74$ ) and in the current study ( $\alpha=0.86$ ), the internal consistency in the current study was more similar to the reliability in the original study ( $\alpha=0.84$ ) (see Table 1 & Table 18). All reported internal consistencies in the current study were in the ranges of the confidence intervals for bootstrap statistics using pilot sample (See Table 18).

Table 18. Reliabilities (internal consistencies) of the measures of this current study

		Pilot study (n=36)		Current study
		Reliability	Confidence intervals (CI) for bootstrap statistics	reliability (n=298)
Communication	Mother-adolescents	Original study:	Did not apply	0.86
	Father-adolescents	0.87	Did not apply	0.86
Attitude	Premarital sexual attitude (mPSAS)	0.95	0.913-0.959	0.94
	Condom attitude (CAS)	Korean version of original study: 0.88	NA	0.87
Efficacy	Abstinence Efficacy Scale (AES)	0.83	0.685-0.889	0.85
	Condom efficacy (mCES)	0.91	0.842-0.942	0.92
	--Consistency	0.81	0.665-0.897	0.83
	--Correct use	0.87	0.739-0.926	0.89
	--Communication	0.84	0.697-0.915	0.77
	Perceived norms	Condom norm	0.74	0.371-0.893
Perceived norms	Referent group approval of sexual behavior ( RgASB)	0.98	0.950-0.984	0.98
	-- Mother	0.91	0.866-0.939	0.94
	-- Father	0.94	0.899-0.960	0.95
	-- Friend	0.94	0.901-0.957	0.96
	-- People in my culture	0.94	0.886-0.963	0.95
	Intention	Premarital sex (mIPSB1)	0.96	0.934-0.966
Condom use (mIPSB2)		0.80	0.615-0.916	0.92

## 5.6. RESEARCH QUESTION #5:

*Are there significant gender differences with respect to the parameters (regression coefficients and factor loadings; a, b, c, d, e, f, g, h I, and k) in the hypothesized model based in the Theory of Planned Behavior? (see Figure 2).*

To test the hypothesized model derived from the Theory of Planned Behavior (see Figure 2), specific aim 5 (examining factorial invariance [a, b, c, d, e, f, j, and k] of the model) was firstly examined. This step was to confirm whether the hypothesized model was appropriate to be tested with Structural Equation Modeling (SEM). Unfortunately, the researcher found that the hypothesized model could not be tested because a required condition for using Structural Equation Modeling - “indicators that supposedly measure the same construct should be at least moderately correlated (Kline, 1998, p.190)”- was not met in this model.

As Table 11 and Table 12 shows, only the two observed variables that measure the “perceived norms” (norms of premarital sex and condom use) showed a significant association under the same latent variables for male students only ( $r=0.23$ ,  $p<0.05$ ); the other observed variables under same construct showed no relationships. Thus, the hypothesized model in Figure 2 could not be tested. Given this reason, specific aim 5 (factorial invariance of the hypothesized model derived from the TpB) and specific aim 6 (regression coefficients in prediction of intention from three latent variables (attitude [g], norms [h] and efficacy [i]) were inappropriate to be examined in this study.

### 5.7. RESEARCH QUESTION #6:

*Are there significant gender differences in terms of the prediction between independent variables (Attitude of premarital sex, subjective norms of premarital sex and abstinence efficacy) and the dependent variable (intention of premarital sex) (l, m, n, o, p, q, and r) with respect to the parameters in terms of the model of premarital sex ? (see Figure 3)*

Multi-sample Structural Equation Modeling (MSEM) was carried out to examine gender differences in the proposed model regarding premarital sex (see Figure 3). MSEM allows researcher to estimate hypothesized group differences without making cumbersome interaction terms (Scott-Lennos & Lennox, 1995). This analysis approach provides researchers with answers as to whether each group shares one model with identical estimates. The procedures are as follows: 1) each group model fitting is examined; 2) once a model fits all groups, all groups are combined into one model without constraint (baseline model); 3) the factor loadings in the measurement part are placed to be equal across groups; 4) the regression coefficients in the structural part are placed to be equal across groups; and 5) chi-square, fit indices and Satorra-Bentler (S-B) chi-square are examined as indicators of model fitting and improving (Bentler & Wu, 2002)

The above procedures were applied to test Research Question 6. As the first step, hypothesis 6.1 (There will be no significant differences for factor loadings [m, n, o and p] in terms of four perceived subjective norms of premarital sex across gender) was examined. Because the proposed model (Model 1) showed very poor fit indices in both gender groups (See Table 19), Model 2 was examined to determine whether it was appropriate as a baseline model. However, Model 2, which had an error covariance between mothers' norms and fathers', was also inappropriate to act as a baseline and one of the free parameters (peer norm under the

construct of perceived norms in the model of premarital sex) had a negligible error variance. Thus, the error variance of the peer norm was fixed as 0.0 in the Model 3. Then, the new model (Model 3) became the baseline model in this study (See Table 19 & Figure 5).

To examine the gender differences, cross-group constraints on the equality of parameters in the measurement part of Model 3 were evaluated. Lagrange Multiplier (LM) test results showed female students perceived a higher conservative norm in their fathers ( $\chi^2(1) = 4.71$ ,  $p = 0.030$ ), friends ( $\chi^2(1) = 4.95$ ,  $p = 0.026$ ), and “people in Korean culture” ( $\chi^2(1) = 4.91$ ,  $p = 0.027$ ). There was a significant difference between the baseline model and the constrained model which tested measurement parts ( $\Delta\chi^2_{SB} = 12.81$ ,  $df = 3$ ,  $p < 0.01$ ). Since factor loadings (measurement part) were not the same across genders (lack of measurement invariance), the structural parts (hypothesis 6.2) were not evaluated in this study. Based on the results of LM test and S-B scaled chi-square difference test, the baseline model (no equality constraints) was chosen as the best model to explain the variables related to premarital sex among Korean college students using the TpB (S-B $\chi^2(22) = 20.55$ ,  $p = 0.55$ , CFI=1.00, RMSEA=0.00; see Table 20). For both genders, premarital sex attitude (male:  $\beta = 0.46$ ,  $p < 0.001$ , female:  $\beta = 0.52$ ,  $p < 0.001$ ) was the strongest predictor on intention of premarital sex in this study; students with conservative premarital sexual attitude had a higher sexual abstinence intention until marriage. Students who perceived disapprovals to engage in premarital sex from the referent groups had lower intention to engage premarital sex for both genders (male:  $\beta = 0.40$ ,  $p < 0.001$ , female:  $\beta = 0.43$ ,  $p < 0.001$ ). Parental norms more affected the female students’ intention of premarital sex rather than male students. The most influential norm for making a decision to engage in premarital sex was friends’ norm for both genders. The norms of people in Korean culture also significantly affected students’ intention to engage in premarital sex (See Figure 6 & Figure 7). Abstinence efficacy, however,



did not predict on the intention of premarital sex in the female students ( $\beta=0.06$ , NS; See Table 20, Figure 6 & Figure 7). The total explained variance for the intention of premarital sex in this model was 69% for males and 70% for females.

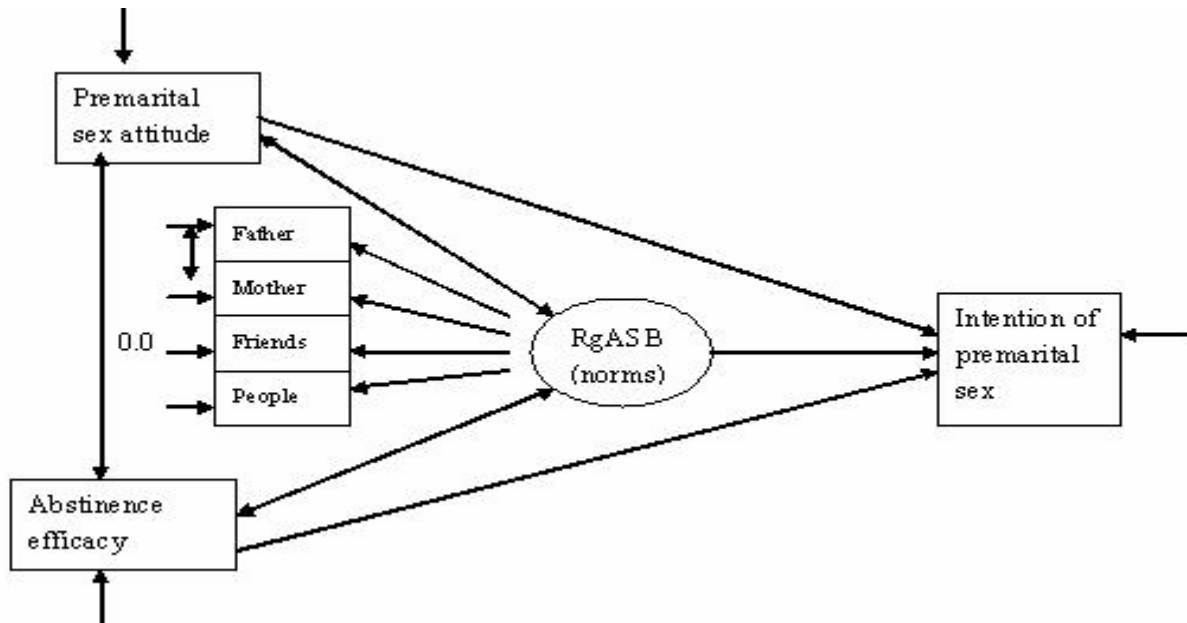


Figure 5. A baseline model of premarital sex (Model 3)

Table 19. Fit indices for deciding a baseline model of the premarital sex

	Model	S-B $\chi^2$	<i>df</i>	p-value	CFI	RMSEA
Model 1 <sup>1</sup>	Male	264.70	11	0.000	0.478	0.375
	Female	202.94	11	0.000	0.514	0.364
Model 2 <sup>2</sup>	Male	10.54	10	0.39	0.999	0.018
	Female	8.25	10	0.60	1.000	0.000
Model 3 <sup>3</sup>	Male	12.56	11	0.32	0.997	0.029
	Female	8.36	11	0.68	1.000	0.000

<sup>1</sup> no error covariance

<sup>2</sup> with an error covariance(mother-father)

<sup>3</sup> with an error covariance (mother-father) & a fixed error variance (peer norms =0.0)

Table 20. Standardized coefficients for two models of premarital sex with the TpB components

Parameters	Baseline model		Constrained model	
	Male	Female	Male	Female
Premarital attitude-intention of premarital sex	0.46***	0.52***	0.46***	0.52***
Abstinence efficacy-intention of premarital sex	0.16***	0.06	0.16***	0.06
Norms-intention of premarital sex	0.40***	0.42***	0.40***	0.42***
Norms regarding premarital sex (factor 1)				
Mother – factor 1	0.27***	0.52***	0.37***	0.47***
Father – factor 1	0.33***	0.53***	0.35***	0.51***
Friends-factor 1	1.00***	1.00***	1.00***	1.00***
People in culture-factor 1	0.77***	0.86***	0.80***	0.84***
Intention Equation Error	0.56	0.55	0.56	0.54
Explained variance	0.69	0.70	0.69	0.70
Goodness-of-fit indices				
Model chi-square	$\chi^2=18.38, df=22, p=0.68$		$\chi^2=30.97, df=25, p=0.19$	
Model S-B chi-square	S-B $\chi^2=20.55, df=22, p=0.55$		S-B $\chi^2=34.22, df=25, p=0.10$	
Comparative fit index	1.000		0.990	
RMSEA	0.000		0.035	
S-B scaled $\chi^2$ difference test	$\Delta\chi^2_{SB}=12.81, df=3 (p < 0.01)$			

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\* $p < 0.001$

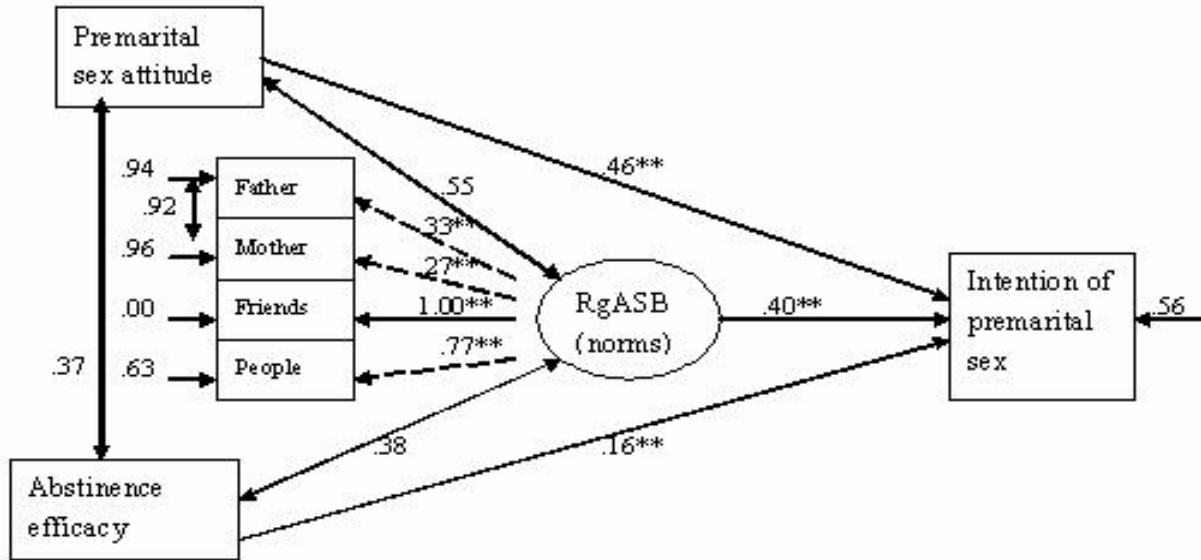


Figure 6: Final model of premarital sex with TpB components (male students)

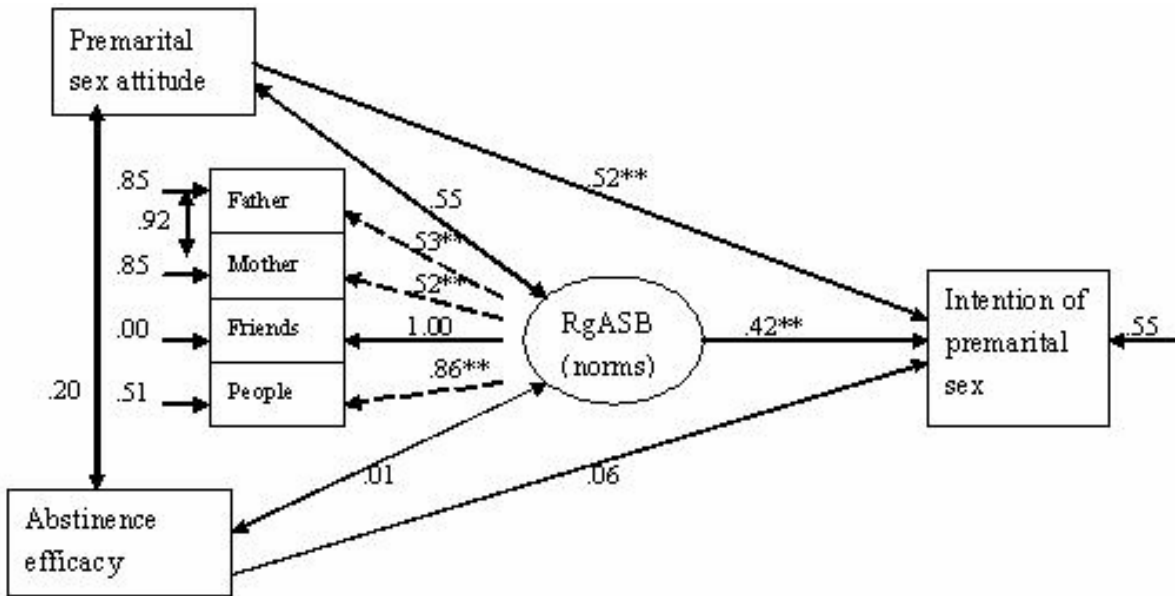


Figure 7: Final model of premarital sex with TpB components (female students)

### 5.7.1. Alternative model

An alternative model was tested with potential additional important determinants of intention of sexual behavior. Three variables - age, parent-adolescent communication and perceived risk of sexual behavior - showed significant correlations with TpB components in Research Question 3 and so they were added to the alternative model based on Ajzen's guidance for adding variables into the TpB (Ajzen, 2005).

According to Ajzen (2005), background factors can indirectly influence intention and behavior by affecting TpB components (attitude, subjective norms, and perceived behavioral control). Therefore, age and parent-adolescent communication were added in the model as "background factors" because they measure general dispositions. Second, *perceived risk of sexual behavior* was added as a potential determinant of the intention of premarital sex and condom use because it met the four criteria necessary according to Ajzen; first, the variable appropriately measured elements (target, action, context, and time elements) of behavioral criterion. Second, it is a causal factor determining intention. Third, perceived risk is an independent factor which does not conceptually overlap with other TpB components. Last, *perceived risk of sexual behavior* is conceptually very similar to perceived susceptibility, which is one of the major components of the Health Belief Model (HBM; Becker 1974), and HBM is widely used by social scientists to develop a preventive program of risky sexual behavior.

Since perceived susceptibility to a health condition is a factor which directly affects likelihood of action and intention in HBM, *perceived risk of sexual behavior* that is the same concept of perceived susceptibility was added as a determinant of intention of premarital sex and condom use in the alternative model of this study. These variables were measured in two ways; "the perceived general risk of sexual behavior" (a composite score with 4 items) and "the perceived specific risk of sexual behavior" (a composite score with 3 items). As the researcher

addressed in chapter 3, the first item of this measure (*Is having unprotected sex dangerous?*) showed a weak correlations ( $r = 0.10 - 0.15$ ) with other items (*item 2. What is the chance that you will get a STDs or HIV?; item 3. What is the chance you or your partner could be pregnant; and item 4. How does your risk compare to other?*) However, items 2, 3 and 4 showed moderate correlations among the variables ( $r = 0.34 - 0.47$ ). Thus, these three items which were satisfied with a condition -moderate correlations among indicators under the same construct- were used as indicators of the latent variable, “perceived specific risk of sexual behavior”. In other words, “perceived specific risk of sexual behavior” was a variable which well followed four conditions suggested by Ajzen’s for adding variables into the TpB. Based on the Health Belief Model, it has been hypothesized that age affects perceived risk of sexual behavior. Thus, a path between age and “perceived specific risk of sexual behavior” was added.

### 5.7.2. An alternative model of premarital sex

Multi-sample Structural Equation Modeling (MSEM) was performed with the same procedure which the researcher presented in Research Question 6 to examine a gender difference of an alternative model. Age, parent-adolescent communication and perceived risks of sexual behavior were added into Figure 5. Figure 8 shows the hypothesized alternative model of premarital sex.

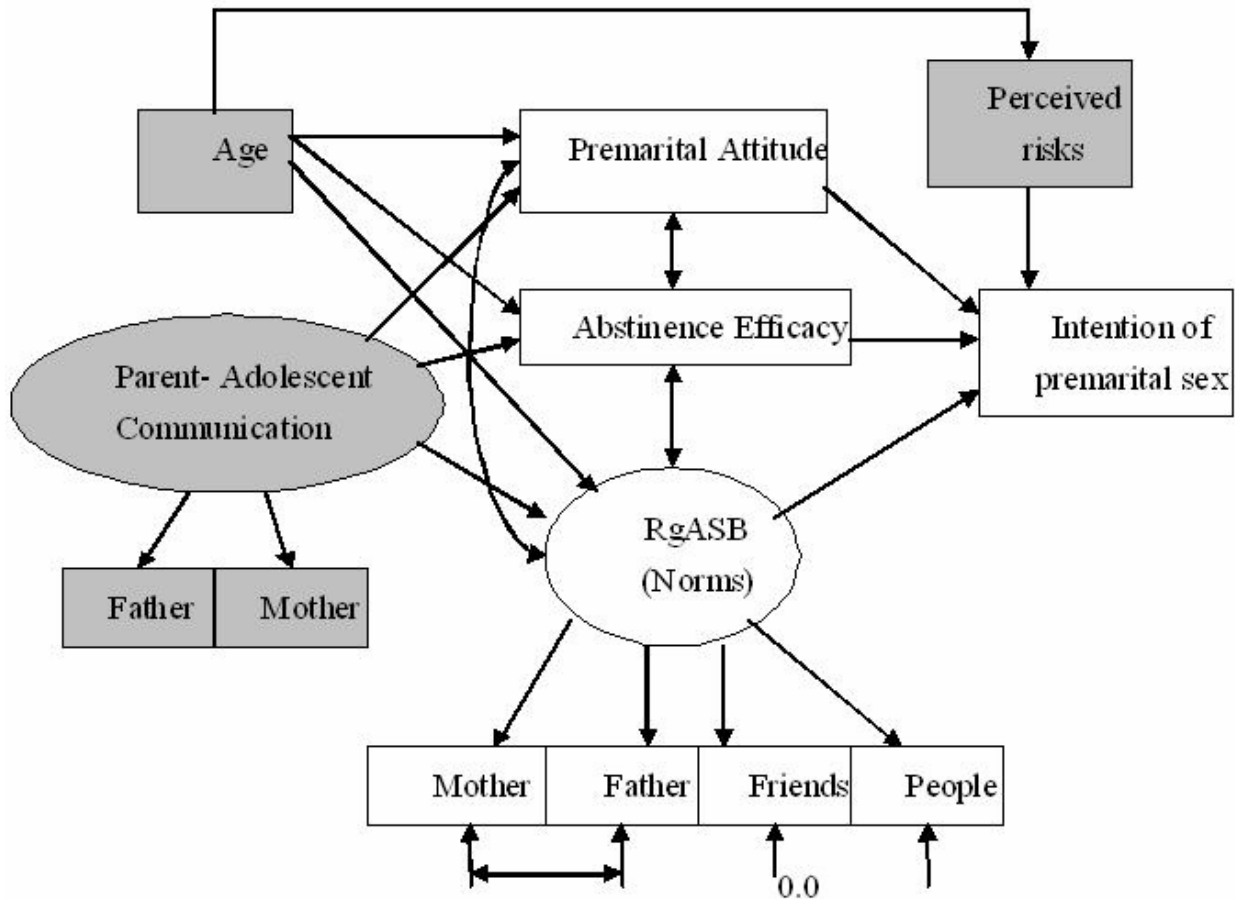


Figure 8: A hypothesized alternative model of premarital sex

As the first step, the researcher examined model fitting for each gender. Both genders showed good fit (males:  $S-B\chi^2(36)=52.78$ ,  $p=0.35$ ,  $CFI=0.97$ ,  $RMSEA=0.054$ ; females:  $S-B\chi^2(36) =60.73$ ,  $p=0.006$ ,  $CFI=0.96$ ,  $RMSEA=0.072$ ). Two groups were combined without constraints as the next step. The baseline model (without constraints) showed good fit ( $S-B\chi^2(72)$

=113.50,  $p=0.001$ , CFI=0.97, RMSEA=0.044). As the third step, cross -group constraints on the factor loadings (measurement model) were evaluated to examine measurement difference across genders. Lagrange Multiplier (LM) test results showed that there was no significant gender difference of parent-adolescent communication ( $\chi^2(1)=1.02$ ,  $p=0.314$ ), but female students significantly perceived a higher conservative subjective norms of premarital sex (see Table 20). Female students perceived higher conservative norm from their mothers ( $\chi^2(1) =6.32$ ,  $p=0.012$ ), fathers ( $\chi^2(1)=4.48$ ,  $p=0.034$ ), and people in their culture ( $\chi^2(1)=4.61$ ,  $p=0.032$ ). Because subjective norm is an important variable in the Theory of Planned Behavior, a partial constrained measurement model which removed subjective norm from the baseline model was not tested. In addition, structural invariance was not examined in this study, since measurement invariance was not confirmed across genders.

As Table 21 shows, baseline model explained well the intention of premarital sex among Korean college students. For both genders, premarital attitude (male:  $\beta=0.45$ ,  $p<0.001$ , female:  $\beta=0.52$ ,  $p<0.001$ ) was the strongest predictor on intention of premarital sex in this study; students with conservative attitude of premarital sex had a lower intention to engage in premarital sex. Students who perceived disapproval of referent groups to engage in premarital sex had a lower intention to engage in premarital sex for regardless of genders (male:  $\beta=0.39$ ,  $p<0.001$ , female:  $\beta=0.42$ ,  $p<0.001$ ). The most influential norm was peer norm. Parental disapproval more affected the female students' intention of sexual abstinence rather than male students. Abstinence efficacy, however, predicted on the intention of premarital sex for male student only (male:  $\beta=0.17$ ,  $p<0.01$ , female:  $\beta=0.06$ ,  $p=NS$ ).

Older male students had a more liberal premarital attitude ( $\beta= -0.23$ ,  $p<0.01$ ), but females' premarital attitude was not significantly affected by age ( $\beta= -0.15$ ,  $p=NS$ ). In terms of

the subjective norms, the older group perceived more liberal subjective norms than the younger group for both genders ( $\beta = -0.28$ ,  $p < 0.001$  for both males and females). However, abstinence efficacy was not significantly predicted by age regardless of gender ( $\beta = -0.11$ ,  $p = \text{NS}$  [for males] and  $\beta = -0.15$ ,  $p = \text{NS}$  [for females]). Interestingly, a good quality of parent-adolescent communication significantly predicted a higher abstinence efficacy ( $\beta = 0.16$ ,  $p < 0.05$ ) and perceived disapprovals of premarital sex from the referent group for males ( $\beta = 0.19$ ,  $p < 0.05$ ); parent-adolescent communication did not significantly predict on abstinence efficacy and subjective norms of premarital sex for females. The most influential subjective norm for making a decision to engage in premarital sex was friends' norm for both genders (see Table 21). The total explained variance for the intention of premarital sex in this model was 69% for males and 71% for females.



Table 21. Standardized coefficients for two models of premarital sex with the TpB components and additional variables

Parameters	Baseline model		Constrained model	
	Male	Female	Male	female
Premarital attitude-intention of premarital sex	0.45***	0.52***	0.45***	0.52***
Abstinence efficacy-intention of premarital sex	0.17***	0.06	0.17***	0.06
Norms-intention of premarital sex	0.39***	0.42***	0.39***	0.42***
Perceived risk of sexual behavior - intention of premarital sex	-0.05	0.02	-0.05	0.02
Age- perceived risk of sexual behavior	0.13	-0.05	0.13	-0.05
Age -premarital attitude	-0.23**	-0.15	-0.23**	-0.15
Age- abstinence efficacy	-0.11	-0.15	-0.11	-0.15
Age-subjective norms of premarital sex	-0.28***	-0.28***	-0.28***	-0.28***
Parent adolescent communication - premarital attitude	0.06	-0.03	0.06	-0.03
Parent adolescent communication - Abstinence efficacy	0.16*	0.01	0.16*	0.01
Parent adolescent communication – Norms	0.19*	-0.05	0.19*	-0.05
Parent-adolescent Communication (factor 1)				
Mother-adolescent -Factor 1	0.48***	0.39***	0.44***	0.45***
Father-adolescent -Factor 1	1.00	1.00	1.00	1.00

Norms regarding premarital sex  
(factor 2)

Mother – factor 2	0.27***	0.52***	0.34***	0.47***
Father – factor 2	0.34***	0.53***	0.35***	0.51***
Friends-factor 2	1.00	1.00	1.00	1.00
People in culture-factor 2	0.77***	0.87***	0.80***	.085***
Intention Equation Error	0.56	0.54	0.56	0.54
Explained variance	0.69	0.71	0.69	0.71

Goodness-of-fit indices

Model chi-square	$\chi^2=107.33, df=72, p=0.005$		$\chi^2=120.75, df=76, p=0.001$	
Model S-B chi-square	S-B $\chi^2=113.50, df=72, p=0.0013$		S-B $\chi^2=126.32, df=76, p=0.05$	
Comparative fit index	0.97		0.96	
RMSEA	0.044		0.048	

$$\Delta\chi^2_{SB}=11.61, df=4 (p < 0.05)$$

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\* p < 0.05; \*\* p<.01; \*\*\*p<.001

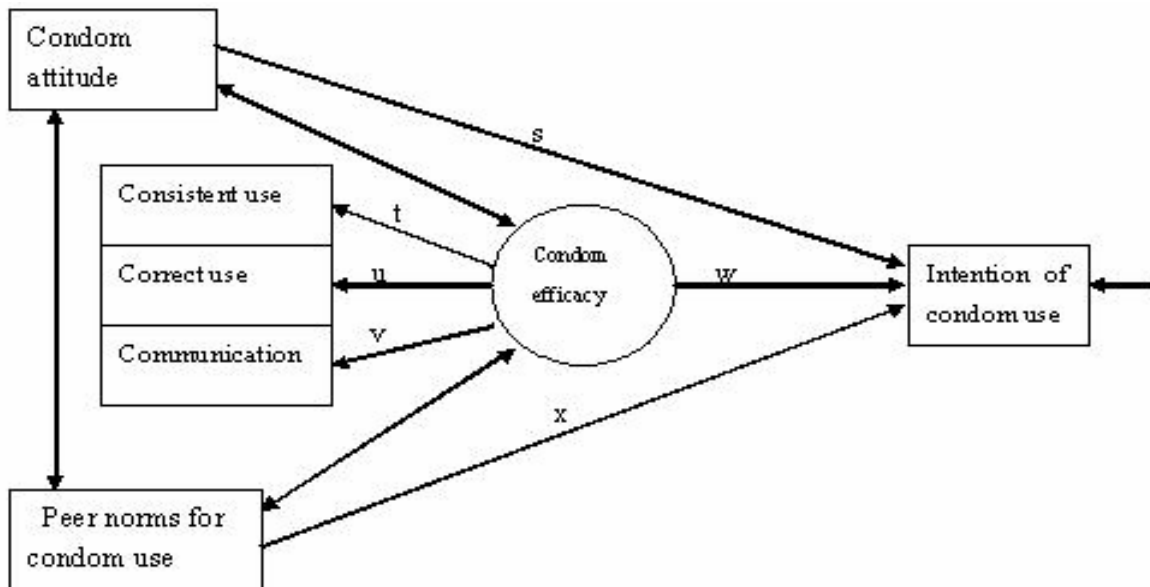
## 5.8. RESEARCH QUESTION #7:

*Are there significant gender differences with respect to the prediction of condom use between independent variables (attitude of condom use, subjective norms of condom use and condom efficacy) and the dependent variable (intention of condom use) (s, t, u, v, w, x, y, z, I, II, III and IV; see Figure 4)?*

Multi-group structural equation modeling (MSEM) was performed to examine gender differences within the model of condom use. However, the proposed model of condom use was changed in this study because of the following restrictions. First, the answers of perceived partner norms for using condom could be expected from only the 97 (32.16%) students who have had sex partners. Furthermore, 17 of these 97 students (17.5%) reported they do not know what their partners' norms regarding condom use are. Second, more than half of the students regardless of gender reported they did not know what parental norms are in terms of condom use. Thus, the modified items from the original instrument may be inappropriate to measure perceived norms for using condoms in this study. Furthermore, these items resulted in creating a lot of missing data (i.e., not applicable items).

After discussion regarding the scale “perceived norms of condom use”, the researchers agreed that the original scale, which only measures peer norms instead of other types of perceived norms, was more appropriate in this study. Thus, the baseline model of condom use was changed from the proposed model (having two latent variables “condom efficacy”, “perceived norms of condom use” and one observed variable “condom attitude”) to a hybrid model (one latent variable “condom efficacy” and two observed variables “condom attitude and perceived peer norms regarding using condom”; see Figure 9).

Given these reasons, hypothesis 7.1- There will be no significant differences in the factor loadings of the norms of condom use across genders (I, II, III and IV) - was not evaluated ( see Figure 4). Hypothesis 7.2- There will be no significant difference in the factor loadings of the condom efficacy across gender (t, u, and v) - was tested to examine gender differences. Cross - group constraints on the equality of parameters in the measurement part were examined, and LM test results showed all factor loadings were not significantly different between males and females (correct use [u]:  $\chi^2(1)=0.077$ ,  $p=0.782$ ; communication with their partner [v] :  $\chi^2(1) =1.727$ ,  $p=0.189$ ). Thus, hypothesis 7.2 was accepted in this study.



**Figure 9:** A baseline model of condom use: modified relationships among variables related to condom use for testing a model in this study

Because measurement invariance was confirmed in this model, we examined the equality of parameters (regression coefficients) on the structure parts. There were no significant differences in the regression coefficients between TpB components and the intention of condom use (attitude:  $\chi^2(1)=0.290$ ,  $p=0.590$ ; peer norms to use condoms:  $\chi^2(1) =0.324$ ,  $p=0.569$ ; condom

efficacy:  $\chi^2(1)=3.117$ ,  $p=0.077$ ). Hypothesis 7.3: there are significant predictions between the TpB components [condom attitude, condom efficacy and subjective norms of condom use], and the intention of condom use [s, w and x] was confirmed in this study. Condom attitude, condom efficacy and perceived peer norms of condom use predicted the intention of condom use all together (See Table 22).

Since LM test results indicated that there was no difference between the baseline model (no equality constraints) and the constrained model ( $\Delta\chi^2_{SB}=5.11$ ,  $df=5$ ,  $p=NS$ ), one model which explained the intention of condom use using the variables derived from the TpB was applicable for both genders among Korean college students: male and female students shared one model ( $S-B\chi^2(17)=22.72$ ,  $p=0.16$ ,  $CFI=0.99$ ,  $RMSEA=0.03$ ). All TpB components significantly predicted intention of condom use. For both genders, condom efficacy was the strongest predictor on intention of condom use (males:  $\beta=-0.33$ ,  $p<0.001$ , females:  $\beta=-0.27$ ,  $p<0.001$ ); students with higher condom efficacy had a higher intention to use condoms. The most influential condom efficacy among three subscales (consistent use, correct use, and communication using condoms) on prediction of intention to use condoms was “correct use” ( $\beta=0.84$ ) for male students, and “consistent condom use” ( $\beta=0.86$ ) for female students. Positive condom attitude was significantly predicted a higher intention of condom use (males:  $\beta=-0.18$ ,  $p<0.01$ , females:  $\beta=-0.13$ ,  $p<0.01$ ). Peer norms of condom use was the weakest predictor on intention of condom use ( $\beta=-0.14$ ,  $p<0.05$  for males,  $\beta=-0.11$ ,  $p<0.05$  for females). The total explained variance for the intention of condom use in this model was 23% for males and 15% for females.

Table 22. Standardized coefficients for two models of the TpB components of condom use

Parameters	Baseline model		Partial constrained model	
	Male	Female	Male	female
Condom attitude-intention toward condom use	-0.18*	-0.14*	-0.18**	-0.13**
Condom efficacy-intention toward condom use	-0.33***	-0.26**	-0.33***	-0.27***
Peer norms-intention of condom use	-0.21**	-0.02	-0.14*	-0.11*
Condom efficacy (factor 1)				
Consistent condom use – factor 1	0.53***	0.77***	0.76***	0.86***
Correct condom use – factor 1	0.76***	0.67***	0.84***	0.84***
Communication for using condom-factor 1	0.52***	0.68***	0.73***	0.82***
Intention Equation Error	0.86	0.94	0.88	0.92
Explained variance	0.27	0.12	0.23	0.15
Goodness-of-fit indices				
Model chi-square	$\chi^2=17.19, df=12, p=0.14$		$\chi^2=22.57, df=17, p=0.16$	
Model S-B chi-square	S-B $\chi^2=17.75, df=12, p=0.12$		S-B $\chi^2=22.72, df=17, p=0.16$	
Nonnormed fit index	0.91		0.97	
Comparative fit index	0.98		0.99	
RMSEA	0.04		0.03	
S-B scaled $\chi^2$ difference test	$\Delta\chi^2_{SB}=5.11, df=5 (p =NS)$			

\* p < 0.05; \*\* p<0.01; \*\*\*p<0.001

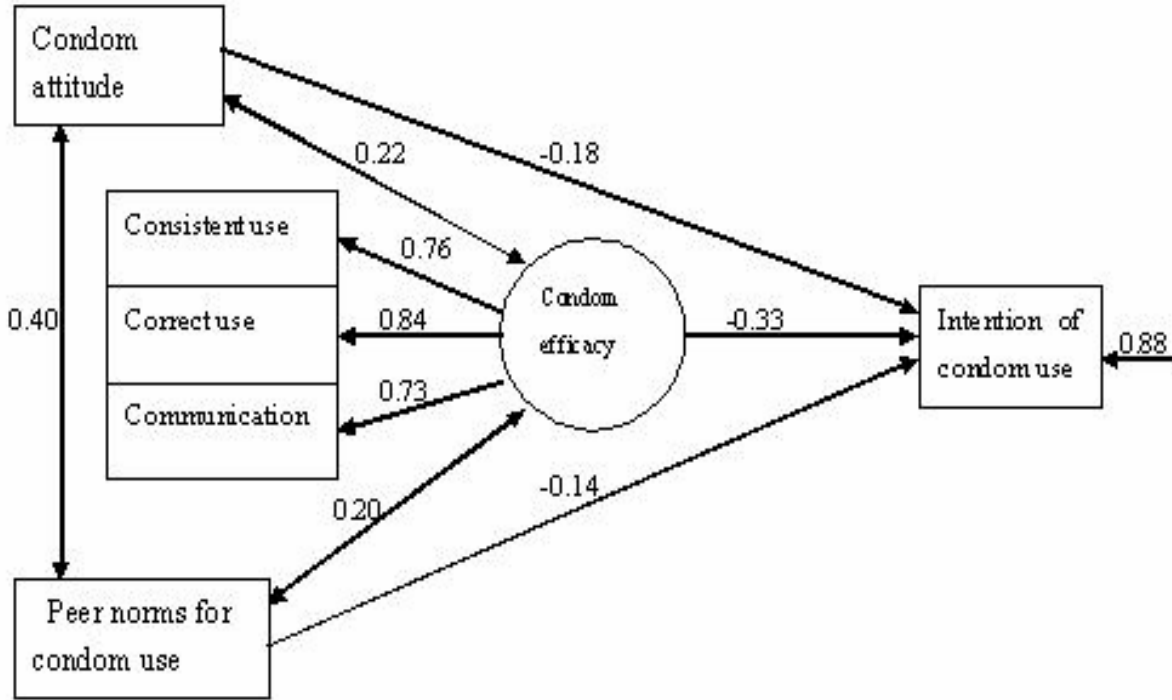


Figure 10: Final model of condom use with the TpB components (Male students)

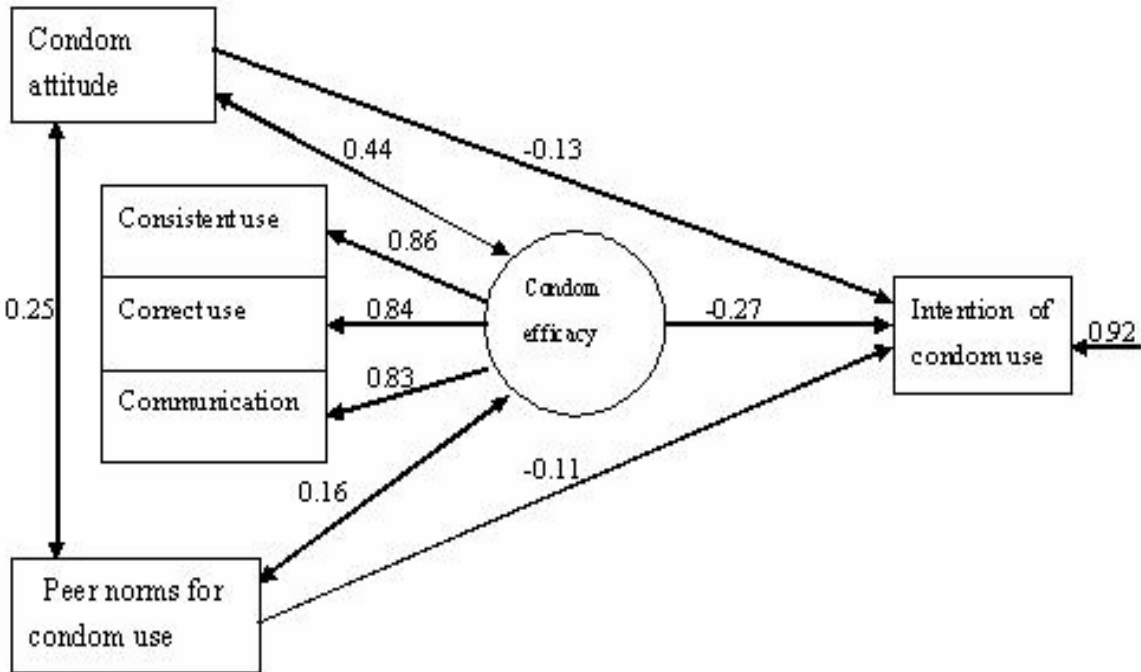


Figure 11: Final model of condom use with the TpB components (Female students)

### 5.8.1. Alternative model of condom use

For testing an alternative model, age, parent-adolescent communication and perceived risks of sexual behavior which were same variables that was added to the alternative model for premarital sex were included for alternative model of condom use (see 5.7.1). Figure 12 shows the hypothesized alternative model of condom use.

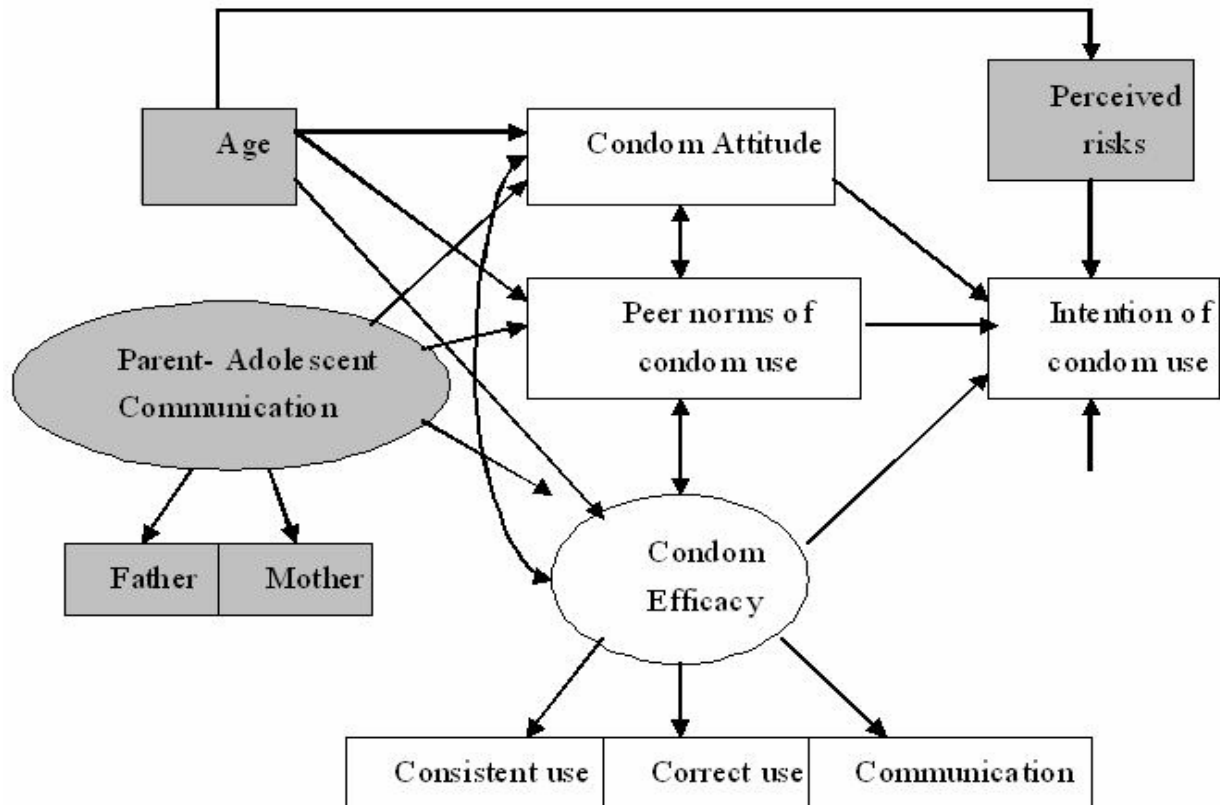


Figure 12. A hypothesized alternative model of condom use

MSEM was performed to examine gender differences for the alternative model of condom use which added potential determinants of condom use. As a first step, the researcher examined the model fit for each gender. Both gender showed good fit (males:  $S-B\chi^2(26)= 35.29$ ,  $p= 0.106$ ,  $CFI= 0.97$ ,  $RMSEA=0.047$ ; females:  $S-B\chi^2(26)= 47.01$ ,  $p=0.007$ ,  $CFI= 0.92$ ,  $RMSEA= 0.079$ ). After that, the models for males and females were combined into one model



without constraint (baseline model). The baseline model showed good fit ( $S-B\chi^2(52) = 81.84$ ,  $p = 0.005$ ,  $CFI = 0.94$ ,  $RMSEA = 0.063$ ; see Table 25). As the next step, cross-group constraints on the factor loadings (measurement model) were evaluated to examine measurement invariance (Model 2). Lagrange Multiplier (LM) test results showed that there were no significant differences among the three constraints in the measurement model (see Table 23). Therefore, structural invariance was examined with 16 constraints (model 3). As Table 23 shows, two constraints (parent-adolescent communication to condom efficacy [ $\chi^2(1) = 4.48$ ,  $p = 0.034$ ] and perceived peer norm of condom use to intention of condom use [ $\chi^2(1) = 3.95$ ,  $p = 0.047$ ]) were significantly different across genders. Therefore, a partial structural invariance model was tested. In this model, two constraints which showed significant gender differences in the structural invariance model (model 3) were removed (see Figure 13).

Fit-indices were examined with the partial constrained model. As Table 25 shows, the partial structural invariance model showed a good fit ( $S-B\chi^2(63) = 87.65$ ,  $p = 0.02$ ,  $CFI = 0.95$ ,  $RMSEA = 0.052$ ). LM test showed that all constraints were not significantly different across genders (see Table 24). Thus, partial structural invariance model (Model 4) was selected as a constrained model which was compared with a baseline model (without constraints) to examine model differences; there was no significant difference between two models ( $\Delta\chi^2_{SB} = 5.77$ ,  $df = 11$ ,  $p = NS$ ). Therefore, partial constrained model was chosen as a good model to explain Korean college students' intention of condom use.

All TpB components significantly predicted intention of condom use for males ( $\beta = -0.18$ ,  $p < 0.05$  [condom attitude] to  $\beta = -0.32$ ,  $p < 0.001$  [condom efficacy]), but only condom attitude ( $\beta = -0.14$ ,  $p < 0.05$ ) and condom efficacy ( $\beta = -0.29$ ,  $p < 0.001$ ) significantly predicted intention of condom use for female. A higher condom efficacy predicted a higher intention of

condom use. In terms of age, older students had a higher condom efficacy ( $\beta = 0.19$ ,  $p < 0.01$  [for males] to  $\beta = 0.13$ ,  $p < 0.05$  [for females]) and a higher perceived peer norm of condom use ( $\beta = -0.18$ ,  $p < 0.01$  [for males] to  $\beta = -0.14$ ,  $p < 0.01$  [for females]). Interestingly, the quality of parent-adolescent communication significantly predicted a higher condom-efficacy for males ( $\beta = -0.30$ ,  $p < 0.01$ ), but not females ( $\beta = -0.09$ ,  $p = \text{NS}$ ). Like the model for condom use with only TpB components, the most influential condom efficacy among three subscales (consistent use, correct use, and communication using condoms) on prediction of intention of condom use was “correct use” ( $\beta = 0.84$ ) for male students, and “consistent condom use” ( $\beta = 0.86$ ) for female students. The total explained variance for the intention of condom use in this model was 26% for males and 14% for females.

Table 23. LM test results regarding model constraints (measurement and structural invariance).

	$\chi^2$	<i>df</i>	p-value
<b>Measurement model (factorial invariance model; model 2)</b>			
Parent-Adolescent communication (factor 1)			
Mother –Adolescent	0.029	1	0.866
Condom Efficacy (factor 2)			
Correct use	1.62	1	0.204
Communication	0.27	1	0.603
<b>Structural invariance model; model 3</b>			
Parent-Adolescent communication (factor 1)			
Factor 1-Mother–Adolescent communication	0.006	1	0.937
Condom Efficacy (factor 2)			
Factor 2-Correct use	1.48	1	0.224
Factor 2-Communication	0.20	1	0.654
Age-perceived risks	1.87	1	0.171
Age-factor 2	0.55	1	0.457
Age-condom attitude	0.05	1	0.821
Age-perceived peer norm of condom use	1.79	1	0.181
Factor 1(parent-adolescent communication)-factor 2 (condom efficacy)	4.48	1	0.034
Factor 1-perceived peer norms of condom use	1.07	1	0.301
Factor 1-condom attitude	1.06	1	0.304
Intention of condom use-condom attitude	0.43	1	0.510
Intention of condom use-condom efficacy	0.51	1	0.477
Intention of condom use-perceived peer norms of condom use	3.95	1	0.047
Intention of condom use –perceived risk of sexual behavior	0.10	1	0.757

Table 24. LM test results of partial constrained model (model 4)

	$\chi^2$	<i>df</i>	p-value
Partial structural invariance model; model 4			
Parent-Adolescent communication (factor 1)			
Factor 1-Mother-Adolescent communication	0.07	1	0.789
Condom Efficacy (factor 2)			
Factor 2-Correct use	1.47	1	0.225
Factor 2-Communication	0.27	1	0.604
Age-perceived risks	1.87	1	0.171
Age-factor 2 (condom efficacy)	0.55	1	0.459
Age-condom attitude	0.06	1	0.807
Age-perceived peer norm of condom use	1.79	1	0.180
Factor 1-perceived peer norms of condom use	1.20	1	0.274
Factor 1-condom attitude	0.02	1	0.895
Intention of condom use-condom attitude	0.03	1	0.867
Intention of condom use-condom efficacy	0.12	1	0.729
Intention of condom use –perceived risk of sexual behavior	0.15	1	0.699

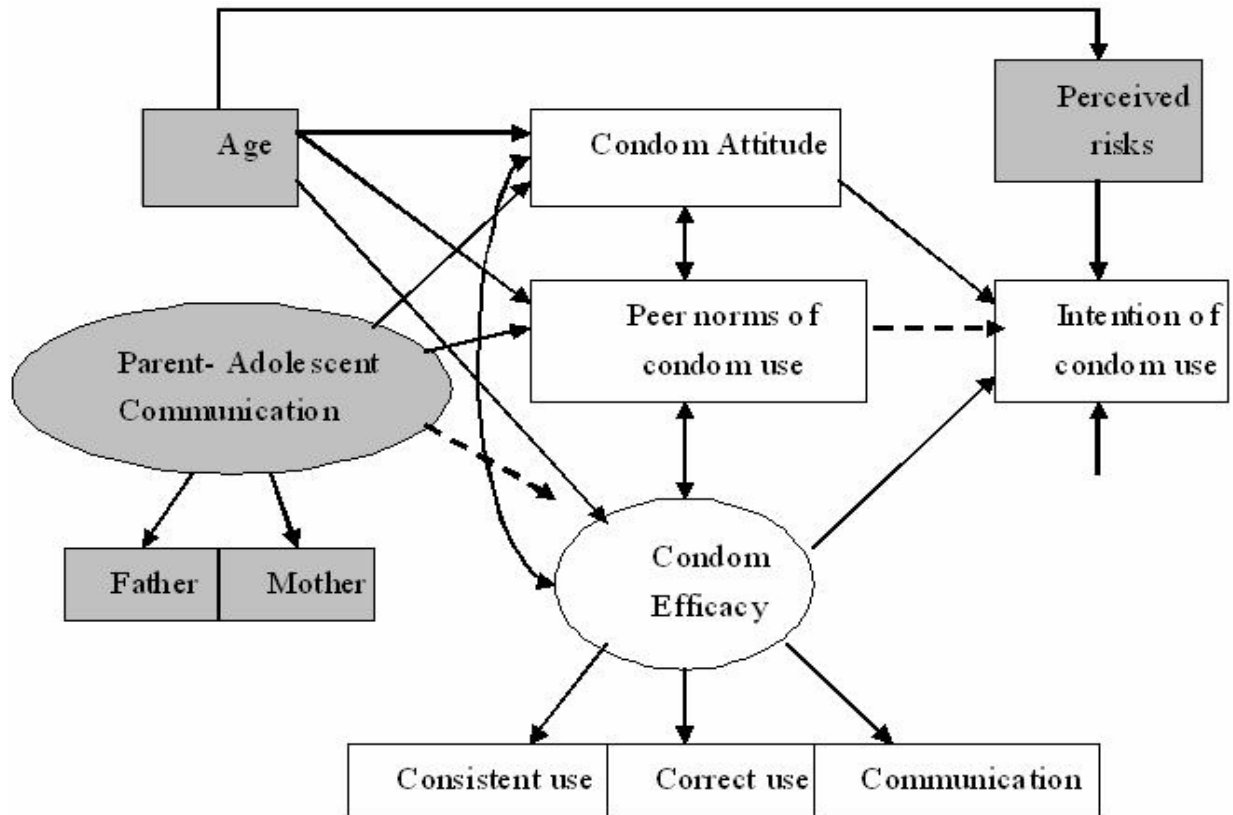


Figure 13: Partial structural invariance model (Model 4)

\*Dashed lines indicate the significant constraints across genders; thus, partial structural invariance model does not include the dashed lines

Table 25. Fit-induces of tested models for getting an alternative model for using condoms

	$\chi^2$ -test			S-B $\chi^2$ test			CFI	RMSEA	$\Delta\chi^2_{SB}$ Test			
	$\chi^2$	<i>df</i>	p	$\chi^2$	<i>df</i>	p			$\chi^2$	<i>df</i>	p	
Model 1 <sup>1</sup>	82.93	52	0.004	81.84	52	0.005	0.94	0.063	NS			
	Model 1 vs. model 2											
Model 2 <sup>2</sup>	84.42	55	0.007	84.02	55	0.007	0.95	0.060	1.74	3	NS	
	Model 1 vs. model 3											
Model 3 <sup>3</sup>	98.52	65	0.005	97.38	65	0.006	0.94	0.058	15.51	13	NS	
	Model 1 vs. model 4											
Model 4 <sup>4</sup>	88.75	63	0.018	87.65	63	0.022	0.95	0.052	5.77	11	NS	

<sup>1</sup> Baseline alternative model for using condoms

<sup>2</sup> Measurement model (factorial invariance) for using condoms with additional variables

<sup>3</sup> Full constrained model (structural invariance) for using condoms with additional variables

<sup>4</sup> Partial structural invariance model for using condoms with additional variables

Table 26. Standardized coefficients for two models of condom use with the TpB components and additional variables

Parameters	Baseline model		Partial constrained model	
	Male	Female	Male	female
Condom attitude-intention of condom use	-0.18*	-0.15	-0.18**	-0.14**
Condom efficacy-intention of premarital sex	-0.34***	-0.25***	-0.32***	-0.29***
Peer norms-intention of condom use	-0.21***	0.05	-0.21**	0.05
Perceived risk of sexual behavior - intention of premarital sex	-0.01	-0.06	-0.03	-0.02
Age-perceived risk	0.13	-0.05	0.08	0.05
Age –condom attitude	-0.04	-0.07	-0.05	-0.04
Age- condom efficacy	0.23**	0.05	0.19**	0.13*
Age-peer norms of condom use	-0.13	-0.24**	-0.18**	-0.14**
Parent adolescent communication – condom attitude	0.17	0.08	0.13	0.11
Parent adolescent communication – Condom efficacy	0.33**	-0.12	0.30**	0.09
Parent adolescent communication –peer norms of condom use	0.30**	-0.03	0.08	0.07
Parent-adolescent Communication (factor 1)				
Mother-adolescent -Factor 1	0.76**	0.82**	0.80**	0.74**
Father-adolescent -Factor 1	0.58**	0.48**	0.61**	0.53**
Condom Efficacy (factor 2)				
Consistent use – factor 2	0.74***	0.87***	0.75***	0.86***
Correct use – factor 2	0.86***	0.82***	0.84***	0.84***
Communication (with partner) -factor 2	0.72***	0.83***	0.73***	0.83***

Intention Equation Error	0.85	0.94	0.86	0.93
Explained variance	0.28	0.12	0.26	0.14
Goodness-of-fit indices				
Model chi-square	$\chi^2=82.93, df=52, p=0.004$		$\chi^2=88.75 df=63 p=0.02$	
Model S-B chi-square	S-B $\chi^2=81.84, df=52, p=0.005$		S-B $\chi^2=87.65, df=63 p=0.02$	
Comparative fit index	0.94		0.95	
RMSEA	0.063		0.052	

$$\Delta\chi^2_{SB}=5.77, df=11 (p =NS)$$

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\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\* $p < 0.001$



## 5.9. RESEARCH QUESTION #8:

*Question #8: Is there a difference for sexual behavior between participants with experience of military service and no experience?*

To answer this question, two-way chi-square test was performed (see Table 27). With regard to experience with premarital sex, students who had already finished military service were more engaged in premarital sexual behavior ( $\chi^2(1)=51.73$ ,  $p<0.001$ ) than students who had not had experience of military service. Because a target variable, frequency of current condom use, which originally had 5 categories, reported a violating assumption -expected cell frequency condition (less than 5 in the more than 20% of cells)- to perform chi-squares, the categories were collapsed to 3 categories (none, sometimes, more than often). There were no group differences to use condoms between students had finished military service and student had not finished military service.

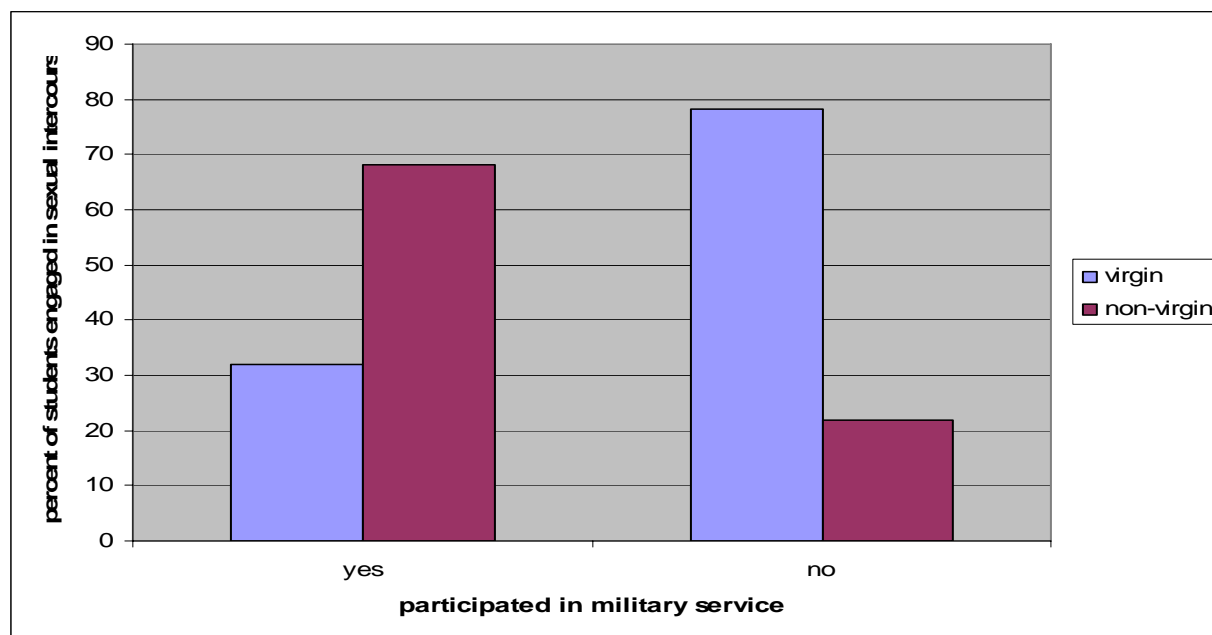


Figure 14. Percent of students engaged in sex by participating in military service

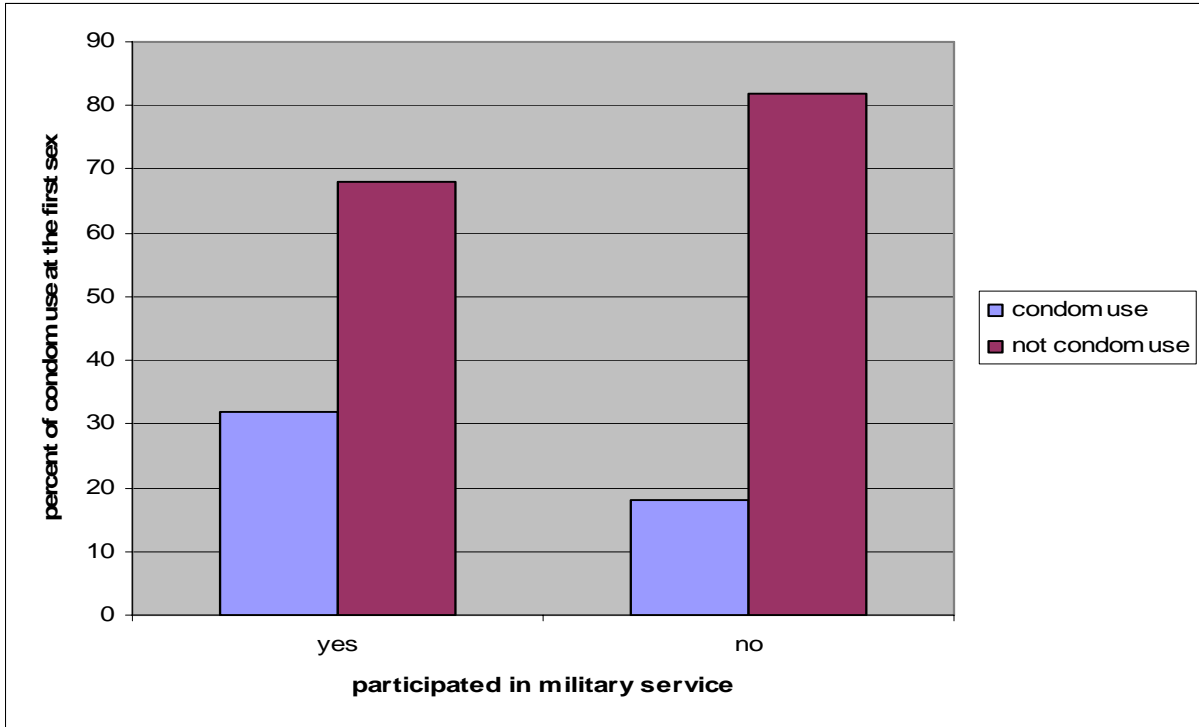


Figure 15. Percent of condom use at the first sex by participating in military service

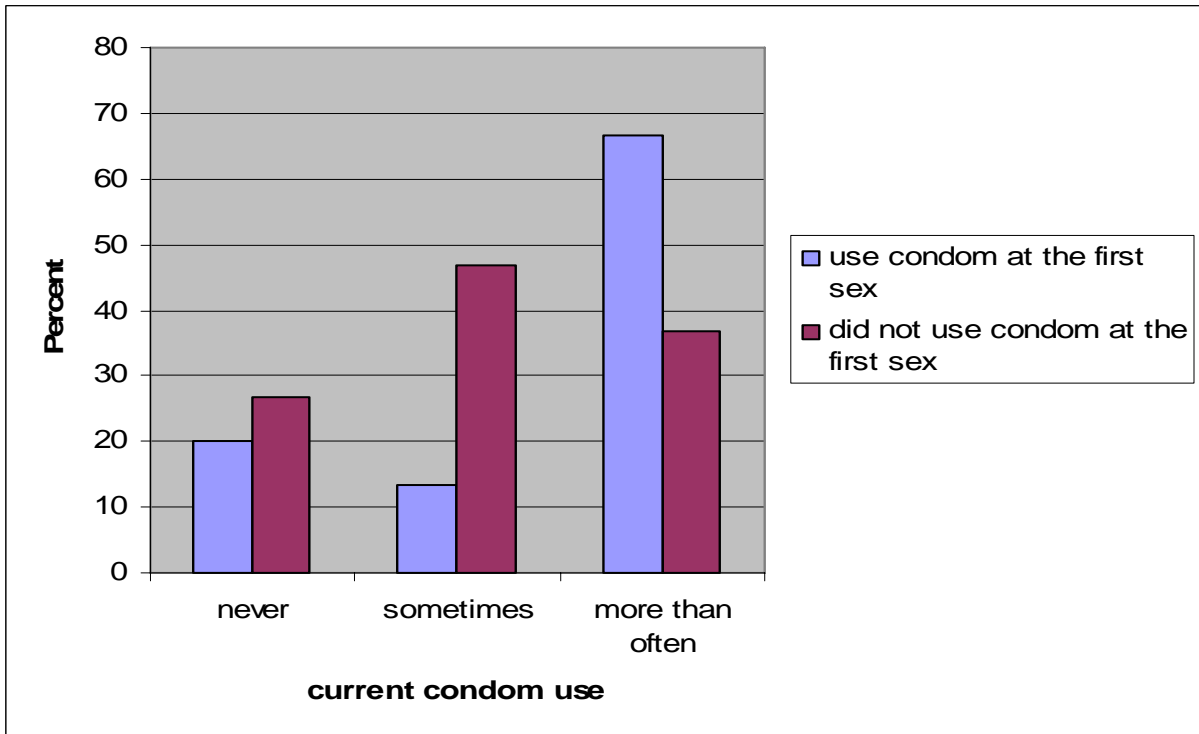


Figure 16. Percent of condom use in the previous three months by participating in military service

Table 27. Chi-square test regarding military service experience and sexual behavior

Outcomes	Military service		Pearson Chi-Square
	Yes	No	
Sexual experience(n=298)			
Virgin	22(31.9%)	179(78.1%)	51.73 ( <i>df</i> =1, <i>p</i> <0.0001)
Non-virgin	47(68.1%)	50(21.8%)	
Total	69(100.0%)	229(100.0%)	
Condom use at the first sex (n=97)			
Yes	15 (31.9%)	9 (18.0%)	2.52 ( <i>df</i> =1, <i>p</i> =0.054)
No	32(68.1%)	41(82.0%)	
Total	47(100.0%)	50(100.0)	
Condom use in the last previous 3 months (n=60)			
More than often	11(40.7%)	11(33.3%)	1.12 ( <i>df</i> =2, <i>p</i> =0.085)
Rare/sometimes	11(40.7%)	12(36.4%)	
None	5(18.5%)	10(30.3%)	
Total	27(100.0)	33(100.0%)	

## 5.10. SECONDARY RESEARCH AIMS

There were three secondary aims in this study. The aims were the following; 1) to explore where students receive sex education in Korea; 2) to describe the contents of sex education which Korean college students have received; and 3) to examine the relationships between intentions and actual sexual behaviors (premarital sex and condom use). In the following, each secondary aim is presented with applied statistical approaches based on the aims.

### 5.10.1. Secondary aims 1 & 2

*Secondary aim1: To explore where students receive sex education in Korea*

*Secondary aim2: To describe contents of sex education which Korean college students have received.*

The first and second of the secondary aims were examined using descriptive statistics (See Table 28). Majority students took sex education from schools not their parents. More female students reported to take school based sex education than males. Although the percentage of taken education regarding most topics at home was similar to males and female, more female students (12%) took sex education about contraception than male students (4.2%). However, the focused contents of education program seem to be theoretical. More than two-third students reported they had been taught about the general concepts of contraception, but only around 30% students learned about how to use condoms. More female students reported having received sex education about using condoms than male students. Students did not be taught what screening method of STDs was and how persons manage HIV/AIDS if they would get the disease although students did learn about the type of STDs and the ways of HIV transmission.

Table 28: The contents of sex education taken by resources (n=298)

	School		Parents	
	Male(n=165)	Female(n=133)	Male(n=165)	Female(n=133)
How to use condom	39(23.6%)	54(40.6%)	4(2.4%)	4(3.0%)
Type of STDs	106(64.2%)	96(72.2%)	5(3.0%)	3(2.3%)
Screening methods of STDs	57(34.5%)	39(29.3%)	4(2.4%)	1(0.8%)
The importance of STDs treatments	88(53.3%)	81(60.9%)	5(3.0%)	7(5.3%)
HIV transmission	102(61.8%)	106(79.7%)	4(2.4%)	10(7.5%)
Taking Medication for managing AIDS	30(18.2%)	34(25.6%)	2(1.2%)	1(0.8%)
Contraception	108(65.5%)	105(78.9%)	7(4.2%)	16(12.0%)

### 5.10.2. Secondary aim 3

*To examine the relationships between intentions and actual sexual behaviors (premarital sex and condom use, respectively)*

To examine the third secondary aim, -- the relationships between intentions and actual behaviors (sexual activity, current condom use) -- Spearman rank correlations were used. A higher intention of sexual abstinence was positively related to celibate status for both genders (males (n=165),  $r = -0.31$ ,  $p < 0.001$ ; females (n=133),  $r = -0.40$ ,  $p < 0.001$ ). There was no gender difference ( $Z = -0.87$ ,  $p = \text{NS}$ ). In terms of condom use variables, the higher intention of condom use was significantly related to more frequent condom use in the previous 3 months for females (n=12,  $r = 0.60$ ,  $p = 0.004$ ), but not for males (n=48,  $r = 0.25$ ,  $p = 0.096$ ). However, Z-scores showed no gender difference in a relationship between the intention and actual behavior to use condoms ( $Z = -1.19$ ,  $p = \text{NS}$ ).

## 6. CHAPTER SIX

As the primary aims of this study, the following aims were examined. First, this study describes the prevalence of sexual behavior (e.g., numbers of students engaged in sex, using condoms) among Korean college students. Second, this study examines gender differences with respect to the study variables (e.g., parent-adolescent communication, perceived risks of sexual behavior and TpB components). Third, this study examines the reliability of the translated measures using internal consistency. Fourth, this study examines whether two outcome models (premarital sex and condom use) derived from the Theory of Planned Behavior explained Korean college students' intentions of premarital sex and condom use differently according to gender. Fifth, this study examines alternative models with potential important predictors (age, perceived risk of sexual behavior and parent-child relationship) to see whether the potential predictors could significantly predict on the students' intention of sexual behavior with the TpB components. Sixth, this study explores the impact of military service on students' sexual behavior. Last, this study explores what sex education Korean students receive and where they receive sex education from. Because this study is a cross-sectional study, the direction between intention and actual behavior is not examined in the models created in this study. However, the relationship between intention of sexual behavior (sexual initiation and condom use) and self-reported actual sexual behavior was examined with a correlation coefficient as secondary aim 3.

This study was conducted on a convenient sample of 320 undergraduate students who were attending a university in Seoul, Korea. The university is middle-level among universities in South Korea and has approximately 20,000 students who come from diverse regions across all of South Korea. Since there was a small amount of missing data (6.88%) and no differences between the missing (n=22) and the non-missing groups (n=298) in terms of sample

characteristics, list-wise deletion was performed. Thus, 165 male students and 133 female students were included for final data analysis. Because of the sensitive topic, the university administrator asked the researcher not to report the university name anywhere.

Half (49.1%) of the male students and around 12% of the female students surveyed were engaged in premarital sex. However, only 26.7% of the sexually active students always used condoms. These findings were consistent with previous study results: women were more sexually abstinent (Cha, 1999; Jang et al., 1998), and the condom use rate in Korea was still lower than that in other countries (Eisenberg, 2001; Thato et al., 2003).

In terms of instruments, all instruments used in this study, except the demographic questionnaires developed by the researcher and the condom attitude scale originally developed in Korean, were translated from English to Korean, and the translated measures showed good reliabilities. As the researcher expected, female students had a more conservative attitude regarding premarital sex (see Table 9). They were less likely to intend to engage in premarital sex. The significant predictors to explain the model for intention of premarital sex were different for each gender (See Table 20). However, students shared one model for explaining the intention of condom use (See Table 22).

Although this study had several limitations with respect to interpreting and generalizing results as the study was conducted in a university, used a convenient sample, cross-sectional correlational study design, self-reported measures and had uneven return rates, there were several key findings which can aid in development of an effective sex education program for Korean college students in the future. In the following sections the study findings are discussed according to the order of the research questions of this study in order to share information for the development of future studies and interventions.

## 6.1. RESEARCH QUESTION #1:

*What is the prevalence of premarital sexual behavior and condom use among Korean college students?*

Overall, 32.6% of students reported they were non-virgin. There was a significant gender difference in terms of non-virginity status; 81 of 165 (49.1%) male students and 16 of 133 (12.0%) female students reported they were engaged in sexual intercourse ( $\chi^2(1) = 46.07$ ,  $p < 0.001$ ). The numbers of non-virgin students increased from 22.54% (Kang, 2001) to 32.6%, but the percentages of gender-specific were consistent with the two previous studies, which reported 50-55% male students and 10-18.4% female college students were non-virgin in Korea (Cha, 1999; Jang et al., 1998). This percentage of non-virgin students was much lower than the percentage of U.S. college students (71%-75.1%) and Thai vocational students aged 18-22 (64.8% of males; 35.2% of females) (Eisenberg, 2001; Gurman & Borzekowski, 2004; Thato et al., 2003); but higher than Vietnamese adolescents aged 21 (Mensch et al., 2003). Mensch and colleague (2003) estimated that 25% of Vietnamese men and 10% of Vietnamese women were non-virgin adolescents. Possible reasons for the difference in percentage with other countries can be related to the underreporting of incidents due to different cultural norms (e.g., Korean culture being significantly influenced by Confucianism), and getting uneven return rates according to the sampling method.

In the United States, currently, college students sexual behavior is a health risk behavior (Costa et al., 1995), not a problem behavior; an objective of sex research for college students in the U.S is reducing risky sexual behaviors not preventing them from engaging in premarital sex any more. Thus, students in the U.S may be more comfortable reporting their sexual experiences than students in Korea where premarital sexual behavior is regarded as a delinquent behavior or



social evil is. In this study, two of third female students reported they have Confucian views (which come from Ancient China) toward sexuality. In Confucian society, sexual intercourse was less prohibited for males as it was believed to maintain their health with a balance of yin and yang (although engaging in sex was not an acceptable adolescent behavior in traditional Confucian society) (Bullough & Bullough, 1995). However, a good girl, who was not a sex worker, was expected to be a virgin; there were no exceptions for females. Because of the great impact of Confucianism on even modern Korean society, non-virgin female students are treated as being slutty by elder persons and have a trouble getting marriage in the future if their sexual experiences are revealed (Confucianism impact of sexual behavior is discussed in a later section). Given these reasons, Korean male students more accurately report their sexual behavior history without discomfort. Estimation using the reported prevalence of sexual behavior of male students may be a good way to get more accurate information about the prevalence of female students rather than directly obtaining the information with a self-reported measure.

With this study, sampling methods and return rate differed from that of other studies. For example, Thato and her colleague (2003) reported that they used a cluster-based sample of 425 Thai vocational students from eight randomly selected private vocational schools and the return rate was 100%. However, recruiting participants with a cluster-based sampling or random sampling is a challenge when the population is Korean college students because of the following: 1) it is difficult to make a cluster in a university, 2) Korean students and administrators who are not familiar with IRB regulations of the University of Pittsburgh - getting a signature in a consent form, not being a data collector who can potentially influence the potential participants' decision for study participation (e.g., professor, health service center staffs)- were concerned about certain aspects of the study (e.g., confidentiality and the researcher's credit). Given these

reasons, the researcher used a convenient sampling method which used flyers and self-referrals in a university. The return rate for this study was 58.18%, which was lower than the 70% return rate which other studies conducted with same age cohorts and population in Korea experienced. (Cha, 1999; Jang et al., 1998; Kang, 2001). The different return rate may have resulted in a less accurate numbers for reported prevalence of sexual behavior. For instance, female students who were not comfortable reporting their sexual activity may not have returned the questionnaire to the researcher, leading the researcher to conclude that more female students were celibate. Fortunately, the findings of this study showed consistency with the findings of previous studies (Cha, 1999; Jang et al., 1998; Kang, 2001); thus, the lower return rate may not have had a large effect with respect to how this study represents the current sexual behavior of Korean college students. The following was the findings of the study regarding the prevalence of sexual behavior among Korean college students.

Sexual preference, numbers of sex partners during the past 12 months, and levels of safer sex (frequency of condom use) were examined. Not surprisingly, most students identified themselves as a heterosexual: many Asian American men having sex with men do not identify themselves as gay (Chng, Wong, Park, Edberg, & Lai, 2003a). This phenomenon may also be related to Confucianism. In Confucianism, heterosexual behavior is very important in relation to maintaining health or reproducing descendants (Bullough & Bullough, 1995). That is, first, the Ancient Chinese believed that the balance of *yin* (*earth*) and *yang* (*heaven*) is important to maintain health, and male and female represent them, respectively, as a microcosm. As people become older, yang and yin become unbalanced: the yang decreases and yin increases. Sexual intercourse is regarded as one way of replenishing yang. Second, a son has a family duty for procreation in order to pass on the family name according to a patriarchal lineage(Chng, Wong,

Park, Edberg, & Lai, 2003b). In particular, the oldest son or only son has the authority in the family hierarchy, but needs to pay back their family by having a son who can carry on the family name (Uba, 2003). Currently, as a result of the national-based family planning campaign in 1970's, 1980's and 1990's, many Korean families have only one son. Therefore, sexual preference is a very sensitive topic when conducting sex research among the Korean population, especially for males, and it is very difficult to get accurate information with respect to individual sexuality preferences.

Although three female students identified themselves as homo-sexual or bisexual, there is a need to identify whether the three students correctly understand the meaning of lesbian for the following reasons. First, many Korean female college students are not familiar with terminology related to sex because they have been expected to be innocent regarding sex. Therefore, a word which indicates sexual preference, "gay" or "lesbian" may be often misinterpreted by younger adolescents or female adolescents, i.e., they don't know what it means. Second, "gay" or "lesbian" has an obscured name in Korean. That is, the original meaning was obscured in the translated word since Koreans are reluctant to do direct translation of a word which conveys the meaning of sex. The word was translated to Korean as a general term which does not include the meaning of sex. Therefore, Korean adolescents, especially female students, may misinterpret the word as general preference for a specific gender not a sexual preference. In other words, this problem may be related to a translation issue or cultural issue and can come up when a cross cultural study is conducted on a sensitive topic. Therefore, the implication of this finding for further research is cross cultural researchers need to review the terminologies which they use in their study and to clarify specific terms when they plan a study. Any word which may include a confounding meaning should be considered before conducting study. It is difficult to clearly

identify whether the three female students misunderstood the meaning of lesbian or whether they actually meant to identify themselves as homosexual or bisexual. In a future study, a more careful consideration of the translation of this word is required.

In this study, the researcher found that more than 70% of non-virgin students were engaged in oral sex as well as vaginal intercourse. Oral sex has been a taboo topic of discussion even in sex education programs in Korea although studies have found that oral sex is related to pharyngeal gonorrhea (Wong & Chan, 1999; Wong, Chan, & Koh, 2002) and head and neck cancers (Herrero et al., 2003; Kreimer et al., 2004; Rajkumar et al., 2003). According to the researcher's previous experiences and discussion with the health educators in the Health Service Center in the recruitment site during the data collection period of this study, the students and even the health educators have very little information about the risks of oral sex. Therefore, many students have misperceptions about oral sex; students believe that oral sex provides few chances of contracting or transmitting STDs, HIV without a concern of getting pregnant. Furthermore, for the study, there was a possibility that students who had engaged in oral sex without vaginal sex may have reported they were virgins even though researchers identified that engaging in sex refers to experiencing vaginal, oral and anal sex in the sexual behavior questionnaire. Because of the risk of oral sex, it is important to provide accurate knowledge about oral sex. Thus, a future study needs to explore who students identify as virgin and what the perceived risks of oral sex for Korean students' and health educators' are with a qualitative study in order to get a direction for sex education programs on this issue.

Approximately one-quarter of Korean college students reported they always used condoms in the 3 months previous to this study. This finding was similar to Kang's study (2001), which had a similar topic and the same age cohorts as the current study. In her study, 29.5%

students had always used condoms one year previous to the study. Although the rate of consistent condom use was lower than that of the college students in the U.S (47.9% of sexually active college students were consistent condom users) (Eisenberg, 2001), the rate was higher than that of Thai vocational students. Thato and her colleague (2003) reported 6.7% of sexually active students in Thailand consistently used a condom (Thato et al., 2003). However, the discrepancy in findings with other cross-cultural research in this area requires a cautious interpretation such as consideration regarding the timing of conducting a study. For instance, Youn conducted a study in 1996 and reported that only 7% of sexually active adolescents (mean age = 18.8) were consistent condom users in Korea. Thus, a future study needs to examine whether subjects' age, the timing of conducting a study, and participants' education level mediate using condoms when controlling cultural impact.

## **6.2. RESEARCH QUESTION #2:**

*Are there mean differences in age, parent- adolescent communication, and the components of TPB( premarital sex attitude, condom attitude, subjective norms of premarital sex, subjective norms of condom use, abstinence self-efficacy, condom efficacy, the intentions of sexual behavior such as premarital sex and condom use) between genders?*

Daughters had a better quality of communication with their mothers than sons ( $t(296) = -2.15$ ,  $p=0.03$ ), but there was no significant gender difference with regard to the quality of father-adolescent communication ( $t(296) = -0.38$ ,  $p=0.70$ ). No gender difference with regards to father-adolescent communication may be related to the role of father in Korean traditional family structure (Uba, 2003). Like other Asian fathers, Korean fathers maintain an irreproachably authoritative, strict, dignified and aloof relationship to their family (Uba, 2003). Usually mothers mediate the communication between fathers and adolescents. However, younger fathers and

westernized fathers are making an effort to change this relationship, and the efforts are beginning to experience success. Therefore, there is a need in future studies to examine the father-adolescent relationship after controlling the participating fathers' age. Most TpB components showed significant gender differences in this study, but three variables (a subscale of condom efficacy and two subscales of norms of condom use) were not statistically different between male and female students (see Table 9).

In terms of gender difference among the subscales of condom efficacy, "communication with their partner to use condoms" did not show a significant difference although two subscales of condom efficacy, "consistent condom use" and "correct condom use," showed that male students had a higher efficacy than female. This finding may be related to the characteristics of female students' sex partner. As Table 8 shows, shows, female non-virgin students had consistent sexual partners, and they had no intention to have sex with casual partners (Mean: 3.81, SD: 0.47). The consistent relationship makes it easier to discuss safer sex with their partners without any concern about the social stigma related to premarital sex, and the relationship may have led to no gender difference in the communication of condom efficacy for this study. Other potential reasons for the lack of difference may be related to the impact of sex education and higher perceived risks of unprotected sex. As Table 28 shows, more female students participated in school based education programs, and these students had a higher general perception of protected sex ( $t(290) = - 5.67, p < 0.001$ ; Table 8). Thus, female students in this study had a higher need to communicate about using condoms with their partners although it is not accepted in traditional Korean culture as the woman's role (Mensch et al., 2003; Youn, 1996).

The two subscales of norms of condom use, perceived father's and perceived partner's norms to use condoms were not significantly different between male and female students

because of the following potential reasons. First, more than half of the students reported they did not know what their parents' and sex partner's norms were with respect to use condoms. This phenomenon may be related to Korean traditional culture. Since children are expected to keep sexual innocence and abstinence until marriage (Bullough & Bullough, 1995; Denis, 1966), communication about sex is rare between parents and adolescents. In particular, the father is the last person to communicate with on the topic. If a father would communicate their children with on the topic, he discusses his concerns with his wife (children's mothers) and a mother shares the father's concerns with the children. Therefore, it is hard for children to detect their paternal norms to use condoms. Although many students reported that they did not perceived mother's norm to use condoms as well, there was a significant gender difference in relation to the perceived mother's norms to use condoms; a higher percentage of female students perceived a higher mothers' norms to use condoms. This may be related to same gender communication and a better quality of mother-daughter communication than mother-son communication; however, a further examination is needed.

In terms of peer norms to use condoms, this may be influenced by cultural impact. A study conducted with a Dutch sample (n=711) found that females (mean age=38.5) perceived higher peer norms to use condoms than males (Mean age=36.0) (Buunk, Bakker, Siero, van den Eijnden, & Yzer, 1998). However, only male students perceived peer norms to use condoms in this study. A possible reason for why female students had difficulty perceiving what the peer norms were may be related to the following. Engaging in premarital sex is a jealously coveted experience among males since it is regarded as a rite of passage to be a man. Thus, male students share information about sex, which is directly related to higher perceived norms from peers concerning using condoms. For female students on the other hand, engaging in premarital sex is

still a shameful behavior. An in-depth discussion about sex (e.g., using condoms) is often misinterpreted as the adolescent has an intention to engage in premarital sex. Therefore, while male students can get a credit from their peers, female students may get a stigma from any discussion of sex. This aspect of Korean culture shows how the discrepancy in perceiving peer norms to use condoms with respect to Buunk's study may have been created. Another potential reason for the discrepancy also may be related to the study participants' age. The female participants in this study were much younger (mean=20.67, SD=1.67) than in Buunk's study participants. Thus, social expectation to keep sexual abstinence may have created the discrepancy.

To understand the results with respect to perceived partner's norms to use condoms, there is a need to understand students' general patterns of behavior leading up to a sexual encounter. Generally, many Korean students engage in sexual behavior as an unplanned incident rather than as the consequences of an agreement between two persons. Talking about using condoms indicates an intention to engage in sex; it is not a common topic for a couple who are not engaged in sex. Therefore, it is difficult to know potential partners' norms about using condoms before a person engages in sex with them. Given these reasons, many students reported that they did not know what partners' norms about using condoms were and this variable was taken out when the researcher tested the model.

Overall, the gender differences in the study variables showed similar patterns with the pilot study (see Chapter 4 & Table 3). As the researcher expected, female students had a more conservative attitude and perceived conservative norms from the referent groups, especially their parents. Females' intention to engage in premarital sex was significantly lower than the male students ( $p < 0.001$ ). Interestingly, female students clearly perceived parents' disapproval regarding premarital sex, but male students were unsure regarding the norm of premarital sex



rather than perceived parental disapproval. The most conservative norm was fathers' for female students and mothers' for male students.

As secondary aims mean differences between virgins and non-virgins were examined. Previous literature had found a positive relationship between college students' perception of rapport with their parents and the amount of sex education at home (Baldwin & Baranoski, 1990), and a negative relationship between a good quality of communication with their parents and engaging in premarital sexual behavior (Fisher, 1987). However, there were no mean differences between virgins and non-virgins in terms of parent-adolescent communication in this study. The reason may be related to Korean culture. Like the above explanation for parental norms of condom use, talking about sex is regarded as an inappropriate topic for parent-child communication in Korea since Korean parents expect their children to keep their virginity until marriage. Many Korean adults still believe that open discussion about sex may increase their children's curiosity about sex, which would then result in encouraging them to have premarital sex. Thus, direct communication about sex is rare between parents and children

Results showed that non-virgins had lower sex abstinence efficacy, more liberal premarital sex attitude and perceived approval to engage in sex. In particular, non-virgins perceived friends' approvals of sex, although they perceived their parents did not want them to engage in sex. Interestingly, condom efficacy which measures persons' confidence to use condoms showed that the virgins had a higher condom efficacy. However, there were no significant differences between the virgin and non-virgin groups in terms of condom attitude and intention of condom use.

It is believed that to have an effective sex education program can improve sexual health, it, however, is an important issue to find an optimal teaching moment. The timing and contents

of a sex education program should consider students' needs. One study had an interesting finding; students were embarrassed to do the classroom activities for sex education, but they often became comfortable with discussing sex and gained valuable information to reduce risky sexual behavior after a certain period (e.g., in high school, after sexual debut) (Beausang, 2000). As the findings of the current study show, students are getting more liberal about engaging in premarital sex and many students are ready to engage in sex during college regardless of their parents' expectations. Therefore, college time is the best time to provide a practical sex education program focused on reducing risky sexual behavior and providing accurate information about improving sexual health. Also, in Korea there is no in-depth sex education program and a conservative social norm for adolescent sex, so peers are a major source to get practical information about sex, especially for non-virgins. However, the shared information can be inaccurate. Therefore, researchers and educators should utilize college time in order to provide appropriate information to improve sexual health for the students' whole life.

### **6.3. RESEARCH QUESTION #3**

*Research Question #3: What are the bivariate relationships among age, parent-adolescent communication, perceived risks of sexual behavior, premarital sex attitude, condom attitude, subjective norms of premarital sex, norms of condom use, abstinence efficacy and condom efficacy, and intentions of premarital sex and condom use for each gender?*

As preliminary data analysis, the bivariate associations between potential significant variables (age, perceived risk of sexual behavior and parent-adolescent communication) which influence the TPB components were examined with Spearman rank correlations. Gender differences among the correlation coefficients were examined with Fisher's Z-scores. Because

finding the relationships among potential significant variables which are not TpB components is not one of the aims of the study, no discussion is included in the following.

### ***Age***

There was a significant relationship between “age” and “perceived risks of sexual behavior”, “premarital sex attitude”, “peers norms of premarital sex,” and “intention of premarital sex” and “condom efficacy”. Older students perceived a higher risk of sexual behavior and peers’ disapproval of condom use and had a more liberal premarital sexual attitude, a higher condom efficacy, and a higher intention of premarital sex. However, there were no gender differences in the relationships except the relationship between age and intention of premarital sex ( $Z = -3.44$ ,  $p < 0.001$ ). These findings suggested that age should be added as a significant demographic (background) variable when testing models derived from the TpB. Therefore, the researcher added age in the alternative model to examine the relationship between age and TpB components. Because the TpB suggested a mediating role of the TpB components between background variables and intention/actual behavior, age was added as a background variable in the alternative model for Research Questions 6 and 7.

### ***Perceived risk of sexual behavior***

Male students perceived a lower risk of unprotected sex ( $t(290) = -5.67$ ,  $p < 0.001$ ) and had a more negative condom attitude ( $t(296) = -5.01$ ,  $p < 0.001$ ) than female students. This finding may influence the association between “perceived general risk of sexual behavior” and “condom attitude” for male students; a negative significant relationship between “perceived general risks of sexual behavior” and “condom attitude” exists. For female students, students who perceived

higher “general risks of sexual behavior” had a more liberal “premarital attitude”, and a higher “condom efficacy”. Because one item among “perceived general risk of sexual behavior” items asks about general perceived risk of sexual behavior (Do you think that unproductive sex is dangerous?), a composite score with 3 items which more specifically asked about the “perceived specific risks of sexual behavior” was used when examining relationships between the “perceived specific risk of sexual behavior” and the TpB components derived from each outcome variables. The composite score was called “specific perceived risk of sexual behavior”.

There were significant correlations between the specific perceived risks of sexual behavior and TpB component. As Table 13 and Table 14 show that a lower specific perceived risk of sexual behavior had an association with more liberal premarital attitude sex for both genders ( $r = -0.19$ ,  $p < 0.05$  for males;  $r = -0.23$ ,  $p < 0.05$  for female;  $Z = 0.36$ ,  $p = \text{NS}$ ). Although only male students showed a significant correlation between “specific risk of sexual behavior” and intention of premarital sex ( $r = -0.16$ ,  $p < 0.05$ ), there was no significant gender difference ( $Z = -0.35$ ,  $p = \text{NS}$ ). The same pattern appeared with the relationship between “the specific perceived risks of sexual behavior” and “condom attitude”. Only male students who had a higher “perceived specific risk of sexual behavior” had a lower condom attitude ( $r = -0.23$ ,  $p < 0.05$ ), but no gender differences existed for the relationships ( $Z = -1.56$ ,  $p = \text{NS}$ ).

Because bivariate association using correlation coefficients may not measure a true relationship between two variables in a multivariate model, there is a need to examine the relationship with an advanced measure such as multiple linear regression and structural equation modeling. Gender differences need to be examined within a multivariate model with an advanced technique such as multi-sample structural equation modeling as well. Given these reasons, the researcher added the “specific perceived risks of sexual behavior” to the alternative model to test

TPB with each outcome variable using structural equation modeling. More discussion is provided in the section on Research Questions 6 and 7.

### ***Parent-Adolescent Communication***

Studies found that the quality of the parent-adolescent relationship influenced adolescent sexual health (Baldwin & Baranoski, 1990; Dittus & Jaccard, 2000; Fisher, 1987; Jaccard & Dittus, 2000). Jaccard and Dittus (2000) found that a more satisfying relationship between adolescents and mothers was associated with a higher probability of birth control use such as condom use and with a lower probability to engage in premarital sexual intercourse and to get pregnant. According to Fisher (1987), a good quality of general family communication was positively related to sexual inexperience, particularly for males. Baldwin and Baranoski (1990) found that good relationships between fathers and adolescents were significantly associated with fathers' deeper involvement in sex education at home.

There are diverse instruments to measure parent-adolescent relationship's impact on adolescents' sexual health (e.g., a scale to measure communication about sex). The Parent-Adolescent Communication Scale was designed for measuring general interactions between generations. In this study, the scale was used for getting information about how the quality of parent-adolescent communication affects students' sexual behaviors. The scale is comprised of two subscales: Mother-Adolescent Communication Scale and Father Adolescent Communication Scale. With the Parent-Adolescent Communication Scale, the researcher examined the difference between same-gender (mother-daughter vs. father-son) and opposite-gender relationships (e.g., father-daughter vs. mother-son) in Research Question 2. Several interesting findings were found. For the male students, a good quality of father-son communication was significantly correlated

with peers' disapproval of premarital sex, but did not show a significant relationship with father's norm of premarital sex. The findings imply that the quality of parent-adolescent interaction did not directly influence the intention of sexual behavior but indirectly influenced the behavior to impact peer selection in male college students. For female students, a higher quality of communication with mothers was directly associated with a lower intention of premarital sex; there was no significant association with opposite-gender parent-adolescent communication; however, a further examination was needed to confirm these findings. Thus, parent-adolescent communication variables were added to the secondary model (alternative model) of Research Questions 6 and 7 for a further examination.

#### ***Gender differences of correlation coefficients of the TpB components***

Based on the hypotheses of Research Question 3, gender differences in correlation coefficients were examined with Fisher's  $r$  to  $z$  transformation. Only Hypotheses 3.2 and 3.3 showed significant differences between male and female students; but, the directions were the opposite direction of what the researcher expected. While male students who had a higher abstinence efficacy showed a higher intention of sexual abstinence, there was no significant association between the variables for female (Hypothesis 3.2;  $Z=2.22$ ,  $p<0.05$ ; See Table 17). Female students showed a higher association between subjective norms of premarital sex and intention of premarital sex than males (Hypothesis 3.3;  $Z= -1.98$ ,  $p<0.05$ ; See Table 17).

Although the researcher derived the hypotheses for this study based on previous literature, only three hypotheses were confirmed in this study. First, the previous literature which examined gender differences only reported correlation coefficients without reporting Fisher's  $Z$  scores, and concluded that there were significant differences between males and females (Bogart et al., 2000;

Salabarria-Pena et al., 2003). However, the sampling distribution of correlation coefficients is not normally distributed. Thus, if a sample has a different sampling distribution and standard deviation, the comparisons of correlation coefficients between two groups are useless. Fisher's  $r$  to  $z$  transformation compensate for this weakness as this statistical approach converts correlation coefficients to a value that is normally distributed and enables researchers to compare two group differences. For instance, male and female students had different correlation coefficients for most hypotheses (See Table 17); but the  $z$ -scores did not show gender differences among the relationships in this study. Therefore, a lack of information regarding gender difference in previous studies resulted in incorrect hypotheses. Second, a lack of previous research among the Korean college students induced the researcher to create wrong hypotheses. Since the researcher made hypotheses based on studies which had been conducted with different ethnicity in the U.S (Bogart et al., 2000; Carvajal et al., 1999; Salabarria-Pena et al., 2003), it was not surprising that the hypotheses of this study were not confirmed among Korean college students. These findings imply that an imported sex education program without cultural considerations is inappropriate for Korean adolescents and young adults. The last possible reason for non-significant gender difference of correlation coefficients among TPB components is that bivariate correlations do not represent a true relationship between two variable in a multivariate model (Glass & Hopkins, 1996). Overlapping relationships with other variables and interaction effects may be included in bivariate correlation coefficients. Thus, researchers often apply a multiple liner regression or structural equation modeling to examine a true relationship (partial correlation) between two variables with other variables partialled out. In this study, we applied multi-sample structural equation modeling which reported standardized beta after controlling measurements errors. Further discussion is presented in Research Questions 6 and 7.

#### 6.4. RESEARCH QUESTION #4

*Research Question 4: What are the internal consistencies of all instruments measuring the TPB components (premarital sex attitude scale, condom attitude scale, subjective norms of premarital sex scale, subjective norms of condom use scale, abstinence efficacy scale, condom efficacy scale, and intention of sexual behavior scale including its two subscales) and Parent-Adolescent Communication?*

Most instruments in this study showed good internal consistencies similar to the original scales. However, further discussion is needed because the internal consistencies in some scales were higher in the translated versions than the original version. For instance, Cronbach's alphas for the measures, which had the same pattern as for the modified Premarital Attitude Scale, Referent group Approval of Sexual Behavior Scale (RgASB) and modified Intention of Sexual Behavior Scale (mIPSB) were higher in this study. Potential reasons for this are discussed below.

In this study, we added items related to sex worker to the modified version of PSAS, RgASB, and mIPSB 1, mIPSB 2. Thus, the number of items in each scale increased from 4 to 20. This increase in item numbers might have led to an increase in the Cronbach's alphas in the translated measures (Crocker & Algina, 1986; DeVellis, 2003; Nitko, 2004). A second possible reason for higher internal consistencies and Cronbach's alphas is related to high inter-item correlation, or item redundancy. This problem may have come about as a result of conceptual equivalence in the original items or the added items. Problems related to conceptual equivalence occur when two languages have the same word, but the word has different meanings in a situation. For instance, the PSAS include items about "really like" and "love" to be asked about the acceptance of sexual behavior at levels of relationships. However, in Korean "love" can be interchangeably used with "really like" when the object is someone of the same gender, friends,



or things, and with “respect” when the object is an older person in Korean. In addition, interpretation of the words depends on the individuals. Thus, some students may not be identified the level of relationship being asked about in the scales in the way that the researcher intended.

The second potential issue related to violating conceptual equivalence is related to the added item. The researcher added 5 items of sexual behavior with a sex worker as a 5<sup>th</sup> level of relationship. However, the items may not be distinguished from the items related to casual partner, especially for female students; it may be possible that “sex worker” and “casual sex partner” are interpreted as the same level of relationship for female students with Confucian views despite the fact these students reported identifying a difference in the relationships between sex worker and casual partner in the feedback questionnaire. Therefore, a question arises as to whether students actually identified the level of relationship when answering the questions. Item-total correlations in the Korean version scales will help the researcher to answer this question; if some items would show a high correlation with each other, this would indicate item redundancy (DeVellis, 2003). Furthermore, there is a need to examine various psychometric properties of the translated measures in future studies

#### **6.5. RESEARCH QUESTION #5:**

*Research Question #5: Are there significant gender differences with respect to the parameters (regression coefficients and factor loadings; a, b, c, d, e, f, g, h I, and k) in the hypothesized model based in the Theory of Planned Behavior? (see Figure 2)*

A solution to the measurement problem encountered in Research Question 5 was considered. The researcher considered the possibility of reducing the number of indicators used in defining the problematic construct since this can sometimes make the covariance structures change in beneficial ways among the remaining indicators. However, this method could not be

applied for the following reasons. First, the results are questionable regardless of the researchers' efforts to do some amount of experimentation on the part which is problematic. Furthermore, attitude, subjective norms and perceived behavioral control are important components in the TpB and none of them can be deleted when testing the TpB. Thus, reducing the number of indicators was not possible for Research Question 5. A potential solution, to make a correlation between two of the indicators of the same construct (e.g., premarital attitude and condom attitude), was not considered since there was no empirical support for this association in previous literature. Thus, the researcher stopped testing the hypothesized model of Research Question 5 and no detailed discussion is necessary.

#### **6.6. RESEARCH QUESTION #6:**

*Research Question #6: Are there significant gender differences in the prediction between independent variables (Attitude of premarital sex, subjective norms of premarital sex and abstinence efficacy) and dependent variable (intention of premarital sex) (l, m, n, o, p, q, and r) with respect to the parameters in terms of the model of premarital sex ? ( see Figure 3)*

This study tested the TpB among Korean college student in order to get insights for developing sex education program in Korea. As far as the researcher is aware, the TpB has not previously been used among Korean college students to explain risky sexual behaviors, although many studies have used the theory to explain adolescent sexual behavior (e.g., sexual debut and condom use) with various ethnic groups in the U.S; the TpB explained adolescents' sexual abstinence well when looking at the diverse ethnic groups (Basen-Engquist & Parcel, 1992; Carvajal et al., 1999), and all three components (attitude, norms and volitional control) significantly predicted the intention of premarital sex; however, the strongest predictor of the intention or behavior was different based on sample characteristics. In Basen-Engquist and

Parcel's study (n=1,720, ninth graders), attitude of premarital sex ( $\beta=0.48$ ,  $p<0.01$ ) was the strongest predictor for intention of premarital sex and subjective norm was the weakest predictor ( $\beta=0.09$ ,  $p<0.01$ ). Carvajal and colleague (1999) found that attitude of premarital sex was the strongest predictor ( $\beta= -0.60$ ,  $p<0.01$ ), and volitional control the weakest predictor among their participants (n= 910, mean age=15.0)

In this study, attitude ( $\beta= 0.46$ ,  $p<0.001$ ), volitional control( $\beta= 0.16$ ,  $p<0.05$ ), and norms ( $\beta= 0.40$ ,  $p<0.01$ ) were significant predictors of intention of premarital sex for male students with large effect size (Cohen, 1992), but only attitude ( $\beta= 0.52$ ,  $p<0.001$ ) and norms ( $\beta=0.42$ ,  $p<0.001$ ) predicted intention of premarital sex for female students ( $f^2= 2.45$ , large effect size). Abstinence efficacy did not show a significant prediction ( $\beta=0.06$ ,  $p=NS$ ) for female students in this study (Cohen, 1992). These findings imply that the TpB is a more appropriate theory for explaining the intention of premarital sex for Korean male students, while the Theory of Reasoned Action (TRA) would be a better theory to explain the intention of premarital sex for the females. The findings were the same in the alternative hypothesized model of premarital sex

In the alternative hypothesized model, results were the same as the findings for the model with only the TpB components. Premarital attitude was the strongest predictor of intention of premarital sex for both genders ( $\beta= 0.45$ ,  $p<0.001$  for males,  $\beta=0.52$ ,  $p<0.001$  for females), subjective norms was a significant predictor of intention to engage in premarital sex ( $\beta=0.39$ ,  $p<0.001$  for males,  $\beta=0.42$ ,  $p<0.001$  for females). However, abstinence efficacy predicted only male students' intention of premarital sex ( $\beta=0.17$ ,  $p<0.001$ ). Age affected the same amount of students' perceived norms of premarital sex for both genders ( $\beta= - 0.28$ ,  $p<0.001$ ), and a better quality of parent adolescent communication increased the male students' sexual abstinence ( $\beta= 0.16$ ,  $p<0.05$ ). However, these two variables did not make a model improvement compared to the

model with only TpB components ( $R^2=0.69$  vs  $R^2=0.69$  for males;  $R^2=0.70$  vs.  $R^2=0.71$  for females; see Table 20 & Table 21). Therefore, a model with TpB components only was chosen as the best model to explain the Korean college students' intention of premarital sex.

Several plausible explanations are possible as to why a variable was effective or ineffective to explain Korean college students' intention of premarital sex. Traditionally, keeping virginity until marriage is required for women to have a normal marriage in Korea. To follow parent's rules and authority, even after they are of adult age, is the role of children (Rohner & Pettengill, 1985). These two traditions affect students' sexual behavior, especially females. Because many Korean parents still regard marriage as the union of two families rather than an individual event, the parents' opinions are very important when planning to get married. If a future bridegroom's parents identify that his future bride has a bad reputation or sexual history (e.g., is a non-virgin), the couple might not get married because of parental pressures. However, the history of premarital sex for men is more generously accepted than for women. Given this reason, keeping virginity may be a volitional behavior for men not for women, and that would be a reason why abstinence efficacy was not a significant predictor for female students' intention of premarital sex in this study.

To examine gender difference regarding the hypothesized model to explain the intention of premarital sex, multi-sample structural equation modeling was used. One of the advantages of structural equation modeling for a hybrid model is researchers can specify measurement errors in the model with two-step modeling. This two-step rule for identification allows researcher to identify whether two models are correctly examined with appropriate measures (Kline, 1998). In two step-modeling, a factor loading is firstly re-specified as a confirmative factor analysis (CFA; measurement model). When a measurement model is good, the structural parts (regression

coefficients) are re-specified (structural model). In this study, we identified that the factor loadings of the model (CFA measurement model) were significantly different for male and female students. That is, the model of premarital sex was measured with different scales for each gender, and male and female students had different models to explain intention of premarital sex.

The data showed that subjective norms were an influential predictor for explaining the intention of premarital sex (See Figure 6 & Figure 7). Among the subjective norms (mother, father, peers and people in the culture), the peer norm was the most influential in predicting intention to abstain from sexual behavior, followed by people in the culture, and then mother and father. Interestingly, the norms of the mother and father predicted approximately the same amount of intention of premarital sex for female students ( $\beta=0.53$  for fathers' norm,  $\beta=0.52$  for mothers' norm); the either of parental norms predicted the intention of premarital sex for male students significantly less well ( $\beta=0.33$  for fathers' norm,  $\beta=0.27$  for mothers' norm). Additionally, the findings of this study suggest considering the impact of the quality of parent-adolescent communication. Indeed, according to this study, a better quality of parent-adolescent communication increased male students' sexual abstinence and eventually buffered students' intention of premarital sex.

## **6.7. RESEARCH QUESTION #7**

*Research Question #7: Are there significant gender differences of the prediction of condom use between independent variables (attitude of condom use, subjective norms of condom use and condom efficacy) and dependent variable (intention of condom use) (s, t, u, v, w, x, y, z, I, II, III and IV; see Figure 4)?*

With regard to the model of condom use, hypothesis 7.1 was not tested (See explanation in Chapter 5, Research Question 7). Thus, only hypotheses 7.2 and 7.3 are only discussed in this section.

Many researchers have conducted studies to examine risky sexual behavior using the TpB (Basen-Engquist & Parcel, 1992; Bryan & Fisher, 2002; Buunk et al., 1998; Carvajal et al., 1999; Flores et al., 2002; Glasman & Albarracin, 2003; Salabarría-Pena et al., 2003; Sutton et al., 1999), and the studies found that their models derived from the TpB were well fitted. However, findings suggested that an intervention to reduce risky sexual behavior needs to consider the characteristics of the population for which it is being developed. For instance, Brayn and colleagues (2002) reported that perceived behavioral control did not significantly predict the intention of condom use ( $\beta = -0.07$ ,  $p = \text{NS}$ ) among the inner-city high school freshman and female college student, but it significantly predicted the intention of condom use among male college students ( $\beta = 0.20$ ,  $p < 0.01$ ). A study with Latino immigrant women aged 18 to 50 found that all TpB components significantly predicted intention of condom use; attitude was the weakest predictor ( $\beta = 0.17$ ,  $p < 0.01$ ) and subjective norms, especially female friend's norm, was the strongest predictor ( $\beta = 0.34$ ,  $p < 0.001$ ) (Salabarría-Pena et al., 2003). Another study conducted by Sutton and colleague (1999) found that perceived behavioral control was not a significant predictor for explaining the intention of condom use in a national sample of English young people ( $n = 949$ , 16-24 years of age); only subjective norm and attitude predicted intention of condom use. Therefore, there is a need to examine whether the TpB is appropriate to explain Korean college students' intention of condom use and to identify which component is the strongest predictor to explain the intention of condom use.

In this study, male and female students shared a model to explain the intention of condom use with medium effect size,  $f^2=0.30$  for males;  $f^2=0.17$  for females (Cohen, 1992). All TpB components significantly predicted intention of condom use. In particular, condom efficacy (perceived behavioral control) was the strongest predictor of intention of condom use. Higher condom efficacy predicted higher intention of condom use.

Because it is believed that age, parent-child relationships, and perceived risk of sexual behavior may be important determinants to explain the intention of condom use, the roles of these variables in the models were examined as the alternative model (see Figure 12). Older students had higher condom efficacy ( $\beta= 0.19$ ,  $p< 0.01$  for males;  $\beta= 0.13$ ,  $p< 0.01$  for females) and had lower perceived peer norms to use condoms ( $\beta= -0.18$ ,  $p< 0.01$  for males;  $\beta= -0.14$ ,  $p< 0.01$  for females). Male students who had a good communication with their parents had a higher condom efficacy ( $\beta= 0.30$ ,  $p< 0.01$ ), but condom efficacy of female students was not affected by quality of parent-adolescent communication. Perceived risk of sexual behavior did not predict intention of condom use, nor was it affected by age. Although the alternative model which implies that age and parent-adolescent communication indirectly influence the intention of condom use increases explained variance for male students ( $R^2=0.23$  vs.  $R^2=0.26$ ), but the model shows a decrease in the explained variance of female students' intention of condom use ( $R^2=0.15$  vs.  $R^2=0.14$ ).

Therefore, the researcher concluded that the expanded model may be appropriate to explain the male students' intention of condom use, but the model with TpB components only was the good model to explain the female students' intention of condom use. These findings imply that sex education program in order to reduce risky sexual behavior may need to be developed differently for genders in spite that male and female students share a model. For

instance, an education program for males should include a program for parents, which includes how parents can show their affection and how they can communicate with their children to maintain a good quality of parent-adolescent relationship.

Sutton argued that condom use may not be a behavior under volitional control since it depends on availability and negotiation ability between two partner (Sutton et al., 1999), the study findings, however, suggested that condom use is a behavior under perceived behavioral control since perceived behavioral control was appropriately measured with three subscales of condom efficacy (factor loadings ranged from 0.73 to 0.86) for both genders. In this study, the TpB has demonstrated applicability of predicting condom use as a way to decrease risky sexual behavior within the Korean culture specifically.

## **6.8. RESEARCH QUESTION #8**

***Research Question #8: Is there a difference for sexual behavior between participants with experience of military service and no experience?***

As the researcher expected, students who had participated in military service engaged more in premarital sex than students who had not participated in the service ( $\chi^2(1) = 51.73$ ,  $p < 0.0001$ ), but there was no significant difference in condom use between students who had participated in military service and students who had not ( $\chi^2(1) 2.52$ ,  $p = 0.054$ ). In Korea, all males should do serve military service for two to three years during their 20s'. As males attend school this duty is deferred, but a Korean male cannot get a job without fulfillment of this mandatory service. Therefore, usually male students fulfill their military service sometime during college. Since males go away from home and live together with their peers during this period, males experience value (e.g., sexual value) changes.



Many Korean male students have their first sexual encounter before they go into the military or while they are in military service since engaging in sex and participated in military service are two major indicators to be adults for males; thus, males want to show their masculinity through these two incidents. Given these reasons, it is not surprising that students who had participated in military service showed a higher non-virgin rate. However, there is a need to examine a relationship between age and military service in a future study. The condom use rate was low and suggested that a program should be developed for this population. Again, the first two years of college would be a good teachable moment to promote sexual health since male students usually participate in military service before being a junior. Unfortunately, the researcher found that no study focused on impact of military service on sexual behavior is available. Thus, a descriptive study is a need in order to develop an education program in the future.

## **6.9. SECONDARY AIMS**

### **6.9.1. Secondary aims 1 & 2**

*Secondary aim1: To explore where students receive sex education in Korea*

*Secondary aim2: To describe contents of sex education which Korean college students have received.*

Most students receive sex education from schools. However, there is a need to modify the contents of the education program in order to provide more practical information. For instance, the current education program is only focused on HIV prevention. This type of education program might be helpful if students were all virgins and may promote safe sex. However, as this study shows, the perceived risks of sexual behavior did not affect the surveyed Korean college students' intention of premarital sex and condom use. This finding implies that Korean students

are still engaging in risky sexual behavior although they know the risks of sexual behavior, but students do not want to take HIV screening test as they perceived no benefits of the test and only perceived social stigma. Therefore, education focused only on HIV prevention can make students scared about contracting HIV, but they will not stop practicing risky sexual behavior. Therefore, there is a need to provide accurate information about HIV/AIDS which explains well not only HIV prevention but also HIV management.

As expected, little sex education was provided by Korean parents (0.8% - 12.0%). Because of the impact of Confucianism on Korean society, Korean parents believe that children should be sexually innocent until marriage (Bullough & Bullough, 1995) and that talking about sex encourages children's curiosity about sex. Therefore, no communication about sex is common, and children only perceived parental disapproval about premarital sex by a tacit communication. However, this tacit communication may be ineffective to control their children's sexual behavior, especially for males. As the study found, perceived parental disapproval of premarital sex was related to a higher intention of premarital sex for males. However, a good quality of parent-adolescent communication encourages male students' sexual abstinence efficacy. Thus, it is time to consider what, when, and how parents should communicate with their children about sexual health.

### **6.9.2. Secondary aim 3**

***Secondary Aim 3: To examine the relationships between intentions and actual sexual behaviors (premarital sex and condom use, respectively)***

There is a need to examine the relationships between intention and actual behaviors with an adequate sample size, using an advanced statistical approach (e.g., logistic regression). For instance, higher intention of condom use was significantly positively correlated with frequent

condom use for only females not males; however, no gender difference in the relationship was identified with the Z-test. A potential reason for this difference is related to the small sample size (e.g., numbers of eligible females for this analysis were 12). Furthermore, as mentioned earlier, bivariate correlations may not represent the true relationship between two variables in a multivariate model. Therefore, it is necessary to examine the discrepancy between intentions and actual behaviors with an adequate sample size and more advanced methods which measure a true relationship between two variables in a multivariate model as a next step.

#### **6.10. SUMMARY**

This study was conducted on a convenient sample of 320 undergraduate students who were attending a university in Seoul, Korea. Half (49.1%) of the male students was non-virgin, and around 12% of the female students had engaged in premarital sex. However, a lower rate of sexually active students had consistently used condoms in the year previous to the administering of the survey.

This study is focused on understanding Korean students' intentions of premarital sex and condom use. With regard to the model of premarital sex, premarital attitude was the strongest predictor of the intention of premarital sex for both genders. For males, three major components (attitude, perceived behavior control, subjective norms) explained the intention of premarital sex well; however, perceived behavioral control did not predict the intention of premarital sex for females. These findings imply that the TpB is a more appropriate theory for explaining the intention of premarital sex for male students, but the Theory of Reasoned Action is a better theory to explain the intention of premarital sex for females. Therefore, the question of whether engaging in premarital sex is a behavior under volitional control for females in Korean culture has been raised for a future study to examine. Although age affected students' perceived norms

of premarital sex for both genders in the same amount ( $\beta = -0.28$ ,  $p < 0.001$ ), and a better quality of parent adolescent communication increased the male students' sexual abstinence, these two variables did not make a model improvement compared to the model with only TpB components. Therefore, a model with only TpB components was chosen as the best model to explain the Korean college students' intention of premarital sex. Furthermore, a sexual abstinence program needs to be developed gender specifically with TpB only components.

In the model of condom use, the perceived behavioral control, condom efficacy, was the strongest predictor to explain the intention of condom use. Since according to Asian traditional norms it is not proper for a woman to discuss safe sex issues such as using condoms (Mensch et al., 2003; Youn, 1996), the researcher expected that female students would have lower condom efficacy than male students (Hypothesis 2.4). Hypothesis 2.4 was partially confirmed in this study; male students had higher condom efficacy in the two subscales of the condom efficacy, but there was no gender difference in terms of communication. Interestingly, Korean male and female students both shared a model to explain the intention of condom use with medium effect size -  $f^2 = 0.30$  for males,  $f^2 = 0.17$  for females. Although age and parent-adolescent communication indirectly influenced the intention of condom use and increased explained variance for male students ( $R^2 = 0.23$  vs.  $R^2 = 0.26$ ), the model with additional variables decreased the explained variance of female students' intention of condom use ( $R^2 = 0.15$  vs.  $R^2 = 0.14$ ). Thus, intervention for females needs to be developed based only on TpB components, with a special focus on ways to improve consistent condom use efficacy.

## 6.11. LIMITATIONS OF THE STUDY

The strengths of this study are: it is a theory-based study conducted with an adequate sample size to detect a significant difference with adequate power; also, it used cross-cultural instruments which showed good reliabilities. However, there were several limitations to this study.

Use of a cross-sectional correlation study design limited testing for the causal direction between intention and actual behavior which the Theory of Planned Behavior initially suggested. For examining primary aims, we could not include actual behavior in hypothesized models. Instead we examined the relationship between intention and actual behavior with spearman rank correlations as secondary aim. However, this approach created limitations as well. First, a predictive relationship is suggested between intention and actual behavior in TpB, but the researcher was only allowed to examine a concurrent relationship with spearman rank correlations. Thus, the predictive (or causal) relationship should be measured in a future study instead of looking at concurrent relationships. Second, as the researcher already addressed in 6.3, bivariate correlations may not correctly represent a true relationship when examining a multivariate model. Thus, the researcher tried to conduct a logistic regression to compensate for the limitation; however, the small number of sexually active students ( $n=60$ ) restricted use of logistic regression.

Use of a convenient sample also created a limitation regarding generalization. The participants were recruited from a university which is located in Seoul, Korea using self-referral and flyers. Because there are 200 universities in Korea and more than 57 universities are located in Seoul or the metropolitan Seoul area (Seoul and suburbs), the participants of this study may not represent all Korean college students, though they come from all over Korea and the

university has more than 20,000 students. Thus, there is a need to expand recruit sites in a future study.

Study of a sensitive topic created a limitation for the researcher in terms of being able to get honest answers. Therefore, the sensitive nature of the topic requires a cautious approach to interpreting and generalizing the findings. However, this study used several strategies to ensure the obtaining of accurate answers. First, the researcher used an anonymous method as the data collection method. All participants had a unique identification (ID) number and no direct contact was established to preserve anonymity. Thus, participants should have felt freer to provide accurate information to the researcher without a concern for lack of confidentiality. Second, an informational letter which described the purposes of the study and procedures of data protection addressed confidentiality issues. The information letter was included in each questionnaire packet. Third, the confidentiality issue was readdressed before students completed sensitive items (e.g., sexual history). Fourth, at the end of the Background and Sexual Behavior Questionnaire (BSBQ), the students were asked about the accuracy and honesty of their responses regarding this specific questionnaire. Lastly, the students were asked to record the accuracy level of the information which they provided to the researcher in the feedback questionnaires. Five participants reported that they provided dishonest answers either for the sensitive items in the BSBQ or the feedback questionnaires. Thus, these subjects' data were carefully reviewed (e.g., comparing their data with other students' data) before adding them for final data analyses.

Naturally, the use of self-reported measures means the answers were subjective, which in itself created limitations. It has been pointed out that a self-reported instrument can obtain different responses according to the perceived participants' discomfort regarding asked questions

and according to participants' honesty. Although this study had a small amount of missing data, a problem of internal consistency in the items related to sex history was detected. For instance, a student answered that he/she had had no sexual relationship in the previous 3 months, but the student reported having used condoms in the previous 3 months. One study found that a computer-assisted self-completion interview (CASI) improved internal consistency and a reduction in missed questions regarding HIV risky behavior over using pen-and-paper self-reported measures (Johnson et al., 2001). Thus, the researcher needs to consider using another approach such as CASI than a pen-and-paper self-reported measure and then compare the findings of the two different measures in the future. In addition, a way to reduce students' discomforts while completing questionnaires should be considered in a future study.

Another limitation is that uneven return rates may have skewed the results. Three hundred twenty of 550 (58.18%) student packets were issued using flyers and self-referrals. The return rate was higher than the 51.7% for the researcher's pilot study using the same method but lower than that of other anonymous studies examining a similar topic and using same age cohorts. For instance, Kang (2001) reported a 70% return rate for a study which examined a model for explaining condom use. Although it is difficult to clearly identify differences in the recruitment methods between this current study and Kang's study because Kang did not clearly report the data collection procedure, several differences could be identified: 1) the potential participants of this study were not recruited in classrooms, but Kang (2001) recruited her participants in classes with instructors' help. She contacted several instructors by telephone and letter to get permission to conduct a study, 2) students were asked to return an envelop containing completed questionnaires in this current study, but instructors collected the completed questionnaires and returned them to the researchers in Kang's study, 3) this study did not provide

students with a specific place (e.g., classroom) to fill out the questionnaires, but in Kang's study, students were asked to complete the questionnaires in a specific time and place (e.g., in class), and 4) persons who may have an influence on students' decision to participate in a study (e.g., instructors and student health service staff) did not work as data collectors in this study because the researcher followed the regulations of the University of Pittsburgh Institution Research Board (IRB) in the U.S.A. However, instructors worked as data collectors in Kang's study, distributing questionnaires at the beginning or ending of their classes.

The use of college students as participants limits the application of the results to other populations such as non-college students or middle adolescents. For this study, college students aged 18 to 25 were recruited from a university in Seoul, Korea. Although currently most Korean adolescents are involved in a school based on developmental stages, it is true that there are adolescents who do not attend a school. Furthermore, some same age cohorts attend vocational schools or universities located in other cities. Since other types of schools and regional environments can affect adolescents' intention and actual behavior regarding sex, the study findings can be applied to neither adolescents who are attending a vocational school nor to students at universities located in other regional areas. Furthermore, younger adolescents were excluded in this study. Thus, the findings can only be generalized to college students who attend a university in Seoul, Korea.

Multi-sample structural equation modeling (MSEM) also created some limitations. MSEM is appropriate for examining whether each group shares one model to explain outcome variables. This approach allows researchers to examine group differences without cumbersome interaction terms when testing the model (Scott-Lenos & Lennox, 1995); however, it is difficult to examine relationships between independent variables and a grouping variable (e.g., gender).



Therefore, if there are interaction effects between independent variables and a grouping variable, the findings interpreted by MSEM may be inaccurate.

Although there were several limitations to this study, the findings of this study are valuable to understand current trends of college students' sexual behavior. Thus, this study may be appropriate to test TpB in order to understand Korean college students' sexual behaviors for developing sex education programs in the future.

## **6.12. IMPLICATIONS FOR NURSING**

### **6.12.1. Research implications**

#### **6.12.1.1. A theory driven study**

A significance of this study is to provide Korean nurse researchers with insights into how a theory-driven study can guide an effective intervention. The Theory of Planned Behavior (TpB) explained the intention of premarital sex among the Korean college population well, and the theory provides a good model to guide the development of a sex education program. In this study, abstinence efficacy predicted the intention of premarital sex for males but not for females. The intention of premarital sex was influenced by subjective norms and attitude of premarital sex for both genders. Thus, male and female students had a different model to explain the intention of premarital sex. The hypothesized models derived from TpB had a large effect size. These facts would be helpful for researcher to use the TpB when designing a sex education program.

With regard to a model for explaining intention of condom use, male and female students shared one model with a medium effect size. Condom efficacy was the strongest predictor to explain the intention of condom use. This finding confirmed Ajzen's explanation of the relative importance of TpB components: The significance of TpB components varies depending on

behavior and population (Ajzen, 2005). In other words, predictors to explain a behavior can be different based on population and target behavior being studied.

Although the intentions of premarital sex and condom use were explained well by the TpB, our model did not include actual behavior; the researcher only partially tested a model using TPB. Thus, the relationship between intention and actual behavior is still questionable among this population. Given this perspective, a longitudinal study should be conducted in order to measure the relationship between intention and actual behavior before designing an intervention study. However, researchers need to consider special strategies to get contact information for a longitudinal study as an extension of the current study as Korea has a unique research environment, which the researcher addresses below (see 6.12.1.2).

Koreans consider a direct expression of differences of opinion with others as rude; yet, all behavior is nonverbally judged by a strict moral and ethical code, a central theme of Confucianism (Kwon-Ahn, 2001). Because Confucianism puts emphasis on the *Chemyon* (social face), every behavior is judged as either demeaning or protecting *Chemyon* (Behling & Law, 2000). People who debase *Chemyon* experience obstacles that affect their social relationships. Thus, due to the risk of judgment, Koreans do not want to reveal their identification anywhere when they participate in research regarding sensitive items (e.g. parental education level) or topics (e.g., sexual behavior); potential participants are reluctant to give researchers written consent. Because of this, most Korean social scientists prefer to conduct anonymous surveys, and it has been regarded as the best way to conduct a study which has a sensitive topic (e.g. sexual behavior). However, a cross-sectional study has the limitations addressed above. Thus, it is time to consider how researchers can collect data for a longitudinal study of a sensitive topic without

violating human subject rights. A suggestion regarding this issue is discussed in policy implication.

#### **6.12.1.2. Human rights protection**

In the U.S or the U.K, where top international journals are being published, all researchers conducting studies related to human subject behavior are required to get an approval from an Institutional Research Board (IRB) or to report strategies to protect human rights before they conduct a study. However, approval from an IRB and getting informed written consent forms from participants for survey studies are new concepts in Korea. Only a few hospitals have established boards to review survey studies in Korea. There is no regulation or formally organized review process for a survey conducted outside of hospitals in Korea.

As the research environment in Korea continues to change, there are increasing debates related to human rights. More and more Korean nurse researchers have been trying to report their findings in international journals in order to not only compare their finding with others but also develop their careers. Unfortunately, miscommunication exists about the procedures affecting papers getting accepted. Top journals expect researchers to report the procedures they performed to ensure protection of human subject rights during their study; however, Korean researchers, not being familiar with procedures to protect human subject rights, usually have little knowledge about human rights protection procedures; thus, the reported procedures by Korean researchers do not follow the regulations used by the U.S or the U.K. For instance, the term “anonymous study” is differently used in Korea. Direct contact may take place in an anonymous study. Korean researchers believe that a study is an anonymous study (which does not require written consent forms) if the researcher reports group data instead of individual data even if researchers interview individual participants after getting verbal consent from them (Kim, 1999).

Furthermore, in Korea it is believed that a researcher does not need to get consent and/or assent for a survey since it does not cause harm to the body. Therefore, it is common for researchers to conduct surveys dealing with a sensitive topic without obtaining written consent and parental consent for adolescents younger than 18 years old after getting assent from the adolescents. Given these facts, there is a need to inform investigators and potential subjects in Korea about human rights and to develop strategies to protect human rights in Korea. This study, then, can be considered valuable in this light as well: it can inform Korean researchers what the procedures of human rights protection are how to perform an anonymous study using the survey method.

### **6.12.2. Policy implications**

#### **6.12.2.1. Obtaining accurate statistics of descriptive information**

Administrators know that many students experience first sex during college and that the number of non-virgin students is increasing; however, they do not know exactly how many students are engaging in sexual behavior, or what topics student need education on since there have been no formal statistics reported. Administrators are concerned that a study which finds a higher rate of non-virgins among students will give the university a bad reputation. This fact was supported when the researcher met the person in charge at the university where participants for this study were found as well. While he gave permission to conduct a study there, he asked the researcher not to report the university name anywhere to protect the university.

As the researcher already addressed in Chapter 2, all statistics regarding adolescent sexual behavior in Korea come from the findings of individual researchers. There are no national based statistics to rely on for information about sexual health since premarital sexual behavior is not socially acceptable in Korea. Although the benefit of the present study is to provide insights to administrators, health educators, and researchers about current trends in sexual behavior, the

findings only provided local-based statistics with convenient samples. Thus, the reported statistics will receive less credit and be interpreted as underestimated or overestimated according to the persons' view and needs. This issue always occurs whenever researchers report their findings. Accurate statistics will be helpful to establish appropriate health policies and to develop a health education program for adolescents and young adults whose major health issue is risky sexual behavior. Therefore, it is time to plan the conducting of a national based survey by a formal organization like the CDC in the U.S.

An alternative way to collect national based data would be to use the school system. Because many adolescent aged 18 to 25 are involved in college and university, those places are good places to start to conduct such a survey. For instance, a student health service center in each college and university could conduct a survey of students in each grade using an anonymous method. Collected data could then be shared with local-level health educators or national-level health administrators to develop appropriate health education programs and policies.

To develop an effective sex education program, there is a need to find the gaps between the currently provided program and students' sexual behavior. For instance, the researcher found that a program which encourages reducing risky sexual behavior may be appropriate rather than a sexual abstinence program for Korean college students. Furthermore, a program based on promoting sexual abstinence would be more effective for males not females. However, this finding is in the opposite direction of the programs which are currently provided. Currently, Korean school administrators and policy makers still focus on a developing sexual abstinence program which follows cultural and social expectations, and the sexual abstinence program has been designed for females not for males because it is believed that the male sexual drive can't be voluntarily controlled like females, and because female students are expected to remain virgins.

Therefore, there may be a gap between provided sex education and students' needs. A national-based survey or university level survey may reduce this gap and detect changing patterns to provide an insight for the future direction of a health education program without creating concerns about a bad reputation of a university.

#### **6.12.2.2. Content and timing of sex education**

The content of sex education should be modified to cover more practical issues. As the researcher addressed in the secondary aims 1 and 2, currently delivered sex education programs contain more theoretical content, which is far from students' needs. Because many college students are sexually active during their college period, this period is a very important time to educate the students in order to consolidate health promoting behavior, which will influence their current and future health. In addition, this period is the last chance to provide adolescents and young adults with a formal in-school education program. The result of effective health education programs will be improvements in public health in the future, so they are an important aspect of student education. Therefore, health educators should effectively use the college period in order to provide practical and accurate information based on students' needs to promote their health.

#### **6.12.3. Clinical implications**

The findings from this study illuminate "why" and "how" Korean college students decide to engage in sexual behavior. Thus, the information has utility for nurse educators who work with this population, specifically, as the educators develop intervention programs. Information from the study also shares with nurse educators conditions in which Korean college students engage in health promotion behavior such as consistent condom use. For the targeted sample in this study, Korean college students, the influence of students' perceived parental disapproval on premarital sex, differed for each gender.

Perceived parental disapproval did not affect intention of premarital sex for male students; however, parental disapproval worked as a good predictor to explain intention of female students' sexual abstinence. Furthermore, abstinence efficacy was a significant predictor to explain the intention of premarital sex for men, but not for women. As the researcher addressed in the section on policy implications, this study's findings suggested that males should be educated regarding sexual abstinence. Based on the study's findings, an effective education program for sexual abstinence may need to include activities in which students are actively involved. For example, a peer group discussion that focuses on the advantages and disadvantages of premarital sex for male and female students may be more effective than information delivered by lecture. A good way to reduce risky sexual behavior as suggested in the review of literature is through peer group discussions especially when students are already engaging in sex.

Findings from this study also suggest that schools can serve as the sites for holding such discussions and for conducting prevention interventions. Because most Korean students are in school given their developmental stages and school based programs are easy to access, school based intervention program may be effective in reducing risky sexual behavior. Findings from this study further suggest that strategies for developing effective school based prevention programs to reduce risky sexual behavior must be considered. Additionally, the findings from this study suggest that designing a program to effectively communicate parental norms on premarital sex to female Korean students is needed.

As the researcher addressed in looking at cultural impact and parent adolescent communication in the review of literature, Korean parents need help when they talk with their children about issues related to sex. Korean parents are not culturally educated to talk about such issues with their children. Thus, a school based program designed to assist Korean parents to

effectively talk with their children about sexual issues often times viewed as quite sensitive should be implemented.

Condom efficacy was the strongest predictor to explain the intention of condom use in this study. Therefore, encouraging student confidence to use condoms appears to be important in the Korean college student population. In particular, sex education programs need to encourage male students' confidence so that they can correctly use condoms. For female students, although they are directly affected by the negative health outcomes of sexual behavior such as unintended pregnancy and getting STDs, they appear to have more difficulty performing safer sex than female students living in westernized culture since they have difficulty getting condoms without social stigma. Thus, Korean female students are more likely to follow their partners' decisions to use a condom regardless of their own intention. Corroboration between policy makers and educators is, therefore, required in order to make condoms accessible and to teach female students how to use them without concerns about social stigma. Researchers and health educators must remember that an education program can be successful only when a target behavior is under volitional control and the program meets the students' needs.

Information from this study supports beginning sex education program for Korean students early in order to reduce risky sexual behaviors found among Korean college students. Although only few students are engaged in sexual behavior in middle adolescence and sexual behavior is not a prevalent behavior among Korean middle adolescents, the impact of negative consequences of sexual behavior can be much greater for late adolescents. Thus, middle adolescents may be an appropriate target population for reducing risky sexual behavior. There is a need therefore to replicate this study among middle adolescents to examine the effectiveness of the TpB to develop the education program for them.



## 6.13. FUTURE RESEARCH DIRECTION

### 6.13.1. Exploratory studies

1. Other adolescent populations: There is a need to replicate this study using other populations such as middle adolescents and non-student populations. If the studies share the same model, the findings of the studies can be applied in order to develop education programs for these populations as well. If they have a different model, researchers need to identify what similarities and differences exist between the findings of this study and theirs. These efforts may guarantee development of an effective sex education program based on the characteristic of population for Korean adolescents.

2. Korean-Americans/ Asian Americans: The TpB has demonstrated applicability to explain Korean students' intentions to engage in premarital sex and to use condoms as a way to decrease risky sexual behavior; however, the questions of whether this relationship exists for Korean and other Asian immigrants in the U.S., and how their intentions of the behaviors are affected by acculturation remain.

Acculturation profoundly affects a person's behavior and health. According to the Acculturation Theory, acculturation can occur when two or more cultures interact together (Suinn, Ahuna, & Khoo, 1992). The exposure to another culture can lead persons to resist changing their values and behavioral competencies from the parent culture and to adopt the host culture's values and behavioral skills (Suinn et al., 1992). Therefore a study which examines the impact of acculturation on the TpB components is an interesting topic for a future study.

Although there may be those who criticize expanding the findings of this study to Asian Americans since Asian persons have unique characteristics based on their parent cultures, it is true that Asians share common values such as high regard for collectivism, filial piety and

academic achievement. Thus, a scale such as the Asian Value Scale which was designed to measure 6-domain ethnic cultural values which are highly valued by Asians coming from Confucian society -collectivism, conformity to norms, emotional self-control, family recognition through achievement, filial piety, and humility- could allow a researcher to examine the acculturation impact of the hypothesized model with TpB components. Thus, a study using appropriate measures could allow a researcher to generalize findings to diverse groups of Asian-Americans who share common values instead of one specific population (e.g., Korean Americans).

3. Diverse approaches for collecting data: To obtain accurate information is an important issue for a study with a sensitive topic. As the researcher addressed in limitation 6, a computer-assisted self-completion interview (CASI) may be helpful to obtain accurate and consistent responses. Furthermore, a qualitative study can be an alternative to getting information about who is engaging in sex and why adolescents participate in risky sexual behavior.

4. Model for including sexual history: A major aim of this study was examining gender difference to explain intention of premarital sex and condom use. Thus, the variables related to sexual history did not include the models as a predictor. However, it is possible sexual history interacts with TpB components which would create different findings. Thus, there is a need to add variables related to sexual history in a study to test a model.

5. Oral sex: there is increasing evidence of the risks of oral sex (e.g., oral cancer, pharyngeal gonorrhea), but Korean students have little knowledge about these risks. As specific aim 1 shows, many non-virgin students concurrently experienced oral sex; however, as far as the researcher is aware, there is no study to explore students' perceived risks of oral sex in Korea. Thus, there is a

need to conduct a study to get information about students' perception of oral sex to develop a sex education program with this topic.

### **6.13.2. Longitudinal studies**

A longitudinal study needs to test a full causal model, which the TpB originally created. Furthermore, it will be interesting to see whether the hypothesized models need to be changed according to the age of the participants.

### **6.13.3. Intervention studies.**

Culturally sensitive gender-specific sexual education programs should be developed based on the findings of this study. First, there is a need to develop education programs for parents. As the alternative model shows, the quality of parent-adolescent communication directly and indirectly affected the intention of sexual behavior (premarital sex, condom use). Furthermore, parental norms of premarital sex significantly influenced the intention of premarital sex. Studies have found that adolescents who perceived mothers' disapproval were less likely to engage in premarital sex. Because Koreans value filial piety, open communication regarding parental norms of premarital sex and safe sex may be more valuable in ensuring sexual abstinence and can facilitate reduction of risky sexual behavior more than in other cultures. As the findings of this study show, many Korean students perceived parental disapproval of premarital sex, but the relationship between parental disapproval and intention of sexual abstinence was not significant or had a weaker relationship than the relationship between peers norms of premarital sex and intention of premarital sex for males; a highly perceived mothers' disapproval did not affect students' intention of sexual abstinence ( $r=0.12$ ,  $p=NS$ ), and the fathers' disapproval of sexual behavior was weaker ( $r=0.18$ ,  $p=NS$ ). In addition, many students reported no perceived parental norms regarding condom use. Therefore, a study employing an intervention for parents needs to

teach parents how to effectively communicate with their children about abstaining from engaging in sexual behavior and reducing risky sexual behavior.

Second, an intervention study should include a way to control peer pressure for male students and to utilize peer assistance as a resource for obtaining accurate information regardless of gender. For instance, a health educator could develop a web-based sex education program and ask students to enroll in the program. In the program, the educators would provide diverse scenarios related to sexual health in order to encourage free discussion among students (e.g., abortion, sexual abstinence). The web education program should contain an anonymous bulletin board as a way to communicate students' concerns and experiences of sexual behavior. Primarily, the educator does not actively work in the bulletin board, but the board can be used for the educator to monitor what students' needs are.

Third, although previous sex education programs have focused on sexual abstinence for female students rather than male students, this type of program may not be appropriate for Korean college students if the goal is to reduce the prevalence of premarital sex. The findings of the study suggested that an effective sex education program would encourage sexual abstinence for male students. That is, different approaches than those used in the current program are needed for this population.

**APPENDIX A. INSTRUMENTS (KOREAN/ENGLISH)**

## 안내문

이 연구의 목적은 연구자의 박사 논문을 위해 Ajzen의 이론에서 나오는 변수들이 얼마나 대학생의 혼전 성행동과 콘돔 사용에 대한 의도를 설명하는 지를 보기 위한 것입니다. 만약 당신이 이 연구에 참여하기를 원하신다면, 우리는 당신에게 콘돔사용과, 혼전 성관계에 대한 태도, 자아효능감, 주변 사람들의 가치관, 그리고 실제 그러한 행동을 할 의도가 있는지를 물을 것입니다. 연구에 응하고자 하는 학생은 수업시간에 배부되어진 설문지나 학교 보건소에 비치된 설문지에 답한 후, 동봉된 봉투에 넣어 2 주안에 저에게 돌려주시면 됩니다. 모든 설문지를 작성하시는 데 걸리는 시간은 약 45 분으로 예상하고 있습니다. 이 연구에 참여하시는 것 그 자체로 당신은 눈에 띄는 해를 입거나 이익을 얻기는 못할 것입니다. 모든 설문지는 철저히 무기명으로 작성되어질 것이며, 당신의 신분이 노출되는 경우는 절대 없을 것입니다. 모든 답변은 비밀에 부쳐질 것이며, 결과를 담은 설문지를 잠금장치가 있는 캐비닛에 보관될 것입니다. 이 연구에 참여하는 것은 완전히 당신의 자유의사에 달려 있으며, 당신은 언제든지 이 연구에 응하지 않으실 수 있습니다. 이 연구는 피츠버그 대학 간호학과 박사과정에 재학중인 차은석의 박사과정의 일부분이며, 질문이 있는 경우 언제든지 이메일 ([euc6@pitt.edu](mailto:euc6@pitt.edu)) 또는 전화를 주시면( 412-683-3649(미국) 또는 82-32-887-5959 (한국)) 성실히 답변하겠습니다.

## INFORMATIONAL SCRIPT

The purpose of this study is to examine variables derived from the Ajzen's Theory of Planned Behavior to explain premarital sex and condom use intention in Korean college students. If you decide to take part in this research, we will be to ask you about your attitude, subjective norms, and intention toward premarital sex and using condom. For that reason, we will be surveying college students from who are willing to participate this research. Potential participants will get the packet of the instruments in a classroom or the student health service center. Students will be asked to return the survey packet within two week with a self-addressed envelope or a collecting box. The completion of the questionnaires will take about 45 minutes. There are no foreseeable risks associated with this project, nor are there any direct benefits to you. Each participant will receive a magnetic of our appreciation. This is entirely anonymous questionnaire, and so your response will not be identifiable in any way. All responses are confidential and results will be kept under lock and key. Your participation is voluntary, and you may withdraw from this project at any time. This study is being conducted by Eunseok Cha (University of Pittsburgh School of Nursing), who can be reached at [euc@pitt.edu](mailto:euc@pitt.edu) / 412-683-3649(USA) or 82-32-887-5959(Korea), if you have any questions.

#ID \_\_\_\_\_ 학년 \_\_\_\_\_

학과 \_\_\_\_\_

다음중 해당 칸에 적절한 내용을 적거나 마크해 주십시오.

1. 당신의 국적은? \_\_\_\_\_
2. 결혼상태는?  
a. 미혼                      b. 기혼                      c 기타 \_\_\_\_\_
3. 다른 사람의 눈에 띄는 신체적 장애를 가지고 계십니까? a. 예                      b. 아니오
4. 당신의 생년 월일은? \_\_\_\_\_년 \_\_\_\_\_월
5. 당신의 성별은? a. 남자                      b. 여자
6. 어디에서 사시나요?  
a. 기숙사                      b. 부모님 집                      c. 친척집                      d. 자취                      e. 하숙                      f. 기타 \_\_\_\_\_
7. 누구랑 함께 사십니까  
a. 혼자                      b. 부모님과 함께                      c. 형제, 자매 (부모님 없이)  
d. 동성친구                      e. 이성친구                      f. 친척
8. 우리집의 수입정도는?  
a. 100 만원 이하                      b. 1,000,001 원-2,000,000 이하  
c. 2,000,001 원 -3,000,000 원 이하                      d. 3,000,001 원-4,000,000 이하  
e. 4,000,001 원 -7,000,000 원 이하                      f. 7,000,001 원 이상
9. 방값을 제외한 돈으로 한달에 얼마 정도의 돈을 쓰십니까?  
a. 10 만원 이하                      b. 10 만 1 천원--20 만원 이하  
c. 20 만 1 천원 --30 만원 이하                      d. 30 만 1 천원 -40 만원 이하  
e. 40 만 1 천원—50 만원 이하                      f. 50 만 1 천원--70 만원 이하  
g. 70 만 1 천원—100 만원                      h. 100 만 1 천원 이상
10. 당신의 용돈은 어디에서 얻게 됩니까 (해당칸에 모두 마크해 주십시오)  
a. 부모님                      b. 아르바이트—7-1 로 갈 것                      c. 기타 \_\_\_\_\_

10-1 만약 아르바이트를 하고 있다면, 아르바이트로 번돈에서 자신의 용돈(방값 제외)을 뺀 여분의 돈을 적어주십시오.

(수입 (    만    천원)- 지출 (    만원    천 원)=    만원    천)

10-2 만약 여분으로 남는 돈이 있다면 어떻게 하십니까? \_\_\_\_\_



#1-- ID \_\_\_\_\_ Year of your study \_\_\_\_\_ Major \_\_\_\_\_

**Please X that which best describes or writes you and your situation an appropriate answer.**

1. Your nationality \_\_\_\_\_

2. What is your marital status? a. Never married b. Married c. Other \_\_\_\_\_

3. Do you have any physical impairment? a. Yes b. No

4. Date of Birth (mm /yy )

5. What is your gender? a. Male b. Female

6. Where do you live?  
a. Dormitory b. Parent's house c. Relative's house  
d. Apartment e. Boarding house f. Other \_\_\_\_\_

7. Who do you live with?  
a. With myself b. With my parents  
c. With siblings d. With my friend (Same sex)  
e. With Girl/ Boyfriend f. With my relatives

8. What is your parents' income per month?  
a. Less than 1,000,000 won b. 1,000,001-2,000,000 won  
c. 2,000,001-3,000,000 won d. 3,000,001- 4,000,000 won  
e. 4,000,001-7,000,000 won f. More than 7,000,001 won

9. How much money does spend per month excluding rent?  
a. Less than 100,000 won b. 100,001-200,000 won  
c. 200,001-300,000 won d. 300,001- 400,000 won  
e. 400,001- 500,000 won f. 500,001-700,000 won  
g. 700,001-1,000,000 won h. More than1,000,001 won

10. From which source do you receive money? (please X all your answers)  
a. Parents b. Part-time job c. Other \_\_\_\_\_

10-1. If you have a part-time job, please subtract your monthly expenditures (excluding rent) from your monthly income  
{ Income ( \_\_\_\_\_ won) – Expenditure ( \_\_\_\_\_ won) = \_\_\_\_\_ won}

10-2. If you still have some money after your expenditures, what do you do with it? ( \_\_\_\_\_ )

11. 현재 당신은 애인 (단순한 동성이나 이성친구가 아닌 남자친구 또는 여자 친구)이 있습니까?

- a. 없음
- b. 있음-- 1명
- c. 있음—2명
- d. 있음—3명
- e. 있음—4명 이상

\*아래의 두 문항은 남학생의 경우만 대답하여 주십시오.

12. 당신의 입영 대상은?

- a. 현역
- b. 단기 사병
- c. 공익요원
- d. 면제

13. 만약 당신이 현역으로 입영을 해야 하는 상태라면 언제 군대를 갈 생각이십니까?

- a. 이미 마침
- b. 6개월 이내
- c. 1년 이내
- d. 2년 이내
- e. 2년 이후

\* 다음은 당신의 성 관련 특성에 대한 질문입니다. 아래 문항들에 대한 오답이나 정답은 없습니다. 다음의 질문들을 읽고 당신은 쑥스러움이나, 창피함을 느낄 수도 있을 것입니다만, 당신의 정직한 대답은 올바른 성교육 프로그램에 큰 도움이 됩니다. 또한, 모든 설문지는 무기명으로 처리되며 설문지는 보안이 철저히 관리되어질 것임을 다시 한번 약속 드립니다.

14. 자기 자신이 생각하는 자신의 성적 취향은?

- a. heterosexual(이성애)
- b. homosexual(동성애)
- c. bisexual (양성애)

15. 성에 대해 당신은 어떤 견해를 가지고 있습니까?

- a. 매우 보수적
- b. 보수적
- c. 개방적
- d. 매우 개방적

16. ‘성관계를 갖는다’는 말에는 vaginal sex, anal sex, oral sex 등이 포함 됩니다. 자신이 알고 있는 한, 얼마나 많은 당신의 친구들이 성관계를 가진적이 있습니까?

- a. 대부분
- b. 반정도
- c. 몇 명
- d. 한두명
- e. 전혀 없음







25. 첫 성교시 피임은? (해당 되는 것에 전부 마크할 것)

- a. 안했음
- b. 콘돔
- c. 질외사정
- d. 월경 주기법
- e. 경구피임법
- f. 기타\_\_\_\_\_

26. 지난 3 개월 동안 성관계를 가진 적이 있습니까?

- a. 없음
- b. 있음—한두번
- c. 있음—한달에 한번
- d. 있음-1 주일에 한번
- e. 있음—1 주일에 두번 이상

27. 지난 3 개월 동안 어떤 피임 방법을 사용했습니까 (또는 사용하고 있습니까)? (전부 마크할 것)

- a. 사용하지 않음
- b. 콘돔
- c. 질외사정
- d. 월경 주기법
- e. 경구피임법
- f. 기타\_\_\_\_\_

28. 지난 3 개월 동안 얼마나 자주 콘돔을 사용했습니까?

- a. 매번
- b. 자주
- c. 반정도
- d. 가끔
- e. 전혀 안함

29. 현재의 파트너와 처음 관계를 가지기 시작할 때 얼마나 자주 콘돔을 사용했습니다.

- a. 매번
- b. 자주
- c. 반정도
- d. 가끔
- e. 전혀 안함

30. 지난 1 년동안 당신의 sex 파트너는 몇 명이었습니까?

- a. 1 명
- b. 2 명
- c. 3 명
- d. 4 명
- e. 5 명
- f. 여섯명 이상

31. 이제까지 얼마나 자주 술이나 약물을 섭취한 다음 성관계를 가졌습니까?

- a. 없음
- b. 딱 한번
- c. 반정도
- d. 대부분
- e. 항상

25. What kind of contraceptive(s) did you use the first time? (Please mark all that apply)

- a. None                      b. Condom                      c. Coitus interruptus (Withdrawl)  
d. Natural family planning              e. Oral pills              f. Other(                      )

26. In the last three months, have you ever had sexual intercourse?

- a. No                      b. Yes, once or twice                      c. Yes, once a month  
d. Yes, once a week                      e. Yes, more than twice in a week

27. In the last three months, what kind of contraceptive(s) did you use?

(Please mark all that apply)

- a. None                      b. Condom                      c. Coitus interruptus (withdrawl)  
d. Natural family planning              e. Oral pills                      f. Other (                      )

28. In the last three months, how often did you use a condom when having sex?

- a. Always                      b. Often                      c. Half of the time  
d. Sometimes                      e. None

29. In the beginning of the relationship with your current partner, how often do you or your partner use a condom when having sex?

- a. Always                      b. Often                      c. Half of the time  
d. Sometimes                      e. None

30. How many different people have you had sexual intercourse with in the last 12 months?

- a. 1                      b. 2  
c. 3                      d. 4  
e. 5                      f. More than 6

31. How often do you have sexual intercourse after drinking alcohol or using drug?

- a. Never                      b. Once in a while                      c. Half of the time  
d. Most of the time                      e. Always

32. 술이나 약물을 섭취한 다음 성관계를 가진 경우, 얼마나 자주 콘돔 사용을 했습니까?

- a. 없음
- b. 가끔
- c. 반정도
- d. 자주 (대부분)
- e. 항상

33. 당신 (또는 상대방)은 임신한 적이 있습니까?

- a. 없음
- b. 있음, 1 번
- c. 있음, 2 번
- d. 있음, 3 번
- e. 있음, 4 번 이상

34. 당신 (또는 상대방)은 낙태한 적이 있습니까?

- a. 없음
- b. 있음, 1 번
- c. 있음, 2 번
- d. 있음, 3 번
- e. 있음, 4 번 이상

\* 다음의 4 문항에 대해서는 자신이 생각하는 점수를 적어주십시오 (매우 그렇지 않다=1; 매우 그렇다=10).

35. 당신은 자신을 보호하지 않은 sex (예: 콘돔을 사용하지 않는 경우)가 위험하다고 생각하십니까? ( /10)

36. 당신이 성병이나 에이즈에 걸릴 확률은?( /10)

37. 당신 또는 당신 파트너가 혼전 관계에서 임신할 확률은?( /10)

38. 다른 사람과 비교해서 당신 자신의 위험지수는?( /10)

1. 위의 질문에 모두 대답하셨습니까?	a. 예	b. 아니오		
2. 질문에 대해 정직하고 진실되게 답하셨습니까?	a. 매우 그렇다	b. 그렇다	c. 그렇지 않다	d. 매우 그렇지 않다





어머니-자녀간의 대화에 대한 설문지

다음은 당신과 당신의 어머니에 대한 질문입니다. 가장 적당하다고 생각하는 칸에 마크해 주십시오

	전혀 그렇지 않다.	그렇지 않다.	보통 이다.	그렇 다.	매우 그렇다
1. 나의 신념에 관해서 거리낌이나 창피함 없이 엄마에게 이야기 할 수 있다.					
2. 엄마가 내게 말하는 것을 때로는 믿기가 힘들다					
3. 엄마는 언제나 내 말을 경청해 준다.					
4. 내가 원하는 것을 엄마에게 요구하는 것이 때로는 어렵다.					
5. 엄마는 말하지 않는 편이 나은 얘기를 나에게 말해버리는 경향이 있다.					
6. 엄마는 나에게 물어보지 않고도 내 기분이 어떤지를 안다.					
7. 나는 엄마와 의사소통 하는 방식에 대해서 매우 만족한다..					
8. 만약 나에게 문제가 생기면 나는 엄마에게 이야기 할 것이다.					
9. 나는 엄마에게 애정을 솔직하게 표현한다.					
10. 우리 사이에 문제가 생기면, 나는 자주 엄마(의 의견) 를 무시한다.					
11. 나는 엄마에게 얘기하는 내용에 대해서 조심한다.					
12. 엄마와 이야기 할 때, 나는 말하지 않는 편이 나은 얘기를 말해버리는 경향이 있다.					
13. 나의 질문에 엄마는 정직하게 대답을 한다.					
14. 엄마는 내 관점에서 이해하려고 노력한다.					
15. 내가 엄마와 토론하기를 피하는 주제들이 있다.					

### Mother-Adolescent Communication Scale

These are some questions about you and your mother. Please fill in the circle that best describes the way you feel					
	Strongly disagree	Moderatel y disagree	Neither agree nor disagree	Modera tely agree	Strongly agree
1. I can discuss my beliefs with my mother without feeling restrained or embarrassed					
2. Sometimes I have trouble believing everything my mother tells me					
3. My mother is always a good listener					
4. I am sometimes afraid to ask my mother for what I want					
5. My mother has a tendency to say things to me which would be better left unsaid					
6. My mother can tell how I'm feeling without asking					
7. I am very satisfied with how my mother and I talk together					
8. If I were in trouble, I could tell my mother					
9. I openly show affection to my mother					
10. When we are having a problem, I often give my mother the silent treatment					
11. I am careful about what I say to my mother					
12. When talking to my mother, I have a tendency to say things that would be better left unsaid					
13. When I ask questions, I get honest answers from my mother					
14. My mother tries to understand my point of view					
15. There are topics I avoid discussing with my mother					

	전혀 그렇지 않다.	그렇지 않다.	보통 이다.	그렇 다.	매우 그렇다
16. 나는 엄마와 문제를 상의하는 것이 쉽다.					
17. 엄마에게 나의 모든 진실된 감정을 표현하는 것은 매우 쉽다.					
18. 엄마는 나를 귀찮게 한다.					
19. 엄마는 나에게 화가 나면 나를 모욕한다.					
20. 나는 엄마에게 어떤 것에 대해서 내가 어떻게 느끼는지를 이야기할 수 있다고 생각하지 않는다.					

	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
16. I find it easy to discuss problems with my mother					
17. It is very easy for me to express all my true feelings to my mother					
18. My mother nags/bothers me					
19. My mother insults me when she is angry with me					
20. I don't think I can tell my mother how I really feel about something					

아버지-자녀 대화 설문지

다음은 당신과 당신의 아버지에 대한 질문입니다. 가장 적당하다고 생각하는 칸에 마크해 주십시오

	전혀 그렇지 않다.	그렇지 않다.	보통 이다.	그렇 다.	매우 그렇다
1. 나의 신념에 관해서 거리낌이나 창피함 없이 아버지께 이야기 할 수 있다.					
2. 아버지가 내게 말하는 것을 때로는 믿기가 힘들다					
3. 아버지는 언제나 내 말을 경청해 준다.					
4. 내가 원하는 것을 아버지에게 요구하는 것이 때로는 어렵다.					
5. 아버지는 말하지 않는 편이 나은 얘기를 나에게 말해버리는 경향이 있다.					
6. 아버지는 나에게 물어보지 않고도 내 기분이 어떤지를 안다.					
7. 나는 아버지와 의사소통 하는 방식에 대해서 매우 만족한다.					
8. 만약 나에게 문제가 생기면 나는 아버지에게 이야기 할 것이다.					
9. 나는 아버지에게 애정을 솔직하게 표현한다.					
10. 우리 사이에 문제가 생겼을 때 나는 때때로 더 이상 그 문제에 대해 아버지와 말을 하지 않고 넘어가곤 한다.					
11. 나는 아버지에게 얘기하는 내용에 대해서 조심한다.					
12. 아버지와 이야기 할 때, 나는 말하지 않는 편이 나은 얘기를 말해버리는 경향이 있다.					
13. 나의 질문에 아버지는 정직하게 대답을 한다.					
14. 아버지는 내 관점에서 이해하려고 노력한다.					
15. 내가 아버지와 토론하기를 피하는 주제들이 있다.					

### Father-Adolescent Communication Scale

These are some questions about you and your father. Please fill in the circle that best describes the way you feel					
	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
1. I can discuss my beliefs with my father without feeling restrained or embarrassed					
2. Sometimes I have trouble believing everything my father tells me					
3. My father is always a good listener					
4. I am sometimes afraid to ask my father for what I want					
5. My father has a tendency to say things to me which would be better left unsaid					
6. My father can tell how I'm feeling without asking					
7. I am very satisfied with how my father and I talk together					
8. If I were in trouble, I could tell my father					
9. I openly show affection to my father					
10. When we are having a problem, I often give my father the silent treatment					
11. I am careful about what I say to my father					
12. When talking to my father, I have a tendency to say things that would be better left unsaid					
13. When I ask questions, I get honest answers from my father					
14. My father tries to understand my point of view					
15. There are topics I avoid discussing with my father					

	전혀 그렇지 않다.	그렇지 않다.	보통 이다.	그렇 다.	매우 그렇다
16. 나는 아버지와 문제를 상의하는 것이 쉽다.					
17. 아버지에게 나의 모든 진실된 감정을 표현하는 것은 매우 쉽다.					
18. 아버지는 나를 귀찮게 한다.					
19. 아버지는 나에게 화가 나면 나를 모욕한다.					
20. 나는 아버지에게 어떤 것에 대해서 내가 어떻게 느끼는지를 이야기할 수 있다고 생각하지 않는다.					



	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
16. I find it easy to discuss problems with my mother					
17. It is very easy for me to express all my true feelings to my mother					
18. My mother nags/bothers me					
19. My mother insults me when she is angry with me					
20. I don't think I can tell my mother how I really feel about somethings					

## 혼전 성행동에 대한 태도 설문지

다음의 질문들에서 우리는 당신이 어떻게 느끼는 지를 알고 싶습니다. 당신은 다음의 행동을 실제로 하고 있을 수도 있고, 그렇지 않을 수도 있을 것입니다만, 우리는 당신이 **지금의 당신 나이**에서 다음의 행동을 하는 것에 대해 어떤 느낌을 가지고 있는지를 알고 싶습니다. 해당 칸에 동그라미로 마크해 주십시오.

1. 윤락녀(남)와 결혼전에 kiss 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
2. 한 두번 데이트한 상대와 결혼 전에 kiss 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
3. 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 결혼전에 kiss 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
4. 사랑하고 있는 상대와 결혼전에 kiss 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
5. 약혼했을 경우에 결혼전에 kiss 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
6. 윤락녀(남)와 결혼전에 가벼운 애무 (light petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
7. 한 두번 데이트한 상대와 결혼 전에 가벼운 애무 (light petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
8. 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 결혼 전에 가벼운 애무 (light petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
9. 사랑하고 있는 상대와 결혼 전에 가벼운 애무 (light petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.
10. 약혼 했을 경우에 결혼 전에 가벼운 애무 (light petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.

## PREMARITAL ATTITUDE SCALE

In the following questions we are interested in how **YOU feel**. You may or may not be doing the following behaviors listed right now but we are interested in how you would feel about doing the following behaviors at **your present age**. Please darken the circle to indicate the degree of agreement or disagreement that you have with each of the statement below.

1. Kissing is okay for me before marriage with sex worker

Strongly agree                      Agree                      Disagree                      Strongly disagree

2. Kissing is okay for me before marriage when I've gone out once or twice with my boyfriend/  
girlfriend

Strongly agree                      Agree                      Disagree                      Strongly disagree

3. Kissing is okay for me before marriage when I really like my boyfriend/girlfriend or am going  
steady

Strongly agree                      Agree                      Disagree                      Strongly disagree

4. Kissing is okay for me before marriage when I am in love

Strongly agree                      Agree                      Disagree                      Strongly disagree

5. Kissing is okay for me before marriage if I am engaged to be married

Strongly agree                      Agree                      Disagree                      Strongly disagree

6. Light petting is okay for me before marriage with sex worker

Strongly agree                      Agree                      Disagree                      Strongly disagree

7. Light petting is okay for me before marriage when I've gone out once or twice with my  
boyfriend/ girlfriend

Strongly agree                      Agree                      Disagree                      Strongly disagree

8. Light petting is okay for me before marriage when I really like my boyfriend / girlfriend or am  
going steady

Strongly agree                      Agree                      Disagree                      Strongly disagree

9. Light petting is okay for me before marriage when I am in love

Strongly agree                      Agree                      Disagree                      Strongly disagree

10. Light petting is okay for me before marriage if I am engaged to be married

Strongly agree                      Agree                      Disagree                      Strongly disagree

11. 윤락녀(남)와 결혼전에 진한 애무 (heavy petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
12. 한 두번 데이트한 상대와 결혼 전에 진한 애무 (heavy petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
13. 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 결혼 전에 진한 애무 (heavy petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
14. 사랑하고 있는 상대와 결혼 전에 진한 애무 (heavy petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
15. 약혼 했을 경우 결혼 전에 진한 애무 (heavy petting)를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
16. 윤락녀(남)와 결혼전에 성관계를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
17. 한 두번 데이트한 상대와 결혼 전에 성 관계를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
18. 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 결혼 전에 성관계를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
19. 사랑하고 있는 상대와 결혼 전에 성관계를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
20. 약혼 했을 경우 결혼 전에 성관계를 하는 것은 괜찮다고 생각한다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

11. Heavy petting is okay for me before marriage with sex worker  
Strongly agree                      Agree                      Disagree                      Strongly disagree

12. Heavy petting is okay for me before marriage when I've gone out once or twice with my boyfriend/ girlfriend  
Strongly agree                      Agree                      Disagree                      Strongly disagree

13. Heavy petting is okay for me before marriage when I really like my boyfriend/ girlfriend or am going steady  
Strongly agree                      Agree                      Disagree                      Strongly disagree

14. Heavy petting is okay for me before marriage when I am in love  
Strongly agree                      Agree                      Disagree                      Strongly disagree

15. Heavy petting is okay for me before marriage if I am engaged to be married  
Strongly agree                      Agree                      Disagree                      Strongly disagree

16. Sexual intercourse is okay for me before marriage with sex worker  
Strongly agree                      Agree                      Disagree                      Strongly disagree

17. Sexual intercourse is okay for me before marriage when I've gone out once or twice with my boyfriend/ girlfriend  
Strongly agree                      Agree                      Disagree                      Strongly disagree

18. Sexual intercourse is okay for me before marriage when I really like my boyfriend/ girlfriend or am going steady  
Strongly agree                      Agree                      Disagree                      Strongly disagree

19. Sexual intercourse is okay for me before marriage when I am in love  
Strongly agree                      Agree                      Disagree                      Strongly disagree

20. Sexual intercourse is okay for me before marriage if I am engaged to be married  
Strongly agree                      Agree                      Disagree                      Strongly disagree

## 혼전 순결에 대한 자기 효능감

당신에게 가장 적합하다고 생각되는 것에 동그라미를 해주십시오. 이 설문지에는 정답이나 오답이 없습니다.

- 1= 전혀 그렇지 않을 것이라고 생각한다.
- 2= 어느 정도는 그럴 수 있다고 생각한다.
- 3= 매우 그럴 수 있다고 생각한다.
- 4= 절대적으로 그럴 수 있다고 생각한다.

1. 나는 친밀한 스킨십을 나눈 (예: 키스나 포옹) 후, 성관계는 결혼 후 갖고 싶다는 이야기를 할 수 있다.
2. 새롭게 사귄 남자친구(여자친구)에게 성관계를 원하지 않는다는 이야기를 할 수 있다.
3. 나는 성관계를 단호하게 거부할 수 있다.
4. 나는 남자친구(또는 여자친구)가 헤어지겠다고 말한다 할지라도 성관계를 단호하게 거부할 수 있다.
5. 나는 섹스는 결혼 후에 하기를 원하는 (그런 의견을 가진) 친구(들)를 찾을 수 있다.

다음은 당신이 흔히 접할수 있는 상황에 대한 질문입니다. 당신에게 가장 적합하다고 생각되는 것에 X 표시를 해 주십시오. 다음 질문에 대한 정답이나 오답은 없습니다.

6. 사람들을 만나는 여러분만의 (비공식적인) 모임 (예: 크리스마스 파티, 애프터자리, MT)에 있다고 가정해 봅시다. 사람들이 친밀한 신체접촉 (예:키스, 포옹)등을 하고 있고, 당신은 성관계를 하게 될 것 같은 압박감을 가지기 시작했습니다. 당신과 같이 온 친구는 자신이 정말로 좋아하는 어떤 남자(여자)와 이야기를 하고 있습니다. 이런 경우, 당신은 집에 가고 싶다고 말하기 위해 친구의 대화를 방해할 수 있다고 어느 정도 스스로 확신합니까?

- 1=전혀 확신하지 못한다
- 2=어느 정도는 확신한다
- 3=매우 확신한다
- 4=완전히 확신한다

7. 당신이 정말로 좋아하고 있는 상대와 같이 있는 상황을 가정해 봅시다. 상대가 당신과 정말로 성관계를 가지기를 원하고 있을때, 당신은 확실하게 상대에게 NO 라고 말하고 성관계를 피할수 있다고 어느정도 확신합니까?

- 1=전혀 확신하지 못한다
- 2=어느 정도는 확신한다
- 3=매우 확신한다
- 4=완전히 확신한다

## ABSTINENCE OF SELF-EFFICACY

Please put an "X" in the box that is the best answer for you. Remember there is no right or wrong answer.

How to code

1= Not at all sure

2= Somewhat sure

3=very sure

4=Extremely sure

How sure are you that you can:

1. Discuss wanting to wait to have sex after making out (e.g hugging, kissing etc.)
2. Talk to a new boyfriend or girl friend about not wanting to have sex
3. Say "NO" to sex firmly
4. Tell a boyfriend/ girl friend "NO" even if he/she says he/she will break up with you
5. Find a friend who also wants to wait to have sex

The next question is about a situation in which some teens find themselves. Please put an X in the box that is the best answer for you. There is no right or wrong answer

6. Imagine being at a party. People are making out (kissing, hugging, etc.), and you're starting to feel some pressure to have sex. You see the friend that you came with talking with a guy she really likes.....How sure are you that you could interrupt your friend to tell her (him) you want to go home?

1= Not at all sure

2= Somewhat sure

3=very sure

4=Extremely sure

7. Imagine being with someone who you really like. Now this person wants to have sex... How sure are you that you could be persistent in saying NO and avoiding sex?

1= Not at all sure

2= Somewhat sure

3=very sure

4=Extremely sure

만약 당신이 이미 성관계를 가진 적이 있으나 다시는 성관계를 가지고 싶지 않다면, 다음 문항을 대답해 주시기 바랍니다.

8. 나와 이미 성관계를 가진 적이 있었던 사람 (이성친구나 파트너)에게 나는 성관계를 다시는 안하겠다는 이야기를 할 수 있을 것 같다고 확신한다.

1=전혀 확신하지 못한다

2=어느 정도는 확신한다

3=매우 확신한다

4=완전히 확신한다



**Optional Item—Use if you have had intercourse but you have decided to postpone having it again.**

8. Say “NO” to sex when you’re with someone you have already had sex with

1= Not at all sure

2= Somewhat sure

3=very sure

4=Extremely sure

## 혼전 성행동에 대한 주변 사람들의 가치 및 기준에 대한 설문지

다음은 당신의 부모님, 친구, 주변 사람들의 혼전성행동에 관한 가치와 기준을 알아보려는 질문들입니다. 당신은 지금 현재 아래의 행동들을 실제로 하고 있을 수도 있고 그렇지 않을 수도 있을 것입니다만, 만약 당신이 **지금 당신의 나이에서 그런 행동을 했다고** 하면 당신의 부모님이나 친구, 주변 사람들은 어떻게 생각 할 것이라고 생각하는 지에 대해 알기를 원합니다. 가장 적절하다고 생각되는 대답의 번호를 적어주십시오.

1=매우 그럴 수 있다고 생각할 것이다.

2= 그럴 수 있다고 생각할 것이다.

3= 잘 모르겠다.

4= 안된다고 생각할 것이다.

5= 절대 안된다고 생각할 것이다.

1.만약 당신이 윤락녀(남)와 kiss 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

2.만약 당신이 한 두번 데이트한 상대와 kiss 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

3. 만약 당신이 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 kiss 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

4.만약 당신이 사랑하고 있는 상대와 kiss 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

## Referent group Approval of Sexual Behavior

The following questions deal with the values and standards of your parents, friends and people in your culture concerning your sexual behavior. You may or may not be doing the following behaviors listed right now but we want to tell us how your parents, friends, and people in your culture would feel if you did do the behaviors **at your present age**. Please darken the circle that is the appropriate response that best describes their reactions.

### Code to use

1=Would strongly approve

2= Would approve

3=Unsure

4=Would disapprove

5=Would strongly disapprove

1. If you plan to kiss a sexual worker, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

2. If you plan to kiss a boy/ a girl that you've gone out with once or twice, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

3. If you plan to kiss a boy/ a girl that you really like or were going steady with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

4. If you plan to kiss a boy/ a girl that you're in love with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

5. 만약 당신이 결혼을 계획하고 있는 상대와 kiss 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

6. 만약 당신이 윤락녀 (남)와 가벼운 애무 (light petting)를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

7. 만약 당신이 한 두번 데이트한 상대와 가벼운 애무 (light petting)를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

8. 만약 당신이 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 가벼운 애무 (light petting)를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

9. 만약 당신이 사랑하고 있는 상대와 가벼운 애무 (light petting)를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

10. 만약 당신이 결혼을 계획하고 있는 상대와 가벼운 애무 (light petting)를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

5. If you plan to kiss a boy/ a girl that you plan to marry (engaged), what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture
6. If you plan to do light petting with a sexual worker, what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture
7. If you plan to do light petting with a boy/ a girl that you've gone out with once or twice, what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture
8. If you plan to do light petting a boy/ a girl that you really like or were going steady with, what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture
9. If you plan to do light petting a boy/ a girl that you're in love with, what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture
10. If you plan to do light petting a boy/ a girl that you plan to marry (engaged), what reaction would you expect from the following if they knew about it?
- your mother
  - your father
  - your friends
  - people in your culture

11. 만약 당신이 윤락녀(남)와 진한 애무 (heavy petting)을 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

12. 만약 당신이 한 두번 데이트한 상대와 진한 애무 (heavy petting)을 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

13. 만약 당신이 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 진한 애무 (heavy petting)을 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

14. 만약 당신이 사랑하고 있는 상대와 진한 애무 (heavy petting)을 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

15. 만약 당신이 결혼을 계획하고 있는 상대와 진한 애무 (heavy petting)을 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

16. 만약 당신이 윤락녀(남)와 성관계를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

11. If you plan to do heavy petting a sexual worker, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

12. If you plan to do heavy petting a boy/ a girl that you've gone out with once or twice, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

13. If you plan to do heavy petting a boy/ a girl that you really like or were going steady with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

14. If you plan to do heavy petting a boy/ a girl that you're in love with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

15. If you plan to do heavy petting a boy/ a girl that you plan to marry (engaged), what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

16. If you plan to have sexual intercourse, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

17. 만약 당신이 한 두번 데이트한 상대와 성관계를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

18. 만약 당신이 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 성관계를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

19. 만약 당신이 사랑하고 있는 상대와 성관계를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들

20. 만약 당신이 결혼을 계획하고 있는 상대와 성관계를 하려고 한다는 것을 다음의 사람들이 알게 된다면, 어떤 반응을 보일 것이라고 생각하십니까?

- a. 당신의 어머니
- b. 당신의 아버지
- c. 당신의 친구들
- d. 주변 사람들



17. If you plan to have sexual intercourse a boy/ a girl that you've gone out with once or twice, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

18. If you plan to have sexual intercourse a boy/ a girl that you really like or were going steady with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

19. If you plan to have sexual intercourse a boy/ a girl that you're in love with, what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

20. If you plan to have sexual intercourse a boy/ a girl that you plan to marry (engaged), what reaction would you expect from the following if they knew about it?

- a. your mother
- b. your father
- c. your friends
- d. people in your culture

## **Condom Attitude Scale**

How to code

Strongly disagree =1

Disagree =2

Unsure=3

Agree=4

Strongly agree=5

Reverse coding items: 1,2,3,4,5,8,9,10,11,12,13,15

### 콘돔 사용에 대한 태도 설문지

성 경험과 무관하게 콘돔 사용과 관련하여 평소 각 문항에 대해 어떻게 생각하시는지 해당란에 표시하여 주십시오					
	전혀 그렇지 않다.	그렇지 않다.	보통이다.	그렇다.	매우 그렇다
1. 콘돔을 사용하면 자연스러운 성교가 방해된다.					
2. 콘돔을 사용하면 성감이 둔화된다					
3. 콘돔을 사용하면 전희, 애무 과정에 맥이 끊긴다.					
4. 콘돔을 사용하면 정서적 친밀감이 방해된다.					
5. 콘돔을 사용하면 신체적으로 불편하다					
6. 내 (파트너)가 콘돔을 사용하면 속스러울 것이다.					
7. 콘돔을 준비하는 것에 대해 거부감이 있다.					
8. 둘 사이에 콘돔을 사용하는 것 자체가 싫다.					
9. 콘돔을 사용하는 것은 번거로운 일이다.					
10. 콘돔을 지니고 다니면 난잡하게 여겨진다.					
11, 콘돔 사용은 서로가 정숙하지 못함을 의미한다.					
12. 콘돔을 사용하거나 사용하라고 권하면 상대방이 나를 난잡하다고 볼 것 같다.					
13. 콘돔 사용은 상대방을 배려하는 행위이다.					
14, 콘돔사용은 자신을 보호하는 행위이다.					
15. 콘돔은 경구 피임약과 같은 부작용이 없어서 좋다.					
16. 콘돔은 사용하기가 좋다.					

### Condom Attitude Scale

Regardless of your sexual activities, please indicate what you think about the use of condoms in the following questions.

	Strongly Disagree	Disagree	unsure	Agree	Strongly Agree
1. Using a condom gets in the way of having natural sex.					
2. Using a condom reduces sexual pleasure.					
3. Using a condom makes the process of sex abrupt.					
4. Using a condom reduces emotional intimacy.					
5. Using a condom is physically uncomfortable.					
6. Using a condom can be embarrassing.					
7. I do not like preparing a condom.					
8. My partner and I don't like using condoms.					
9. Using a condom is inconvenient.					
10. Using a condom makes you feel sexually promiscuous.					
11, Using a condom means both partners are less chaste.					
12. Using a condom or asking the partner to use a condom would make me look sexually promiscuous.					
13. Using a condom is showing concerns for your partner.					
14, Using a condom is an act of protecting yourself.					
15. Using a condom is good because it doesn't have any side effects like other contraceptives do.					
16. Using a condom is easy to use.					

## 콘돔 사용에 대한 자기 효능감

당신이 아래의 상황들에 있을때 얼마나 그 일들을 할 수 있을 지에 대해서 해당하는 번호를 선택하여 적어 주십시오. 만약, 당신이 아래 상황에 대해 **전혀 그렇지 못할것 같다**고 생각할때는 **0** 번을 적어하시고, **그렇지 못할것 같다**고 생각할때는 1 번을, **약간은 그럴것 같다**고 생각할때는 2 번을, **그럴것 같다**고 생각할때는 3 번을, **매우 그럴것 같다**는 4 번을 적어주시기 바랍니다. 다음 문항들에 대한 정답이나 오답은 없습니다.

1. 나는 콘돔이 필요할 때 구입할 수 있을 것 같다.
2. 나는 콘돔이 필요할 때 가지고 다닐 수 있을 것 같다.
3. 파트너와 섹스를 할 때마다 나는 매번 콘돔을 사용할 수 있을 것 같다.
4. 내 파트너랑 섹스를 할 때마다 나는 매번 **새로운** 콘돔을 사용할 수 있을 것 같다.
5. 나 또는 내 파트너가 콘돔을 착용하도록 하기 위해 나는 멈출 수 있을 것 같다.
6. 나 (또는 내 파트너)는 콘돔을 페니스 끝까지 완전히 씌울 수 있을 것 같다.
7. 나 (또는 내 파트너)는 콘돔이 미끄러져 벗겨지지 않게 사용할 수 있을 것 같다..
8. 나 (또는 내 파트너)는 사용한 콘돔을 쓰레기통에 버릴 수 있을 것 같다.
9. 나 (또는 내 파트너)는 섹스가 끝난 후 페니스를 빼는 동안 콘돔이 페니스 끝에 원래대로 씌워져 있게 할 수 있을 것 같다.
10. 나 (또는 내 파트너)는 음주 (맥주, 포도주 혹은 그 이외의 술)를 했을 때라도 콘돔을 사용할 수 있을 것 같다.
11. 나는 어떤 섹스 파트너와도 콘돔 사용에 대해 이야기 할 수 있을 것 같다.
12. 나의 파트너가 콘돔 사용에 대해 어떤 감정을 가지고 있는지 확실치 않을 때라도, 나는 콘돔 사용에 대해 이야기 할 수 있을 것 같다.
13. 포옹이나 키스 등을 아직 하지 않은 단계라도, 나는 앞으로 섹스를 할 수도 있는 상대와 콘돔 사용에 대해 이야기 할 수 있을 것 같다
14. 섹스 할 때, 나는 파트너에게 콘돔을 사용하도록 이야기 할 수 있을 것 같다.
15. 만약 상대가 콘돔 사용을 거부할 경우, 나는 섹스를 하지 않겠다고 이야기 할 수 있을 것 같다.

## Condom Self-Efficacy Scale

Circle the number shows how sure are you could do the following things.

How to code

0= Very unsure

2=Somewhat Sure

4=Very Sure

1= Unsure

3=Sure

### **I feel sure that:**

1. I could purchase a condom in case I need one.
2. I could carry a condom with me in case I need one
3. I could use a condom each time I and my partner had sex
4. I could use a new condom each time my partner and I had sex
5. I could stop to put a condom on myself or my partner
6. I or my partner could unroll a condom all the way to the base of the penis
7. I could use a condom without it slipping
8. I or my partner could get rid of a condom in the garbage after sex
9. I or my partner could hold the condom at the base of the penis while withdrawing after sex
10. I could use a condom if drinking beer, wine or other liquor.
11. I could talk about using condom with any sexual partner
12. I could talk about using a condom if I were unsure of my partner's feelings about condoms.
13. I could talk about using condoms with a potential sexual partner before we started to hug and kiss
14. I could talk a partner into using a condom when we have sex
15. I could say no to sex if my partner refused to use a condom

콘돔 사용에 대한 주변사람들의 가치 및 기준에 대한 설문지

다음 중 가장 당신의 느낌과 가깝다고 생각되는 쪽에 표시를 해 주십시오.	매우 그렇다	그렇다.	그렇지 않다.	전혀 그렇지 않다.	잘 모르겠다.
1. 내 친구 중 대부분은 내 나이 또래의 사람이 섹스를 할 경우 언제나 콘돔을 사용해야 한다고 믿는다.					
2. 내 친구 중 대부분은 만약 내 나이 또래의 사람이 섹스를 할 경우, 여자쪽이 피임약을 복용하고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿는다.					
3. 내 친구 중 대부분은 만약 내 나이 또래의 사람이 섹스를 할 경우, 두 사람이 모두 서로에 대해 매우 잘 알고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿는다.					
4. 우리 어머니는 내 나이 또래의 사람이 섹스를 할 경우 언제나 콘돔을 사용해야 한다고 믿으신다					
5. 우리 어머니는 내 나이 또래의 사람이 섹스를 할 경우, 여자쪽이 피임약을 복용하고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿으신다.					
6. 우리 어머니는 만약 내 나이 또래의 사람이 섹스를 할 경우, 두 사람이 모두 서로에 대해 매우 잘 알고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿으신다.					
7. 우리 아버지는 만약 내 나이 또래의 사람이 섹스를 할 경우 언제나 콘돔을 사용해야 한다고 믿으신다.					
8. 우리 아버지는 만약 내 나이 또래의 사람이 섹스를 할 경우, 여자쪽이 피임약을 복용하고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿으신다.					
9. 우리 아버지는 만약 내 나이 또래의 사람이 섹스를 할 경우, 두 사람이 모두 서로에 대해 매우 잘 알고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿으신다.					
10. 내 파트너는 우리 나이 또래의 사람이 섹스를 할 경우 언제나 콘돔을 사용해야 한다고 믿는다					
11. 내 파트너는 우리 나이 또래의 사람이 섹스를 할 경우, 여자쪽이 피임약을 복용하고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿는다.					
12. 내 파트너는 우리 나이 또래의 사람이 섹스를 할 경우, 두 사람이 모두 서로에 대해 매우 잘 알고 있다 하더라도 언제나 콘돔을 사용해야 한다고 믿는다.					

### Referent group norms of condom use

Please fill in the answer for each question that best describes how you <i>feel</i>	Definitely yes	Probably yes	Probably no	Definitely no	Unsur e
1. Most of my friends believe condoms should always be used if a person my age has sex					
2. Most of my friends believe condoms should always be used if a person my age has sex, <i>even if the girl uses birth control pills</i>					
3. Most of my friends believe condoms should always be used if a person my age has sex, even if the two people know each other very well					
4. My mother believes condoms should always be used if a person my age has sex					
5. My mother believes condoms should always be used if a person my age has sex, <i>even if the girl uses birth control pills</i>					
6. My mother believes condoms should always be used if a person my age has sex, even if the two people know each other very well					
7. My father believes condoms should always be used if a person my age has sex					
8. My father believes condoms should always be used if a person my age has sex, <i>even if the girl uses birth control pills</i>					
9. My father believes condoms should always be used if a person my age has sex, even if the two people know each other very well					
10. My partner believes condoms should always be used if a person my age has sex					
11. My partner believes condoms should always be used if a person my age has sex, <i>even if the girl uses birth control pills</i>					
12. My partner believes condoms should always be used if a person my age has sex, even if the two people know each other very well					



## 혼전 성행동에 대한 의도

다음은 당신이 특정한 성행동을 할 의도가 있는 지에 대한 질문들입니다. 당신은 다음의 행동을 현재 실제로 하고 있을 수도 있고, 그렇지 않을 수도 있을 것입니다만, 우리는 당신이 지금의 당신 나이에서 다음의 행동을 할 의도가 있는 지를 알고 싶습니다. 해당 칸에 동그라미로 마크해 주십시오.

1. 나는 윤락녀(남)와 결혼전에 키스 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
2. 나는 한 두번 데이트한 상대라면 결혼전이라도 키스할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
3. 나는 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대라면 결혼전이라도 키스할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
4. 나는 사랑하고 있는 상대라면 결혼전이라도 키스할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
5. 나는 약혼상대라면 결혼전이라도 키스를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
6. 나는 윤락녀(남)와 결혼전에 가벼운 애무 (light petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
7. 나는 한 두번 데이트한 상대라면 결혼전이라도 가벼운 애무 (light petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
8. 나는 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대라면 결혼전이라도 가벼운 애무 (light petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
9. 나는 사랑하고 있는 상대라면 결혼전이라도 가벼운 애무 (light petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
10. 나는 약혼상대라면 결혼전이라도 가벼운 애무 (light petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.
11. 나는 결혼전에 윤락녀(남)와 진한 애무 (heavy petting)를 할 의사가 있다.  
매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

## INTENTION TO PERFORM SEXUAL BEHAVIOR SCALE

In the following questions we are interested in your intention to do a certain behavior. You may or may not be doing the following behaviors listed right now but we are interested in your intention about doing the following behaviors at **your present age**. Please darken the circle to indicate the degree of agreement or disagreement that you have with each of the statement below.

1. I plan to kiss before marriage with a sex worker  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
- 2 I plan to kiss before marriage when I've gone out once or twice with my boyfriend/ girlfriend  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
3. I plan to kiss before marriage when I really like my boyfriend/girlfriend or am going steady  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
4. I plan to kiss before marriage when I am in love  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
5. I plan to kiss before marriage if I am engaged to be married  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
6. I plan to do light petting before marriage with a sex worker  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
7. I plan to do light petting before marriage when I've gone out once or twice with my boyfriend/ girlfriend  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
8. I plan to do light petting before marriage I really like my boyfriend / girlfriend or am going steady  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
9. I plan to do light petting before marriage when I am in love  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
10. I plan to do light petting before marriage if I am engaged to be married  
 Strongly agree                      Agree                      Disagree                      Strongly disagree
11. I plan to do heavy petting before marriage with a sex worker  
 Strongly agree                      Agree                      Disagree                      Strongly disagree

12. 나는 한 두번 데이트한 상대라면 결혼전에 진한 애무 (heavy petting)를 할 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

13. 나는 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대라면 결혼전에 진한 애무 (heavy petting)를 할 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

14. 나는 사랑하고 있는 상대라면 결혼전에 진한 애무 (heavy petting)를 할 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

15. 나는 약혼상대라면 결혼전에 진한 애무 (heavy petting)를 할 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

16. 나는 윤락녀(남)와 결혼전에 성관계를 가질 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

17. 나는 한 두번 데이트한 상대라면 결혼전에 성관계를 가질 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

18. 나는 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대라면 결혼전에 성관계를 가질 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

19. 나는 사랑하고 있는 상대라면 결혼전에 성관계를 가질 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

20. 나는 약혼상대라면 결혼전에 성관계를 가질 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

21. 나는 윤락녀(남)와 결혼전에 성관계를 가질 경우 콘돔을 사용할 (또는 콘돔 사용을 요구할) 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

22. 나는 한 두번 데이트한 상대와 결혼전에 성관계를 가질 경우 콘돔을 사용할 (또는 콘돔 사용을 요구할) 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

23. 나는 정말로 좋아하고 있는 상대 또는 지속적으로 데이트를 하고 있는 상대와 결혼전에 성관계를 가질 경우 콘돔을 사용할 (또는 콘돔 사용을 요구할) 의사가 있다.

매우 그렇다.    그렇다            그렇지 않다.    절대 그렇지 않다.

12. I plan to do heavy petting before marriage when I've gone out once or twice with my boyfriend/ girlfriend

Strongly agree                      Agree                      Disagree                      Strongly disagree

13. I plan to do heavy petting before marriage when I really like my boyfriend/ girlfriend or am going steady

Strongly agree                      Agree                      Disagree                      Strongly disagree

14. I plan to do heavy petting before marriage when I am in love

Strongly agree                      Agree                      Disagree                      Strongly disagree

15. I plan to do heavy petting before marriage if I am engaged to be married

Strongly agree                      Agree                      Disagree                      Strongly disagree

16. I plan to have sexual intercourse before marriage with a sex worker

Strongly agree                      Agree                      Disagree                      Strongly disagree

17. I plan to have sexual intercourse before marriage when I've gone out once or twice with my boyfriend/ girlfriend

Strongly agree                      Agree                      Disagree                      Strongly disagree

18. I plan to have sexual intercourse before marriage when I really like my boyfriend/ girlfriend or am going steady

Strongly agree                      Agree                      Disagree                      Strongly disagree

19. I plan to have sexual intercourse before marriage when I am in love

Strongly agree                      Agree                      Disagree                      Strongly disagree

20. I plan to have sexual intercourse before marriage if I am engaged to be married

Strongly agree                      Agree                      Disagree                      Strongly disagree

21. I plan to use a condom before marriage when I have a sexual intercourse with a sex worker

Strongly agree                      Agree                      Disagree                      Strongly disagree

22. I plan to use a condom before marriage when I have a sexual intercourse with my boyfriend /girl friend I've gone out once or twice

Strongly agree                      Agree                      Disagree                      Strongly disagree

23. I plan to use a condom before marriage when I have a sexual intercourse with my boyfriend /girl friend I really like or going steady

Strongly agree                      Agree                      Disagree                      Strongly disagree

24. 나는 사랑하고 있는 상대와 결혼전에 성관계를 가질 경우 콘돔을 사용할 (또는 콘돔 사용을 요구할) 의사가 있다.

매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.

25. 나는 약혼상대와 결혼전에 성관계를 가질 경우 콘돔을 사용할 (또는 콘돔 사용을 요구할) 의사가 있다.

매우 그렇다.    그렇다                    그렇지 않다.    절대 그렇지 않다.

24. I plan to use a condom before marriage when I have a sexual intercourse with a person in love

Strongly agree                      Agree                      Disagree                      Strongly disagree

25. I plan to use a condom before marriage when I have a sexual intercourse with my fiancé/ fiancée

Strongly agree                      Agree                      Disagree                      Strongly disagree

## Feedback 설문지

1. 모든 설문지를 대답하시는데 시간이 얼마나 걸렸습니까? \_\_\_\_\_
2. 당신의 입장에서 윤락녀(남)과 한 두번 데이트 한 상대는 어떤식으로 해석되어졌습니까?
3. 다음의 두질문은 두개의 다른 설문지에 서술되어졌던 질문들입니다. (“상대가 윤락녀(남)라면 결혼전에 kiss 하는 것은 괜찮다고 생각한다” 와 “나는 결혼전에 윤락녀(남)와 키스 할 의사가 있다”). 당신의 입장에서 이 질문은 어떤식으로 해석되어졌습니까?
  - a. 같은 질문이다.
  - b. 다른 질문이다 (어떻게 다르게 느껴졌습니까? \_\_\_\_\_)
4. 모든 설문지에 당신은 정직하게 대답하셨습니까?
5. 다음 연구를 위해 개선되어야 하는 점은 무엇이라고 생각하십니까?

## **PARTICIPANT FEEDBACK**

1. How long did all instruments take to complete? \_\_\_\_\_
  
2. How did you identify the difference between “sexual worker” and “a boy/ a girl that you’ve gone out with once or twice”?
  
3. Did you identify the differences between the attitude scale and intention scale?
  - a. No, it seems to be same questionnaire
  - b. .Yes, it is different scales
  
4. Did you answer honestly?
  - a. Absolutely yes
  - b. Yes
  - c. No
  - d. Absolutely no
  
5. Any suggestions? What would you change? What would make it easier?



## **APPENDIX B. PERMISSION TO USE INSTRUMENTS**



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2004

**Permission to Use Parent-Adolescent Communication Scale**



I am pleased to give you permission to use the **Parent-Adolescent Communication Scale** in your research project, teaching or clinical work with couples or families. You may either duplicate the materials directly or have them retyped for use in a new format. If they are retyped, acknowledgement should be given regarding the name of the instrument, the developers' names, and Life Innovations.

In exchange for providing this permission, we would appreciate a copy of any papers, theses or reports that you complete using the **Parent-Adolescent Communication Scale**. This will help us to stay abreast of the most recent developments and research regarding this scale. We thank you for your cooperation in this effort.

In closing, I hope you find the **Parent-Adolescent Communication Scale** of value in your work with couples and families. I would appreciate hearing from you as you make use of this inventory.

Sincerely,

David H. Olson, Ph.D.

제목:	 RE: permission for parent- adolescent communication scale
날짜:	Wed, 7 Jul 2004 13:57:39 -0500
발신:	"Jana Hamann" <janah@lifeinnovations.com>  <a href="#">주소록에 추가</a>
수신:	"Eunseok Cha" <juliecha71@yahoo.com>

Dear Julie,


Thank you for your interest in the Parent-Adolescent Communications Scale. We do not currently have a Korean version of this scale however, please view the attached document for the Translation Guidelines.

You are welcome to change the parent-adolescent communication scale to reflect the father-adolescent & mother-adolescent communication.

I've attached an order form with which you can purchase the scale. You will only need to purchase 1 copy of the Parent-Adolescent Communication Scale -- with the scale you will receive an abstract form which you can fill out and return to us for full permission to use the scale as many times as needed.

I hope this answers your questions. Please see the attached order form for all purchasing information! And feel free to let me know if you have any further questions!

Sincerely,  
 Jana Hamann  
 Life Innovations, Inc.  
 1-800-331-1661  
[janah@lifeinnovations.com](mailto:janah@lifeinnovations.com)  
[www.lifeinnovations.com](http://www.lifeinnovations.com)

파일:	
 <b>Translation Guidelines.doc</b> (21k)	<a href="#">내 컴퓨터에 저장</a> - <a href="#">내 야후! 서류가방에 저장</a>
 <b>FIP Order Form.doc</b> (67k)	<a href="#">내 컴퓨터에 저장</a> - <a href="#">내 야후! 서류가방에 저장</a>

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**Subject:** Re: permission for your instruments  
**From:** "Dominique Treboux" <dtreboux@cbcli.com>  
**Date:** Fri, August 29, 2003 5:22 am  
**To:** euc6@pitt.edu  
**Priority:** Normal  
**Options:** [View Full Header](#) | [View Printable Version](#)

Hi,

you are welcome. good luck

Dominique Treboux, Ph.D.

----- Original Message -----

From: <euc6@pitt.edu>  
To: <dtreboux@cbcli.com>  
Sent: Thursday, August 28, 2003 11:25 AM  
Subject: RE: permission for your instruments

Thank you much for sending me email and sharing information. I would like to measure whether Korean college students want to engage in premarital sex and to use condom if they are sexually active. Thus, I don't think a lack of variability in sexual attitude is a major problem in my study.

BTW, have you ever seen a content validity and a construct validity of those instruments?

Anyhow, thank you so much for giving me permission.

With regards,

Eunseok

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Move to:

**Subject:** Re: I am interested in sexual abstinence self-efficacy scale  
**From:** "Anne Norris" <norrisa@bc.edu>  
**Date:** Wed, September 17, 2003 6:32 pm  
**To:** "cha eun seek" <euc6@pitt.edu>  
**Priority:** Normal  
**Options:** [View Full Header](#) | [View Printable Version](#)

Julie,

I am sorry that I could not respond sooner, but I have been busy with teaching and administrative responsibilities these past few days.

I am interested in cross cultural measurement (and teach about it in a doctoral measurement class). So I would enjoy being a resource for you in your work. Plus you're using my scale. If you think the items will work equally well with Korean adolescents, please let me know. You have my permission to use this scale as long as you credit me as the source of the original instrument. I would appreciate hearing how you had to change it if you did for your population.

The response options used here reflect my work with Latino youth. They did not like the word "confidence." Also, there was not a good midpoint in Spanish that was equivalent to the English version (the word choices were too similar in Spanish and people felt there was no difference between them). Hence the response options were modified from 5 to 4.

Here are the items:

Please put an "X" in the box that is the best answer for you. Remember there is no right or wrong answer.

How sure are you that you can:

NOT AT ALL SURE      SOMEWHAT SURE      VERY SURE      EXTREMELY SURE

OPTIONAL ITEM -- USE IF RESPONDENT HAS HAD INTERCOURSE BUT HAS DECIDED TO POST-PONE HAVING IT AGAIN. Say "No" to sex when you're with someone you have already had sex with.

THE SEVEN ITEM SCALE DESCRIBED IN ARTICLE:

Discuss wanting to wait to have sex after making out (e.g., hugging, kissing, etc.)

Talk to a new boyfriend about not wanting to have sex.

Say "NO" to sex firmly.

Tell a boyfriend "NO" even if he says he will break up with you.

Find a friend who also wants to wait to have sex.

This next question is about a situation in which some teens find themselves. Please put an "X" in the box that is the best answer for you. There is no right or wrong answer.

NOT AT ALL SURE      SOMEWHAT SURE      VERY SURE      EXTREMELY SURE  
Imagine being at a party. People are making out (kissing, hugging, etc.),  
and you're starting to feel some pressure to have sex. You see the friend  
that you came with talking with a guy she really likes.... How sure are you  
that you could interrupt your friend to tell her you want to go home?

Imagine being with someone who you really like. Now this person wants to  
have sex.... How sure are you that you could be persistent in saying NO and  
avoiding sex?

On 9/17/03 9:27 AM, "cha eun seok" <euc6+@pitt.edu> wrote:

> Dr. Norris,  
>  
> BTW, did you get my mail about a back translation? Yes, I will do a  
> Back-translation with independent translators.  
>  
> Thanks  
> Julie  
>  
>

## Permission to use the college students' condom attitude scale

Dear Eunseok Cha

You have permission to use the college students' condom attitude scale for your dissertation under the following conditions. Do not alter the scale in any way.

And send me a brief description of your study by email to [goodcare@cau.ac.kr](mailto:goodcare@cau.ac.kr).

You are very welcome to email me at the above address with any questions.

I wish you the best in your research, and look forward to hearing about your results.

Hee Sun Kang

Assistant Professor

Department of Nursing, College of Medicine

Chung-Ang University, Seoul, Korea

Sep 29, 2003

Current Folder: **dissertation**

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**Subject:** RE: regarding condom self-efficacy scale  
**From:** "Hanna, Kathleen M." <kathanna@iupui.edu>  
**Date:** Wed, September 24, 2003 11:51 am  
**To:** "cha eun seok" <euc6@pitt.edu>  
**Priority:** Normal  
**Options:** [View Full Header](#) | [View Printable Version](#)

Julie, yes, you reached the author of the instrument. You have my permission to use my condom self-efficacy scale and to modify it as you described. I do not have a Korean version. I ask that you provide me an abstract of the study when it is completed (I am especially interested in the reliability with your sample). I am attaching the scale. Kathy Hanna

P.S. I earned my doctorate at the University of Pittsburgh (School of Nursing).

-----Original Message-----

From: cha eun seok [mailto:euc6@pitt.edu]  
Sent: Wednesday, September 24, 2003 9:56 AM  
To: Hanna, Kathleen M.  
Subject: regarding condom self-efficacy scale

Dear Dr. Hanna,

Hi, my name is Eunseok(Julie) Cha and I am attending the university of Pittsburgh school of nursing. In fact, I would like to get a permission

for using condom self-efficacy scale, but I'm not sure whether you're a developer of the scale. Actually, the author was in the school of nursing university of Wyoming, but she is not there anymore.

Thus, I just assume that you might be the person, because you have similar research topic.

If you're the author of the instrument, I would like to get a permission for modifying the instrument: I want to add an item ( I could purchase a condom when I need one), because to buy condom, in itself, might be an embarrassing experience in Korea. I need the instrument for my pilot study, so it does not work, I'll delete the item in my dissertation. In addition, I wonder whether there is Korean version scale : if you don't have one, I would like to translate and back-translate the scale

I am looking forward your response.

Thanks,  
julie



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**Attachments:**

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CONDOM.doc](#)

32 k

[ application/msword ]

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**Subject:** RE: Permissions  
**From:** "Clifford, Anna" <Anna.Clifford@sagepub.com>  
**Date:** Thu, April 21, 2005 1:54 pm  
**To:** euc6@pitt.edu  
**Priority:** Normal  
**Options:** [View Full Header](#) | [View Printable Version](#)

Dear Eunseok Cha,

Please consider this written permission to use the material detailed below for your dissertation. I am waiving the rush fee. I wish you the best of luck!

Please let me know if you need anything further.

Sincerely,

Anna Clifford  
Permissions & Translations Administrator  
Sage Publications  
2455 Teller Road  
Thousand Oaks, CA 91320  
805-499-0721, ext. 7713  
805-376-9562 fax  
anna.clifford@sagepub.com

-----Original Message-----

From: euc6@pitt.edu [mailto:euc6@pitt.edu]  
Sent: Thursday, April 21, 2005 6:24 AM  
To: permissions  
Subject: Permissions

Email: euc6@pitt.edu

-----

Name: Eunseok Cha  
Affiliation: University of Pittsburgh  
Address: 4733 Centre Ave #3L  
City: Pittsburgh  
State: PA USA  
Zip: 15213  
Phone: 1-412-683-3649  
Reference Code:  
Title\_of\_publication: Handbook of sexuality-related measures  
Type\_of\_publication: Book  
Type\_of\_Pub\_Other:  
Isbn\_issn: 0-8036-7111-7  
Pub Date: 1998  
Volume\_Issue:  
Title\_of\_Material: Student health questionnaire  
  
Authors\_of\_Material: Basen-Engquist, et al.,  
Portion\_of\_material: 1 page  
Page\_Range: 543 (NCU1-NCU3)

Type\_of\_use: make photocopies  
Type\_of\_use\_Other:  
Purpose\_of\_use: Academic  
Distribution\_qty: 500  
Title\_of\_your\_publication:  
Requestor\_type\_of\_publication:  
Author\_Editor\_your\_publication:  
your\_publisher\_distributor:  
Estimated\_pub\_date:  
Entire Publication:  
Other\_Use\_of\_Material:  
Comments: I contacted the author to get the permission for using and  
Modifying the scale last year via a phone. The original scale only asked  
adolescents about their peers' norms of condom use, but I wanted to add  
the items regarding the norms of mothers, fathers, and sex partner. At that time, she  
gave me a permission to use and modify the scale for my dissertation. However, my  
professor concerns about the copyrights which may be transferred to you. Thus, I would  
like to get your permission for my dissertation as soon as possible. I am wondering  
whether I have to pay the rush fee.

Regards,  
Eunseok Cha  
Yes\_Agree\_To\_Rush: on



# University of Pittsburgh

*School of Nursing*

3500 Victoria Street  
Pittsburgh, PA 15261  
Fax: 412-624-2401  
www.nursing.pitt.edu

May 11, 2004

Margaret Rosenzweig  
University of Pittsburgh  
School of Nursing  
Department of Acute and Tertiary Care  
329A Victoria Building  
Pittsburgh, PA 15261

To Whom It May Concern:

I am very happy to support the application of doctoral student, Julie Cha, for a Sigma Theta Tau research award. As her doctoral advisor and dissertation committee chair, I have been intimately acquainted with her proposed research study. I have also known her as her supervisor as she worked on my research project as a graduate student researcher. She is utilizing one of my instruments in her study which she is adapting to meet the needs of her study. Ms. Cha is an excellent student as evidenced by her academic record. She is a student who achieves her goals by staying focused and studying her material thoroughly.

Sincerely,

Willa M. Doswell, RN, PhD, FAAN  
Associate Professor  
Department of Health Promotion and Development

*Celebrating a Tradition of Academic Excellence in 2004*  
*School of Nursing 65th Anniversary~Master's Program 60th Anniversary~Doctoral Program 50th Anniversary*

**APPENDIX C. PERMISSION LETTERS & IRB APPROVAL**

October 23, 2003  
Christopher M. Ryan, Ph.D.  
Vice Chair, Exempt and Expedited Reviews  
Institutional Review Board  
University of Pittsburgh  
Pittsburgh, PA, 15217  
U.S.A

Dear Dr. Ryan:

As a Dean of Student Affairs of a University, I am willing to be an advocate for students who agree to participate in this pilot study by protecting the human right. Furthermore, I give Ms. Eunseok Cha permission to conduct her pilot study at the Chung-Ang University.

Sincerely,



Yong Kyu Lee  
Dean of Student Affairs  
Chung-Ang University



# University of Pittsburgh

*School of Nursing*

3500 Victoria Street  
Pittsburgh, PA 15261  
Fax: 412-624-2401  
www.nursing.pitt.edu

## PROPOSAL REVIEW VERIFICATION FORM

---

The attached proposal,

**TITLE:** A Pilot Study to Assess the Psychometric Properties of Study Instruments Translated from English to Korean

**PRINCIPAL INVESTIGATOR:** Eunseok (Julie) Cha (Doctoral Student)

has been reviewed for scientific merit and is approved for submission to the University of Pittsburgh Institutional Review Board.

*Susan M. Sereika*

Susan M. Sereika, PhD  
Interim Director, Center for Nursing Research

*11/13/2003*  
Date

*Celebrating a Tradition of Academic Excellence in 2004  
School of Nursing 65th Anniversary~Master's Program 60th Anniversary~Doctoral Program 50th Anniversary*





**University of Pittsburgh**  
***Institutional Review Board***

Exempt and Expedited Reviews  
Christopher M. Ryan, Ph.D., Vice Chair

3500 Fifth Avenue  
Suite 105  
Pittsburgh, PA 15213  
Phone: 412.578.3424  
Fax: 412.578.8566  
e-mail: irbexempt@msx.upmc.edu

TO: Eunseok Cha

FROM: Christopher M. Ryan, Ph.D., Vice Chair *Chris*

DATE: November 26, 2003

PROTOCOL: A Pilot Study to Assess the Psychometric Properties of Study Instruments  
Translated from English to Korean

IRB Number: 0311077

The above-referenced protocol has been reviewed by the University of Pittsburgh Institutional Review Board. This protocol meets all the necessary requirements and is hereby designated as "exempt" under section 45 CFR 46.101(b)(2). Exempt protocols must be re-reviewed every three years. If you wish to continue the research after that time, a new application must be submitted.

- If any modifications are made to this project, please submit an 'exempt modification' form to the IRB.
- Please advise the IRB when your project has been completed so that it may be officially terminated in the IRB database.
- This research study may be audited by the University of Pittsburgh Research Conduct and Compliance Office.

**Approval Date:** November 26, 2003

**Renewal Date:** November 26, 2006

CR:sn

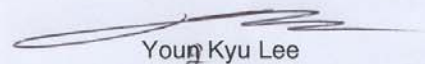


July 12, 2004  
Christopher M. Ryan, Ph.D.  
Vice Chair, Exempt and Expedited Reviews  
Institutional Review Board  
University of Pittsburgh  
Pittsburgh, PA, 15217  
U.S.A

Dear Dr. Ryan:

As a Dean of Student Affairs of a university, I am willing to be an advocate for students who agree to participate in the study of "Predictors of Sexual behavior among Korean College students by protecting the human right. Furthermore, I give Ms. Eunseok Cha permission to conduct her study at the Chung-Ang University.

Sincerely,

  
Young Kyu Lee  
Dean of Student Affairs  
Chung-Ang University

ulie cha. 1-412-624-3827.



University of Pittsburgh

*School of Nursing*

Center for Research and Evaluation  
360 Victoria Building  
3500 Victoria Street  
Pittsburgh, PA 15261  
412-624-4854  
Fax: 412-624-1201  
<http://cre.nursing.pitt.edu/>

## PROPOSAL REVIEW VERIFICATION FORM

---

The attached proposal,

**TITLE: Predictors of Sexual Behavior Among Korean College Students:  
Testing the Theory of Planned Behavior**

**PRINCIPAL INVESTIGATOR: Eun-Seok Cha**

has been reviewed for scientific merit and is approved for submission to the University of Pittsburgh Institutional Review Board.

Susan M. Sereika  
Susan M. Sereika, PhD  
Director, Center for Research and Evaluation

8/4/2004  
Date



**University of Pittsburgh**  
***Institutional Review Board***

Exempt and Expedited Reviews  
Christopher M. Ryan, Ph.D., Vice Chair

3500 Fifth Avenue  
Suite 105  
Pittsburgh, PA 15213  
Phone: 412.383.1480  
Fax: 412.383.1146  
e-mail: irbexempt@msx.upmc.edu

TO: Eunseok Cha

FROM: Christopher M. Ryan, Ph.D., Vice Chair *Chris*

DATE: August 23, 2004

PROTOCOL: Predictors of Sexual Behavior Among Korean College Students: Testing the Theory of Planned Behavior

IRB Number: 0408053

The above-referenced protocol has been reviewed by the University of Pittsburgh Institutional Review Board. Based on the information provided in the IRB protocol, this project meets all the necessary criteria for an exemption, and is hereby designated as "exempt" under section 45 CFR 46.101(b)(2).

The regulations of the University of Pittsburgh IRB require that exempt protocols be re-reviewed every three years. If you wish to continue the research after that time, a new application must be submitted.

- If any modifications are made to this project, please submit an 'exempt modification' form to the IRB.
- Please advise the IRB when your project has been completed so that it may be officially terminated in the IRB database.
- This research study may be audited by the University of Pittsburgh Research Conduct and Compliance Office.

**Approval Date:** August 23, 2004

**Renewal Date:** August 23, 2007

CR:ky

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